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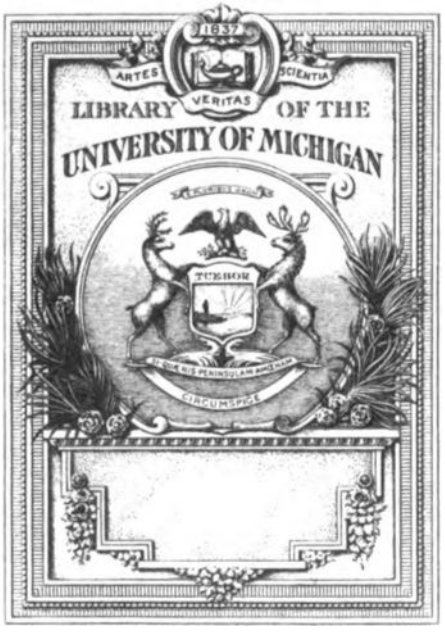

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THIS (THE EIGHTY-EIGHTH) VOLUME OF "THE GARDEN"

IS DEDICATED, BY PERMISSION, TO

GEORGE FORREST, V.M.H.

MR. GEORGE FORREST, who was born in 1873 at Falkirk in Scotland, is so well known as a plant collector in China and Tibet that he requires no introduction to readers of THE GARDEN. In early youth he spent some years in Australia and South Africa, and it was not until 1903 that he considered the profession of plant collecting. In 1904, at the instigation of the late Sir Isaac Bayley Balfour, he undertook his first expedition to Yunnan to collect plants for Mr. A. K. Bulley of Neston.

Between that date and this he has collected over 25,000 plant specimens and has discovered over a thousand plants new to science. This is a significant total and proves Mr. Forrest's zeal and keenness for his work. His various expeditions are: 1904-6, 1910, 1912–14, 1917–19, 1921–22, 1924–. He is at present in Yunnan on his sixth expedition. In 1920 he received the Victoria Medal of Honour from the Royal Horticultural Society, and in the same year the "George Robert White Medal of Honour for Eminent Service in Horticulture" from the Massachusetts Horticultural Society.

What is not so well realised is that, in addition to plants, he has made on each of his expeditions large and important collections of mammals, birds, insects and butterflies.

Although interested in every conceivable kind of plant, his specialities have undoubtedly been rhododendrons and primulas. Of these two families he has introduced many of the finest species to be found in our gardens. So many of our fine garden plants are the result of his labour that it is impossible even to attempt a list, but three samples may be mentioned which all bear his name: these are Rhododendron Forrestii, Primula Forrestii and Pieris Forrestii. He has always believed in the magnificent flora of Yunnan and the borders of Tibet, and even when the greatest botanists in this country were saying that China was finished as a repository of new plants, he stuck to his assertion that where one worthy plant had been discovered there were ten more awaiting the collector.

There is certainly no European who knows more of the mountains of Yunnan and the Tibetan border. No difficulty, danger or hardship is too much for him to overcome. He comes and goes freely and without question in a country which is almost always in a state of turmoil; there could be no better description than that of his character.

We have much pleasure in dedicating this volume of THE GARDEN to one of the greatest plant collectors of all time. Every gardener owes him a great debt of gratitude for introducing so many fine plants to cultivation.

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GEORGE FORREST, V.M.H.

(From a photograph taken in China.)

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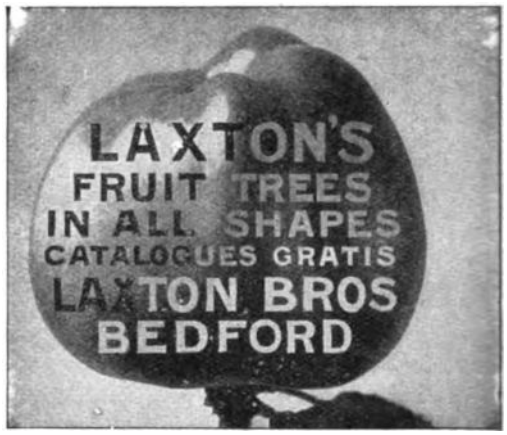

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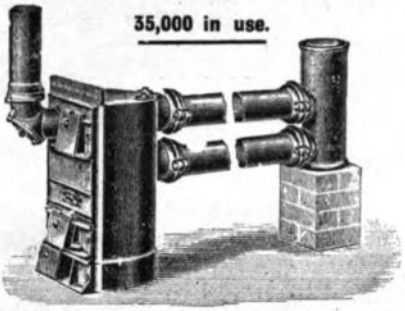

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THE GARDEN

No. 2720.—Vol. LXXXVIII.] [January 5, 1924.

THE ALPINE-HOUSE

IT is at this season of the year that one appreciates most the dainty treasures of the alpine-house, and many amateurs who possess a cold greenhouse will determine, after seeing a particularly good display in some other garden, to utilise their own structure for the same purpose. The only doubt in the mind of many with a cold greenhouse at disposal is its suitability for the purpose. Since most of the plants which one would wish to grow, flower in the dark days—or at any rate make growth then—it is necessary that the house should get as much light as possible, but given an open position almost any type of structure may be pressed into service. Very low span-roofed pits, such as are used (when heated) as Cucumber-houses, are much favoured for the culture of rock plants under glass, but they are by no means essential, for a palm-house no longer required for the purpose for which it was built, may, to go to the other extreme, be made to answer admirably.

The question is often raised as to whether culture in pans or on a rockery is most satisfactory. From a cultural standpoint there is little to choose, so that it largely resolves itself into a matter for each one's taste to decide. Culture in pans has this advantage, however: the plants may be plunged in frames outside for the summer months, leaving the house free for other purposes, whereas those planted out will need a fair amount of attention if they are to remain healthy and give of their best another season. Many gardeners prefer the rockery as giving a more natural setting, but one needs a helpful imagination to make rockwork seem natural in a greenhouse.

We will suppose that it has been decided to build an alpine-house or to utilise an existing structure. The next point for consideration is the plants with which to stock it, and since the owner will have to "live with it," he will be wise to see as many alpine-houses as possible when the plants are in bloom and to take note of attractive kinds. The list which follows will, however, supply plants which satisfy the tastes of most people.

The alpine-house is especially suitable for the culture of choice and tiny species which, though perfectly winter-hard, are apt to be lost through fog and damp or from other causes—*e.g.*, slugs or woodlice—if planted in the rock garden. In this class we have Campanula Allionii and C. Zoysii, and if trouble is found in growing them outdoors, CC. pulla, Waldsteiniana and garganica; all these are lime-lovers.

Among Saxifrages we have such tiny jewels as SS. lilacina and retusa, the slug-beloved S. tenella which belongs to the Trachyphyllum section and almost all the Englerias which it is thought worth while to grow, such as SS. thessalica, media, Grisebachii and Frederici-Augusti. That rarest of Encrusteds, the cliff-loving S. florulenta, if seed or seedlings can be obtained, is also worth a place, and the same may be said of S. mutata, with yellowish spires and curious membraneous rosettes of darkest green.

It is when we come to the twin genera of Primula and Androsace that we really get a plethora of choice species which are best in the alpine-house. Among Primulas, the beautiful P. Winteri comes first to mind, and no alpine-house can be considered decently furnished which does not include it; then we have the not over-hardy P. Forrestii, which likes to work its roots far into the interstices of a "cliff." Primulas of the nivalis group—not too easy anywhere—should, if attempted, have the shelter of the alpine-house, and the same applies to the curious Omphalogramma species, such as vincæflora and Violagrandis. The easiest of the nivalis section, or at any rate the easiest of those in commerce, is P. chionantha with creamy white blossoms reminiscent of those of P. sikkimensis, but most of them should present no insuperable difficulty under glass. The Primulas of the Auricula clan are, generally speaking, perfectly easy outdoors, but the golden farina of P. marginata, for instance, shews to great advantage when protected from the weather.

Where the atmosphere is pure, there is no obstacle to the successful cultivation of such Androsaces as sarmentosa, primuloides, × Chumbyi, villosa, carnea, Laggeri and lactea outdoors; where the garden lies anywhere near a manufacturing town, however, they will be safer under glass. For the Aretia section the alpine-house is practically essential. A. helvetica is probably the most grown of this section, but A. Charpentieri presents no difficulty and is very delightful.

The Onosmas, again, though generally speaking easily cultivated outdoors, shew to much better advantage under glass, and the silvery-downed foliage of O. albo-roseum, in particular, is really beautiful. Even the Golden Drop, Onosma tauricum, is not really

THE ROSY PRIMULA VEITCHII IS NONE TOO HARDY.

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satisfactory outdoors where the air is at all impure, though it will succeed under glass in a suburban garden. Closely akin to the Onosmas are the Lithospermums, and of these L. rosmarinifolium is not quite hardy outdoors in most parts of the country; moreover, it flowers in the dead of winter, and so can only shew its beauty satisfactorily under glass. The species of Myosotis which hail from the Antipodes are best in the alpine-house, and these include the sulphur yellow albo-sericea with silvery, silky foliage and Cheesemannii and decora with white flowers. The alpine M. rupicola, too, is well worthy of cultivation under glass. The alpine-lover who must attempt Eritrichium nanum should give it a place in the alpine-house, and when he has flowered it there, which with ordinary care he should, he will probably bother no more with it.

Cruciferous plants are, generally speaking, of the easiest culture, but Æthionema coridifolia (Iberis jucunda) and Draba (Petrocallis) pyrenaica represent exceptions to the general rule, though they are amenable enough under glass.

The Composites, too, are, almost without exception, easy doers, but most, if not all, the Celmisias are either tender or on the very border-line of hardiness. Some stock of all those procurable should be kept in the alpine-house.

Of the alpine Helichrysums the same might almost be written, though the gay and beautiful H. bellidioides is hardy (and certainly easy) in most gardens. H. frigidum (a Corsican) is an especial treasure for the alpine-house and not easy even there, while there are a number of other beautiful species which would repay culture.

Of the Wood Sorrels, Oxalis enneaphylla and O. adenophylla are perfectly hardy, but the autumn-blooming golden O. lobata and the free-flowering O. rosea are more uncertain, though the latter often naturalises itself from self-sown seed.

Very few of the choicer kinds of Pentstemon are reliably hardy, though a few cuttings under glass should suffice to retain stock in case of a hard winter. The following are some of the best for the alpine-house: PP. angustifolius, Newberryi (by no means to be confused with P. Newbury Gem), Davidsoni and Scouleri.

The Potentils, again, are in a general way easy and hardy, but numbers of good gardeners find the beautiful Potentilla nitida rather difficult outdoors, and, where the atmosphere is at all sooty, the alpine-house is the place for it.

Mesembryanthemums—even the hardiest of the race—will stand outdoors in this country only in favoured localities, but the hardier species are useful in the alpine-house in company with the Lewisias, hardier Cotyledons and Sedum dasyphyllum.

The foregoing have been selected because difficult to "do" outdoors. Space found for such of them as we may fancy, our attention can be turned to the multitude of suitable plants which may also be grown outdoors. There are, of course, numbers of plants not included above which are not reliably hardy in bleak situations, such, for example, as Primula Veitchii and the forms (some very beautiful) of P. Sieboldii, but the genus Primula, to take one great race of plants, provides a number of species worthy of any greenhouse. What could be more beautiful than the splendid pink forms of P. pulverulenta, for instance, or more brilliant than the short-lived P. Cockburniana. Then we have the hundred and one mongrel forms now placed under P. × pubescens. The beautiful white form belongs here which, in gardens, is often grown as P. nivalis, and this is especially charming under glass. The writer once raised a small batch of seedlings of this, every one of which proved white, but cases have been recorded where the seedlings all approximated to a rather dingy P. hirsuta.

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THE CULTURE OF THE BEGONIA.—I

THE Begonia, considered in its widest sense, so that the fibrous as well as the tuberous rooted forms are included, is one of the most important as well as the most beautiful of greenhouse and garden flowers. So diverse are its forms that, if one were so minded, a really large greenhouse might be filled with Begonias alone, without the slightest risk of monotony. Another strong point in their favour is that there is no gap in their flower display from January 1 to December 31, without taking into consideration the splendid foliage effect of such forms as BB. Rex, Haageana, metallica and a host of others.

One of the chief interests at the present date will be seed sowing, for it is by this means that immense numbers of plants of average quality are raised for bedding purposes, etc., in the open air, while, at the same time, the finest and best forms are picked out for culture in pots in the greenhouse or conservatory. Such gardeners as maintain a high standard of quality among Begonias (more especially among the doubles) will find this work of selection most fascinating, and much depends upon the quality of the strain as to how high a percentage of prizes are discovered when flowering time comes. Much of the fascination comes from the result of one's own fertilising and cross-fertilising, but if one does not collect one's own seed, one should not fail to procure it from a reliable source.

Considerable care is required, both in sowing and in the management of the young seedlings. Early sowing is essential, in order to procure plants that will flower the same summer. The compost used should consist mainly of good loam with a small admixture of leaf-mould, broken charcoal and coarse sand. Shallow seed-pans are best, and these should be efficiently drained by placing one large crock over the drainage hole and a number of smaller ones on top of this. Owing to the minute size of the seed, a very fine surface is necessary, and this can only be ensured by sifting sufficient compost to provide a top layer about an inch thick. Below this, the soil should be used in a coarser condition, in order to prevent the drainage becoming blocked. It is almost impossible to cover the seed sufficiently lightly with soil, and the best way is simply to scatter the seed on the surface and ensure the requisite darkness by covering each pan with a sheet of brown paper and a pane of glass on the top. Place the pans in a steady temperature of 65° to 70° Fahr., reverse the glass daily to disperse condensation, and watch for the first signs of germination.

The surest and safest method of applying moisture, when required, is to immerse the pan to half its depth in tepid water and allow it to remain until, by capillary attraction, the whole of the soil is thoroughly moistened. It is, naturally, very important that the soil be never allowed to approach dryness. The life germ is so minute that a very brief period of drought is sufficient to destroy it—a point that should not be overlooked at a later date also, when the spring sun begins to gain in power. Keep the paper covering on until tiny white thread-like roots are seen emerging from the base and little green tips begin to appear on the surface; then remove the paper and cover only with the glass. As the plants progress, this also should be gradually dispensed with. First tilt it up slightly by inserting a match, then increase this by the use of a label, and finally withdraw the glass by degrees until the plants become accustomed to the air of the house in which they are growing. Unless the seedlings are crowded, it is better to defer pricking off until the plantlets have attained some size and vigour; but it is better to do this earlier by means of a match, upon the point of which they can be picked out, than allow them to jostle each other.

It is wiser at first to prick off into further pans or boxes than into single pots. Give them 1½ins. from plant to plant, as this enables them to grow for some time without further disturbance. Leaves about the size of a halfpenny should be formed before they are transferred to single pots, and in all cases additional care must be exercised both in watering and shading for a short time after transplanting. See that the soil is pressed quite firmly round the roots, water well, and place again in a similar temperature. While they must on no account become dry, less water at the roots will be requisite until they begin growing again; but do not fail to keep the atmosphere humid. Though progress is very slow during the earlier stages, an astonishing increase of growth will be noticed when they have once attained some size, and it is then that the first potting should be done. The original compost should be modified by the addition of some well rotted cow manure and by the almost entire elimination of sand, which is very liable to encourage the begonia mite. One has only to keep the atmosphere thoroughly humid and the temperature level to be rewarded by astonishingly vigorous and rapid growth.

If the ultimate destiny of these plants is outdoor work (and few better ways can be found for testing their qualities), it will not be necessary to repot into larger pots. Grow them on as rapidly as possible, and so obtain as large examples as you can by early June; but if a proportion is intended for greenhouse flowering, continue to repot into larger sizes as fast as their roots fill the smaller ones. Do not omit very careful hardening off of all outdoor plants, first by transferring the plants from the house in which they were sown to a cooler one with more air, then to a cold frame during their last week, in which full exposure to air should be given. Never plant out until June is well in and the weather has really settled, and see that plenty of water is provided. It is well to remember that the most backward plants are usually of the finest quality, and, when making a selection between plants to be grown under glass and plants for bedding purposes, it is the smallest and weakest looking that should be reserved for pots.

Outdoor plants need a rich, deep, moist soil to do their best, and, contrary to the generally accepted idea, will render an excellent account of themselves, even in full sun. Here they should

WELL-FLOWERED PLANTS OF DOUBLE BEGONIAS. *Copyright, Sutton and Sons*

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remain until after the first frosts have blackened the tops, when they should be lifted without delay and spread in a cool dry place until the stems part easily from the tubers, when the loose earth should be shaken from them and the tubers be stored in sand or peat-dust until the following spring.

H. W. CANNING-WRIGHT.

(To be continued.)

THE GENUS ALLIUM

Despite their disagreeable odour when bruised or handled, many Alliums are worth growing. They are of easy culture and very free-flowering.

THE genus Allium belongs to the natural order Liliaceæ and consists of nearly 300 species, distributed over the temperate regions of the Northern Hemisphere. They are mostly bulbous plants, many, like the common Onion, strongly scented, this characteristic being the chief reason why the members of this genus are not very popular in gardens. There are, however, many very pretty and ornamental species, well worth growing, and suitable for various situations and conditions. Some, like AA. ursinum and triquetrum, are valuable for naturalising in the open woodland, while others, like AA. cyaneum and kansuense, are charming little plants for the rock garden.

From an economic point of view the genus is important, as, from different members, several valuable vegetables are derived, including the Onion from A. Cepa, the Leek from A. Porrum, Chives from A. Schœnoprasum, and the Shallot from A. ascalonicum. This genus is also remarkable in that the three primary colours are represented in the flowers, those of AA. cyaneum and cœruleum being blue; AA. flavum and Moly yellow; and AA. Ostrowskianum and narcissiflorum having red flowers; while the white section is represented by A. neapolitanum. Besides, there are many kinds with flowers of all intermediate shades of colour. All the species are hardy in this country and are easy of culture, increasing rapidly by means of offsets. These little bulbs, which in the case of many species are produced in clusters, may be separated and replanted in autumn or early spring about 3ins. deep. Seeds also are freely produced. These may be sown thinly in light soil in February and March in the open border, where they should remain until the autumn or following spring, when they may be transplanted to their permanent positions. Seeds may also be sown in boxes or pans in a little heat in February, and the young plants be transferred, when large enough to handle, to the sites where they are to flower. The following are some of the best kinds:—

BROAD-LEAVED GARLIC, ALLIUM URSINUM.

THE ROSY-FLOWERED ALLIUM KARATAVIENSE.

A. ALBO-PILOSUM.—This handsome kind has probably the largest flowers in the genus. It was collected by Sintenis in the year 1901, in the mountain ranges which divide Transcaspia from Persia. It has large bulbs with strap-shaped leaves, 18ins. long, and nearly 2ins. broad, glabrous above, with longitudinal lines of white hairs beneath and on the edges. The stout scape rises to a height of nearly 2ft. and bears large heads 9ins. across, composed of from sixty to eighty flowers. These are each 2ins. in diameter, and in colour a deep lilac with a metallic sheen. It comes into flower in June, and lasts for a considerable period in full beauty.

A. ACUMINATUM.—From North-western America, this species grows to a height of 9ins., with deep rose-coloured flowers nearly 1in. across, borne in many-flowered umbels, during July and August. The leaves are narrow, and die off early. There is a more deeply coloured variety with red-purple flowers.

A. AMBLYOPHYLLUM is a distinct species, of dwarf habit, with small bulbs, flat leaves and umbels of lilac flowers, which are produced in July. It hails from Turkestan.

A. AZUREUM.—This is a handsome tall-growing kind from Siberia, with triangular leaves 6ins. to 12ins. long, and scapes 18ins. high, bearing dense globular heads of deep sky-blue flowers in summer

A. BIDWELLIÆ is one of the dwarfer kinds, suitable for the rock garden, growing only a few inches high, with few flowered umbels of bright rose-coloured blossoms which are produced in July. This plant comes from Sierra Nevada.

A. CŒRULEUM is closely allied to A. azureum, but is not so tall, only reaching a height of 8ins. It produces globular heads of blue flowers in June, and is a native of Russia.

A. CYANEUM.—There are three charming little blue-flowered species of dwarf habit, very much alike in appearance and all suitable for the rock garden. Unlike many of the others they are perennial and flower year after year without attention, except keeping them clear of weeds. They are AA. kansuense, sikkimense and cyaneum. The latter species has narrow grassy leaves, channelled above, with slender stems about 8ins. high, bearing nodding umbels of blue flowers in summer. It is a native of Kansu in China and was introduced into cultivation in 1840.

A. ERDELII is a rare, but pretty little species hailing from Palestine and only grows about 6ins.

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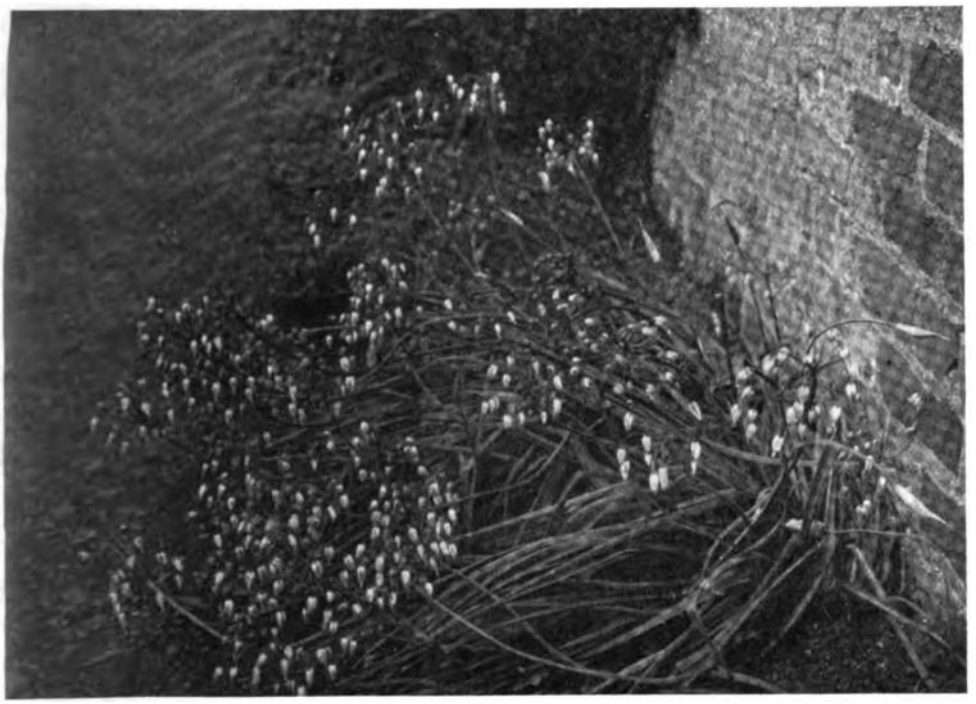
high. The flowers are white and borne in compact umbels. This plant requires a warm position against a south wall, or a sheltered position in the rock garden.

A. FETISOWI grows about 2ft. high and produces flat leaves and many-flowered, hemispherical umbels of rosy-lilac flowers. It is a native of Turkestan.

A. FLAVUM is a slender-growing species, about 1ft. high, with round, but not hollow leaves, flattish above the base. The yellow, bell-shaped and somewhat drooping flowers are borne in umbels during the summer. This is a very old garden plant, having been introduced from Italy, its native habitat, some 150 years ago.



THE MAUVE PURPLE ALLIUM MACRANTHUM.

The three illustrations shew plainly the immense variations in flower and foliage of which the genus is capable.

A. GIGANTEUM.—This plant is one of the tallest members of the genus, growing up to 4ft. high. It has large bulbs, fleshy leaves, 18ins. long and 2ins. wide in the middle. The bright lilac flowers are borne in dense globose umbels 4ins. in diameter. It is a plant for the fern border or wild garden and comes from Central Asia.

A. KANSUENSE is very closely allied to A. cyaneum, but has shorter stamens. This is a pretty little species for the rock garden. It grows about 6ins. high and produces numerous grassy leaves and leafy stems, bearing umbels of dark blue flowers during the summer. As its name implies, it is a native of Kansu in China.

A. KARATAVIENSE (syn. A. Akaka).—This is a very distinct Allium with very broad, flat leaves, ovate-oblong in shape and very glaucous. The scapes are about 6ins. or more high and bear dense, convex umbels of pink to rose-coloured flowers in May. It is a good plant for the herbaceous border and is a native of Turkestan.

A. MACRANTHUM.—This handsome plant comes from the Eastern Himalayas, and is a good perennial, the rootstock being composed of a dense tuft of fleshy root fibres. The leaves are flat, over 1ft. long, from among which the scapes are produced freely to a height of 2ft. These bear loose umbels of fifty or more bright, mauve-purple flowers in July. This species does best in a warm position at the foot of a south wall, but it will also succeed in the rock garden if given a sunny aspect. It is readily increased by means of division when the roots are at rest in the autumn or spring.

A. MOLY.—This is a very old garden favourite, having been in cultivation since the year 1604. It is a bulbous species, with broad glaucous leaves, and scapes 10ins. to 15ins. high, bearing compact umbels of bright yellow flowers in spring. It is very effective in masses and is a valuable plant for naturalising in a warm sunny position. It comes from South Europe.

A. NARCISSIFLORUM.—This is the narcissus-flowered Allium from Italy. It is an elegant plant, with nodding umbels of beautiful rose-coloured flowers, which are produced in July. It grows about 9ins. high, and is worth a place in the rock garden. It should be given a sunny position.

A. NEAPOLITANUM (syn. A. lacteum).—This well known South European species may be naturalised in the wild garden or fern border, where it makes an effective display during the early summer. It may also be employed as a pot plant, and is useful for forcing. The bulbs should be potted up in autumn, using a sandy soil. They should then be plunged in a bed of ashes, and when well rooted and starting to grow, transferred to a cold frame till they are ready for the greenhouse. It grows up to 18ins. high, has flat leaves, and is the most ornamental white-flowered species.

A. NIGRUM (syn. A. magicum).—This is a tall-growing plant, up to 3ft. high, with umbels of dull violet or whitish flowers, which are produced in summer. It is a native of South Europe and is an excellent plant for the wild garden.

A. OREOPHILUM is one of the smaller, more select kinds. It is only 4ins. high, with narrow leaves and umbels of reddish-purple flowers, which are borne in July. It is a native of the Caucasus and Siberia.

A. OVIFLORUM.—This is closely allied to A. macranthum, and has deep violet-purple flowers, ovate in shape, produced in lax umbels. It comes from the Chumbi Valley in the Himalayas.

A. OSTROWSKIANUM.—This plant is closely allied to A. oreophilum. It has rose-coloured blossoms, which are disposed in many-flowered umbels on scapes 6ins. high. The flowers open in July. Both are worth a place in the rock garden or select border, are easily grown and flower freely. A. Ostrowskianum is a native of Turkestan.

A. PEDEMONTANUM is a neat little plant, suitable for the rock garden. It comes from the Piedmont and has large, bell-shaped, rosy-purple flowers which are borne in graceful drooping clusters during July. It thrives best in a warm situation.

A. PULCHELLUM.—This is a good border plant and is very effective in masses. It grows about 2ft. high, with narrow leaves and violet-coloured flowers borne in umbels. It is a native of the Orient and flowers during the summer months.

A. ROSEUM grows about 1ft. high, with strap-shaped leaves rolled inwards at the top, and bears umbels of pale lilac-rose flowers. It comes from South Europe.

A. SCHUBERTI is probably the most remarkable plant in the whole genus. It has large bulbs, broad flat leaves, more or less undulated, and stout scapes over 1ft. high. These bear umbels of from 50 to 200 flowers, the pedicels of which vary from 2ins. to 6ins. in length. The whole makes a sub-globose umbel sometimes 1ft. in diameter. The flowers are rosy-red in colour and last throughout the summer months. It is a biennial and dies after flowering. However, seeds are produced freely, so plants may be readily raised. It is a native of the Orient and has been in cultivation about twenty years. This is a good plant for a sunny border.

A. SIKKIMENSE.—This is a compact, neat little plant, some 6ins. high, with grassy leaves and deep blue flowers borne in loose umbels. It flowers from June to August and prefers a half shady position in the rock garden, where it has proved itself a good perennial. It hails from Sikkim.

A. SUBHIRSUTUM (syn. A. ciliatum).—This is another white-flowered species in the way of A. neapolitanum, but having hairy leaves. The umbels are fewer flowered, white, or with the middle nerve more or less purplish. It also comes from South Europe.

A. SICULUM (syn. Nectaroscordum siculum).—This plant is a remarkable biennial, with broad flat leaves and scapes 3ft. or more high. These bear umbels of drooping, dull, purplish-coloured flowers in summer. It is characterised by a very strong odour when bruised. A native of Sicily it comes up freely from self-sown seedlings.

A. TRIQUETRUM is a pretty little native plant well worth naturalising in the fern border. It grows 12ins. to 18ins. high and has green leaves, which are keeled in a triangular manner. The white bell shaped flowers, with a narrow streak of green down each segment, are borne in loose, drooping umbels on triangular stems during the summer months.

A. URSINUM (broad-leaved Garlic; Ramsons).—This is another native species that is often met with in large masses in open woods. When in flower it is very effective, clothing the ground with its broad green leaves, above which the numerous umbels of white flowers are borne on scapes 1ft. high.

A. VICTORIALIS is one of the most distinct species, with stems 1½ft. to 2ft. high, clothed with lily-of-the-valley-like leaves. The white, or greenish-white flowers are produced in umbels in May. It is a native of Southern and Eastern Europe, and is somewhat rare in gardens. W. I.

FORTHCOMING EVENT.

January 15.—Royal Horticultural Society's Fortnightly Meeting.

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SOME EARLY-FLOWERING BULBS

BY W. R. DYKES, M.A., L.-ès-L.

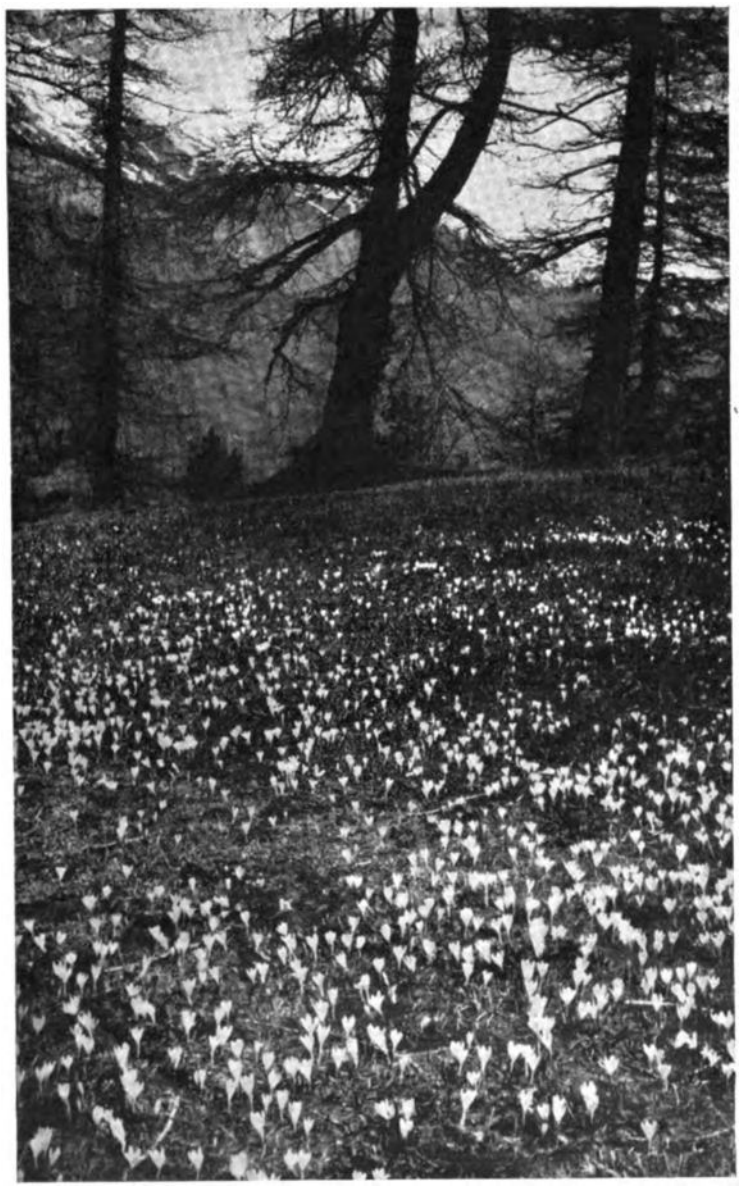
FOR many gardeners there is a fascination about bulbs which is not possessed by any other class of plants. In the early months of the year some of this fascination is, no doubt, due to the way in which the bulb prepares its flower underground, quite regardless of the weather conditions, and is ready to produce it during any spell in which the surface is not frozen hard. Then, when the bulbs are lifted later on, there is the fascination of the new clean bulb which emerges from its wrappings of the old skins of the previous year or years and which even then contains within it the bud which will develop into the flower of the next season.

The bulbous species, which are in cultivation at all, tend to be rare or common according as they increase slowly or rapidly by means of offsets: for the raising of bulbs from seed is, in most cases a very slow process. For instance, Tulipa Greigi, one of the most shapely and beautiful of all Tulips, very rarely produces a single offset; in fact, although for at least fifteen years I have cultivated a number of bulbs of this species, it was not until 1922 that I obtained my first offset. Seeds of this Tulip are not easy to obtain, and it takes seven years to produce flowering bulbs from seed. This fact and the impossibility of collecting further supplies of bulbs while the home of the species in Turkestan is in the hands of the Bolshevists, account for the rarity of T. Greigi. There is, undoubtedly, an opening for anyone who will set to work to raise the rarer bulbs from seeds in large quantities in this country. It can be done, but it will need patience at the outset.

One of the earliest Tulips to flower, and one that has the additional merit of increasing by offsets, is T. Kaufmanniana, a species which apparently grows alongside of, if not actually with, T. Greigi in their native home in Turkestan. T. Kaufmanniana is especially valuable because it comes into flower at the end of February, and a bed of it in full flower makes a glorious sight on some sunny day in March. The green buds of Darwin Tulips are a familiar sight, for we watch them on the lengthening stems for some time before any colour is apparent. T. Kaufmanniana, on the other hand, contrives to develop the full colour of its flowers while they are still within the wrapping leaves and practically beneath the surface of the ground. Consequently, it only needs one or two sunny days to produce a blaze of colour, where previously there was little to be seen but the closely wrapped, shooting leaves.

The usual type of this Tulip has white flowers with a yellow centre, and the backs of the three outer petals are more or less vividly streaked with red or even with a faint purplish blue. Other forms have wholly yellow flowers, with scarlet on the backs of the outer petals; while others, again, are wholly red.

Among other early-flowering Tulips are two interesting species, T. biflora, from South-Eastern Russia, and T. turkestanica. Both have small, starry white flowers with a yellow centre and a branching stem, which in the former may bear three or four or even six flowers and in the latter as many as ten or twelve. The chief difference is that in T. biflora the yellow extends from the centre of the flowers almost halfway up the petals, while in T. turkestanica it is confined to the centre of the flower. T. turkestanica is further distinguished by its chocolate pollen, for that of T. biflora is yellow.



CROCUS VERNUS IN SWITZERLAND.

BULBOUS IRISES.

Some of the most beautiful and earliest to flower of all bulbous plants are the Irises of the reticulata section. The almond-scented grey-blue I. Vartani from Palestine may be in flower at Christmas, and there is a white form of it spotted with blue which is extremely beautiful. It is closely followed by I. histrioides, from the mountains of Northern Asia Minor, with its large flowers of a brilliant blue which appear before the leaves have had time to develop. This late growth of the foliage is an advantage to the plant, because it has a better chance of attaining its full development later than has, for instance, I. Vartani, of which the leaves are often so severely damaged by bad weather that no sound bulbs are formed for the succeeding year.

The same fate often overtakes I. Histrio, which in some of its forms differs chiefly from I. histrioides in the earlier development of its foliage, and the yellow I. Danfordiæ, from mountains of Cilicia, which is distinguished by the fact that its standards are reduced to mere bristles, so small as almost to escape notice altogether. Even more brilliant than any of these is the rare I. Bakeriana, with its falls tipped with blue-black velvet and its slender eight-ribbed leaves. All these Irises need a sheltered sunny corner in rather rich light soil made porous by the addition of a liberal supply of lime rubble. Several of them form, at the base of the flowering bulb, a number of minute bulblets, which, if left untended, rarely develop into full-grown bulbs and which need careful nursing for a year or two, either in pots or planted out in a cold frame. I. reticulata itself and its wild red-purple counterpart from the Caucasus, commonly known as Krelagei, come later in February and March and are better able to take care of themselves.

There is also a variety of garden origin with pale blue flowers which has been named Cantab, and which, like the deep blue typical form, seems to have something in its constitution which enables it to persist and increase in gardens and under conditions where the wild forms die out after a few years. There is a central line or ridge of deep yellow on the falls which is clearly seen in the illustration on page 8.

Of early-flowering Juno Irises the most wonderful is easily I. Rosenbachiana from Turkestan, with its brilliant flowers of all shades of colour from white to deep blue and red-purple, set off with a conspicuous golden crest. This and the many varieties of species akin to I. persica need sheltered positions and protection after flowering to enable them to mature their foliage; but the white and yellow I. bucharica, the golden I. orchioides and the purple I. warleyensis, which do not flower until April, should hold their own in well drained soil in any sunny spot that is not too wind-swept.

CROCUSES.

Crocuses are not, strictly speaking, bulbous plants at all, for their corms are solid throughout and do not consist of the eccentric wrapping skins which make up the true bulb. However, Crocuses should be found in every bulb garden

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and not merely the common yellow Crocus and the well known purple and white varieties of C. vernus. Few are more beautiful in the early days of the New Year than the Italian C. Imperati from the neighbourhood of Naples. The outer petals are backed with a light buff colour, more or less distinctly veined with deep purple, and this colour contrasts strongly with the inner surface and with the inner petals of bright lavender. C. Imperati is a strong and vigorous grower and increases both by offsets and by seeds. There is also a creamy white albino form which comes true from seed. Each seedling corm of C. Imperati seems to have an individuality of its own. Some are precocious and flower early, and others are much more backward, with the result that three months sometimes elapse between the flowering of the earliest and the fading of the latest.

The Greek C. Sieberi is usually in flower in February and is of a particularly pleasing shade of blue with a golden yellow throat, which is displayed when the flowers open in the sun. With it comes the deep yellow C. Balansæ from Western Asia Minor, of which the outer petals are either veined with dark brown purple or even wholly backed with rich mahogany, so that the buds appear almost black. About the same time, too, comes C. chrysanthus, at once one of the most beautiful and most variable of all Crocuses. Its flowers may be of a deep golden yellow or lemon yellow or a soft butter yellow, as in the variety E. A. Bowles, or white more or less veined or flushed with purple on the backs of the outer petals. The beauty of the flowers is always enhanced by their rounded, goblet shape.

The Crocus vernus of the Swiss Alps, which appears in countless numbers in many places almost as soon as the melting snow recedes from the ground, is the parent of practically all the white and purple Crocuses that bulb catalogues advertise. In the hands of the florist and in the rich soil of the bulb gardens these Crocuses have grown fat and almost bloated, and have lost much of the grace and slender outline of the wild plants. Still, there are some, like the pure white Kathleen Parlow and the soft lavender Margot, which should have a place in every garden, though, for preference, it should be where the flower will not come into sharp contrast with the wild species.

THE CURIOUS, BUT BEAUTIFUL GALANTHUS SCHARLOCKI.

SNOWDROPS.

Snowdrops are universal favourites, but those who only know the common Galanthus nivalis would be astonished to see in flower in January the beautiful large-flowered form which used to grow so well at the foot of the famous wall in Canon Ellacombe's garden at Bitton, or the broadleaved G. plicatus and the giant flowers of some forms of G. Elwesii. The Bitton Snowdrop has long gone under the name of G. Imperati, but a reference to the original description of this species shewed that the true plant should be really a late-flowering form of G. nivalis. An importation of collected bulbs from the home of the species some ten miles east of Naples has given us some very pleasing forms, but throws no light on the origin of the plant which Canon Ellacombe grew. Most Snowdrops appreciate a rather cool soil rich in humus, though the Asia Minor species seem to need baking and a rest in summer. They should be disturbed as little as possible, and need only be lifted and replanted when the bulbs become overcrowded after several years in the same position. The bulbs are typical of a class quite distinct from that to which Tulips belong, for the old roots do not come clean away from the base, and bulbs of this type start growth again very early in the season and should, therefore, never be out of the ground for any length of time, whereas Tulips are best when lifted in July and kept warm and dry until they are replanted in November.

For naturalising in glades and woods, there is nothing better than Galanthus nivalis itself, though it seems to be undoubtedly true that it is a fastidious plant as regards soil. Where it

A SEA OF SNOWDROPS IN WOODLAND.

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does well, it increases rapidly both by seeds and by offsets, and, where it does not thrive naturally, it seems to be impossible to provide the necessary conditions. The most that can be done is to provide plenty of well decayed humus by digging in and top-dressing with leaf-soil, and the position chosen should be as cool as possible, so that the foliage may be encouraged to persist after the flowers are over. If the bulbs are planted in rough grass, where the flowers always look well, the grass must on no account be mown until the Snowdrop leaves have turned yellow. Bulbs depend on their leaves for their nourishment, and no plant can build up a strong flowering bulb for the following season when its leaves have been cut off while they are still discharging their duty of transforming into stores of food the juices which they draw up from the soil through the roots.

Where the common Galanthus nivalis is happy and seeds freely, variations appear among the seedlings, and among them will probably be some double forms. Similar variations are also found among wild plants growing under natural conditions. One of the most distinct of these is a form found growing near a tributary of the Rhine by Scharlock in 1868. In these there are two peculiarities. As may be seen in the illustration, the outer segments are tinged with green, whereas in the typical plant it is only the short inner segments that are tipped with green. A further difference is that in the variety Scharlocki the spathe, which encloses the bud, splits into two leaf-like halves, whereas in the typical plant it remains joined together by a white or transparent membrane.

Another variation from the ordinary type consists in the change of colour in the ovary and in the markings on the flower from green to yellow. These yellow-flowered forms have appeared from time to time in places in the North of England, where the Common Snowdrop flourishes exceedingly; but, though they live on in the care of the specialist, they do not appear to be robust enough ever to become common.

A good position for some of the small early-flowering bulbs is under deciduous shrubs, where the branches are not allowed to grow so close to the ground that they will destroy the foliage of the bulbs when they are swept backwards and forwards in a gale of wind. In such a position, near the front of a shrub border, it is well worth while to plant Chionodoxas, Scillas and Muscaris. However, bulbs may be used anywhere. With a little experience some bulbs will be found suitable for almost any position, where they will vary the dull monotony left by winter.

THE BRILLIANT IRIS ROSENBACHIANA.

THE EASIEST FORM OF IRIS RETICULATA—I. R. CANTAB.

ABOUT ANDROSACES

SEVERAL of the high alpine species of this fascinating genus are not so difficult to grow as is generally imagined, and alpine-house treatment will overcome a lot of the difficulties usually encountered by the amateur. Even such species as A. helvetica, A. Chamæjasme and A. glacialis will give ample reward when grown in pans in a mixture of sandy peat, leaf-mould and plenty of chips. A number of the kinds which do not care for lime can be very successfully grown if planted in a scree mixture composed of pounded up slates and a little soil.

One of the rarest and most beautiful of the Aretia section of Androsaces is A. Charpentieri, which is found only on a few summits above Como and Lugano in Italy. It is one of the least difficult to cultivate, and is delightfully pretty when in the spring it throws up many little downy flower-stems, each bearing one rose pink flower. So long as the soil is light and well drained it will present no difficulties in the way of culture.

One far more intolerant of naturalisation in this climate is A. imbricata, which stands for the extreme type of this section. It is an entirely granitic species which has a fairly wide distribution, descending through the Pyrenees to the Sierra Nevada. It seemingly spends its life taking sun baths in the hottest and hardest granite precipices it can find, and when it is, with great difficulty, prised from its rocky home and placed in the choicest part of the scree, it repays all kind attentions by miffing off as quickly as possible. Except as a rarity, however, it is hardly worth cultivating, for its rather small flowers, though by courtesy termed white, are in reality of a dirty yellowish colour.

Another, and perhaps the best-known favourite of all, is A. helvetica. It is an admirable species for pan culture, and does well when rammed into a crevice in a limestone rock. It is a picture to delight the eye when, in its flowering season, it covers its grey-green mounds with the milky white flowers sitting close on to the cushion, and it presents no great difficulty if excessive moisture is kept from the foliage during the winter months, and this is a precaution which should be taken with nearly all the Androsaces in this, to them, unwholesome winter climate.

Turning to quite a different group, namely, the Chamæjasme section, we come to such old favourites as A. sarmentosa, A. lanuginosa, etc., which so long as they have a cool, well drained soil will make themselves quite happy in the most exposed rock garden. Although it is generally considered necessary to protect A. sarmentosa and its forms with a pane of glass in the winter, I think it is superfluous, as I know several gardens where it is thriving and multiplying itself and receives no protection whatever.

A. foliosa, or I should say A. strigilosa, for this is nearly always sold under this name, the true A. foliosa being much rarer and also much less beautiful, has leaves 3ins. to 4ins. long, blunt and oblong; the flowers are produced in a head, each on a longish footstalk, and are of a lilac-mauve colour. Though not particularly beautiful, it is perfectly easy to grow in any cool rich soil.

I have, of course, touched on only a few of the best known and favourite kinds, and hope to be able to mention more in some future note. ITHAW.

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CORRESPONDENCE

EUCRYPHIA PINNATIFOLIA.

MUCH has recently been written in praise of this delightful shrub, so beautifully depicted in Sir Herbert Maxwell's new book, and I can safely hazard the opinion that in no case has its praise been sung too loudly. It is a superb thing, but intending planters would do well to bear in mind that it strongly resents removal, and that all the more so the older it grows. It is therefore well to secure the shrub young, preferably from seed. The planter must possess his soul in patience, however, as he need scarcely look for any bloom until about ten years after the seedling state. Far be it from me to discourage likely planters, but Eucryphia pinnatifolia has a most exasperating trick, like some of the Clematis family, of suddenly dying, without any apparent reason, long before it reaches its teens. This, I think, is sometimes caused by the heat of the sun's rays on the soil about its roots, which, however, can easily be obviated by some carpeting plant, such as one of the Saxifrages or some member of the Heath family. The plant, at least in its younger stages, prefers a moist, peaty soil, and it is well worth untold trouble to establish. As it ultimately attains a height of some 15ft. and several feet in diameter, and is very unlikely indeed to survive any attempt at shifting, it is obvious that future developments must be carefully considered when selecting a spot for it. I know of one garden in the South of Scotland where there is a magnificent specimen, and crowded against it is an equally fine plant of Crinodendron Hookeri (Tricuspidaria). It must indeed be a sad struggle for the owner to decide which is to be sacrificed, for certain it is one must meet this fate. Personally, I would not like the task. It is now more than sixty years since this Eucryphia was introduced into England and, considering the comparatively few specimens one sees and that everyone who has seen it has, possibly, tried to grow it, there is evidently considerable difficulty in establishing the plant; but that ought not to deter the enthusiast in the struggle to do so for some twenty or thirty years at least. Personally, I have just about completed my course of thirty years' struggle with the Tree Paeony and Gentiana verna, and am on the verge of owning defeat.—FORMAKIN.

A DWARF BUDDLEIA.

SEVERAL of the variations of Buddleia variabilis have received distinctive names, but most of them are tall, strong-growing plants that require a considerable amount of room for their full development, and this notwithstanding the fact that they may be cut hard back every March. In small gardens they cause inconvenience by the amount of space they require. This does not apply to B. v. houdoensis, of which the average height is 3ft. The leaves also are smaller than in the type, while the dark purple flowers are attractive. The spikes of bloom are short, in conformity with the rest of the plant, but they are freely produced and make the bush quite gay. Here, then, is a variety which is suitable for small gardens or even for restricted positions in large ones. There are people who would like to see the long spikes of bloom on the dwarf plant, but there is a fitness in proportion, for the dwarf plant is really ornamental as seen growing at Wisley.—HORTULANUS.

HELICHRYSUM FRIGIDUM.

MANY justly admire Helichrysum bellidioides with its spreading carpet, thick-set with its daisy-like flowers, but it is a plebian compared with the exquisite little H. frigidum, which far surpasses it in charm. This, however, is less responsive to our wooing in the garden and wants to be coaxed and coddled before it is prepared to reveal to us its loveliness or even, indeed, to favour us by settling down in our gardens among our well beloved treasures. Little wonder, then, that it is rare in gardens and nurseries and that the happy possessor of a healthy plant is prone to plume himself upon his success in pleasing this coy little beauty. It has baffled many, yet it is not impossible to cultivate it if we strive seriously to suit its fancies. It wants, for one thing, a dry, sunny sloping bank with plenty of sand and old mortar rubbish in the compost and thoroughly well drained. Then when late autumn draws on, it calls for shelter from our wintry rains and sleets and is only happy when these are warded off by a bell-glass, small cloche or a simple sheet of glass big enough to throw off the rain all round. There this little plant—for it never spreads much—should live happily, and form a tiny tuft of growing, glaucous leaves, yielding in summer on 2in. stems miniature Daisies of a bluish white. I am strongly of opinion, from my own experience, that nothing suits Helichrysum frigidum so well as a dry moraine sloping to the south and in full sun, with plenty of lime rubbish among the material of the moraine. Such a little flower, so full of charm, surely deserves unstinted admiration and every effort to make this Corsican beauty at home in our gardens. —S. ARNOTT.

PEACHES OR PLUMS?

THE Plum seems to me to be insufficiently appreciated in this country as a dessert fruit. The man with a small garden is too apt, if he introduces Plum trees at all, to plant the coarse and comparatively worthless Victoria, the fruit of which, though useful for some purposes, can readily be purchased, whereas really choice dessert Plums take some finding in the shops. Again, if the question of fruit under glass comes under review, Peaches and Nectarines seem always to be chosen, and there are many gardens where quite a number of trees of Persica are grown, where no Plums are grown under glass, yet a really first-class Plum, well grown, is certainly as good as any Peach and provides a very welcome change. A few good varieties include Jefferson, Kirke's, Comte d'Althan's, Golden Transparent, Reine Claude de Bavay, Bryanstone Gage and Rivers' Late Orange, but readers who have proved them will perhaps suggest other first-rate sorts for the purpose. The subject seems to be one of some interest.—S. O. K.

PLUM RIVERS' LATE ORANGE AS AN ORCHARD-HOUSE TREE.

WHAT ARE ALPINE PLANTS?

I AM glad Mr. H. Stuart Thompson asks the above question, and must admit that most of us—not only the "hardy plant nurserymen"—are sinners as regards the misuse of the term "alpine plant." Mr. Thompson admits that the question is unimportant, and from the purely amateur gardener's standpoint I quite agree that this is so. Of course, Mr. Thompson's point of view is that of the botanist—a vastly different thing. However, may I suggest that the subject is so very interesting, especially while we are considering the "Fifty Best Alpines," that a discussion upon "What is an Alpine?" would be the means of raising very many points that could not fail to have their educational value. In my list of fifty alpines, certainly very many should be strictly called rock plants. M. H. Correvon, I think, has the best title, "The Plants of the Alps for our Gardens." A correct definition of alpine plants would be very difficult to establish. In the next spring and early summer (1924) we purpose making a journey across the Grisons of Switzerland, making the capital, Coire, our centre, working both branches of the Rhine and across the border to the Rhone Glacier, by the Furka Pass, our purpose being to make a survey of the "alpine flowers"—shall we modify this to the "wild flowers of the Grisons," which certainly covers all types of plant?—returning by the valley of the Inn to the National Park of Switzerland. (M. H. Correvon specially recommends these regions for the study of wild life.) Thence across the Bernina range to the Gambrena glaciers, the Bernina lakes, Lake Nero and Lake Bianco-Glaciers, streams flowing to the Po and the Danube.

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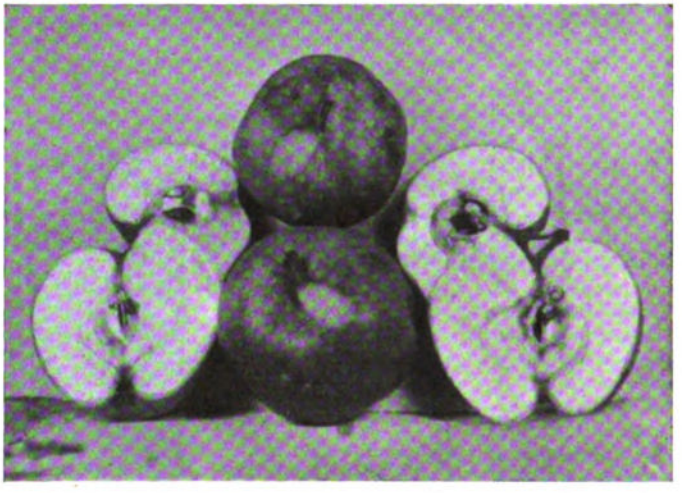
Here, among passes upwards of 9,060ft. above sea-level and summits over 13,000ft. one may find the homely Nettle, Coltsfoot, Willow Herb and the Opposite-leaved Saxifrage. The Nettle follows the hunter or shepherd wherever he makes his home —no matter how rude the hut—the other three plants nestling in perfect health among the rough moraine left by the retreating glacier. Here, in Cheshire, the Coltsfoot is also a pioneer plant, claiming the sterile soil recently deposited by the Ship Canal dredger, fixing the sandy wind-swept sand dunes with its strong underground roots and soon followed by the Willow Herb, changing this waste into a beautiful garden; and, in company with countless other grasses and wild flowers, transforming this sterile soil into humus. Many of the wild flowers found here grow also upon the high Alps. Saxifraga oppositifolia is also found in Yorkshire, Ireland, Scotland and Switzerland. On the other hand, when we consider latitude instead of altitude, "A Summer in Greenland" will give one plenty of room for thought. This little book is the work of Professor Seward, Professor of Botany at the University of Cambridge. In these Arctic regions, to name only a few "alpine flowers" (?) are Campanula rotundifolia, Butterwort, Salix herbacea (the smallest tree in the British Isles). Here also are Willow Herbs closely allied to British species, Poppies and brilliant coloured Dandelions. Again —and here we seem to have a real genuine alpine— Phyllodoce cœrulea occurs in Greenland, Iceland, Scandinavia, Scotland, Japan, Labrador and America. Still, passing strange, "Phyllodoce may have begun its existence in the Northern Pacific regions long before the Glacial period." But why does it not occur in Switzerland? This little book is a surprise in many ways, and one wonders how we are to arrive at a satisfactory working nomenclature, especially after such passages as the following: "By comparison with the variegated carpet of flowers that brighten an Arctic landscape"—and many of these are represented in our British flora—"the ground of a tropical forest is intensely gloomy." "It is a noteworthy fact that among the flowering plants recorded from the country (Greenland) as a whole, only one or two are peculiar to Greenland." It is a complex problem, and I think we must all agree with so great an authority as Mr. Stuart Thompson and in the future call our treasures "rock" plants, and even then a fresh difficulty presents itself—what is a rock plant? For my own part as a modest amateur villa gardener I give it up!—JAMES PARKINSON, *Warrington.*

INTEREST IN THE MICHAELMAS DAISY.

I WELCOME Mr. Jacob's racy article on Michaelmas Daisies which appears in THE GARDEN for December 1, 1923. It surely will set folks who read it thinking, particularly those who hitherto have taken but a negative interest in these late summer and autumn-flowering plants. There is a great deal of educational work necessary yet, relative to these very charming and easily grown hardy plants, inasmuch as many sum them up as "mostly blue flowers." Need it be said, that for reasons hard to understand, there are many who love a garden, who have left Michaelmas Daisies rigidly alone and who are all the poorer in consequence! On the other hand, there has sprung up of late years a school of growers, scattered throughout the country, who are turning their attention to these wonderfully free-flowering plants, adding to their modest collections each season, and exchanging with each other as they appraise the varieties and newcomers. We have not reached the time when the more ardent spirits are desirous of forming a Michaelmas Daisy Society—that may come—but we have assuredly arrived at a stage when, among very many who own a garden, there has been manifested a new-born interest.

If I dare presume to prophesy, I would say that we are only at the beginning of things and that more and delightful varieties of Michaelmas Daisies will appear in the near future. They will not share the same fate as hundreds of Chrysanthemums now extinct, have done, because these plants under notice, neither depend upon nor do they need indoor culture. *Their extreme hardiness will be their salvation*, as we do not have to propagate from cuttings to perpetuate them, division of roots in a general way sufficing. No! it is because Michaelmas Daisies are old garden friends—as useful, indeed, to the town gardener as to the one in the country—that, as they appear now in their more lovely, varied dress, they will be made much of. We are so inclined to think of them as flowering plants that come to us in the declining days of September, and to forget that some of them reveal their beauty quite early in August and continue to adorn the garden until late in October, as was the case in the past season. Then again, we have a wealth of variety, in size and in colour of bloom, as well as in habit; some, like ericoides, noted for attractive, dwarfish growth and their multitudes of tiny flowers. We ought not to forget that the dwarf forms of these hardy plants are useful for pot culture, for cool houses or for bringing indoors on occasion. It is, I submit, in this form we shall hear more of them at the autumn shows. No plants in my garden needed less attention, no flowers in the autumn yielded so much colour for so long, and there was nothing to compete with them for huge sprays, which it was a delight to gather and give away—incidentally obtaining new adherents to their culture another year.—W. LINDERS LEA.



"THE SIAMESE TWINS."

ROSCŒA CAUTLEOIDES.

ONE still finds some doubt existing regarding the hardiness of the attractive Roscœa cautleoides, which has now been long enough in British gardens to enable us to appraise its value in this respect. No doubt there are several places where it has not been a success, but these seem to be few and far between, and a proportion of the failures reported from these gardens may probably be due to some untoward circumstance, such as falls to the lot of many undoubtedly hardy plants when first introduced to a garden and by which other kinds of plant may be unaffected. One finds, time and again, that individual plants fail, and that with new genera or species it may be only after several trials that one can say with any confidence whether a certain kind will or will not grow in a specified garden. With regard to R. cautleoides the general experience appears to be that it is hardy and easy if planted in light, well drained soil and that there it will survive and flourish. In certain gardens with a stiff, retentive soil and in the colder parts of the United Kingdom, it may be desirable as has been recommended by some, to lift the tuberous roots in late autumn and store them during winter for replanting in spring. This is unsatisfactory and, where it has to be adopted, detracts very greatly from the usefulness of a charming plant, which, with its pale yellow flowers, is so distinct from our other garden treasures that it is coveted by all hardy plantsmen who ever see it flourishing in a border or rock garden in the well drained, sandy soil conditions which it evidently enjoys.—S. A.

FREAK APPLES.

I ENCLOSE a photograph of two "Siamese twins" Apples. One pair was just like one Apple with two cores, while the other pair was merely joined together, the area of attachment being approximately ¾ in. × ½ in. I noticed a picture of a Savoy leaf, shaped like a trumpet, in a recent issue of THE GARDEN, and thought the Apple picture might interest some of your readers. —E. W. R. BROOKS.

[The malformations shewn are of types by no means uncommon, the double-cored fruit resulting from a malformed (fasciated) blossom, and the pair with the small area in common very probably being merely "inarched" through close contact when small.—ED.]

A CHARMING WOODLAND PLANT.

FOR associating with Pyrolas, Gaultherias and other lowly peat-loving plants, Jeffersonia diphylla is a delightful little plant. This is a native of North American woods, its flowers bearing some resemblance to those of the Blood-root (Sanguinaria canadensis), while its leaves suggest an Epimedium. The blossoms are white, about 1in. across, and borne singly in spring on a stem less than 1ft. high. J. diphylla will prosper in almost any cool, vegetable soil that does not get too dry in summer. Peat is not essential, a good bed of leaf-mould and woodland loam being sufficient. A shady position is desirable. A much rarer and even more lovely but less easy species is the blue-flowered J. dubia of Manchuria.—T. H. E.

CATHCARTIA VILLOSA.

THIS is a handsome woodland plant, allied to Meconopsis and bearing some resemblance to the Greater Celandine (Chelidonium). Its pale green, deeply lobed leaves are covered with silvery hairs, and from a rather flat tuft of foliage the plant throws up a branching stem to a height of 18ins. or so, bearing in summer pretty, yellow, poppy-like flowers of delicate texture. This is not a plant of difficult culture in any cool but well drained vegetable soil. It appears to prefer half-shade, but is liable to suffer when there is much drip from overhanging trees. It is a native of the Himalayas.—L. N.

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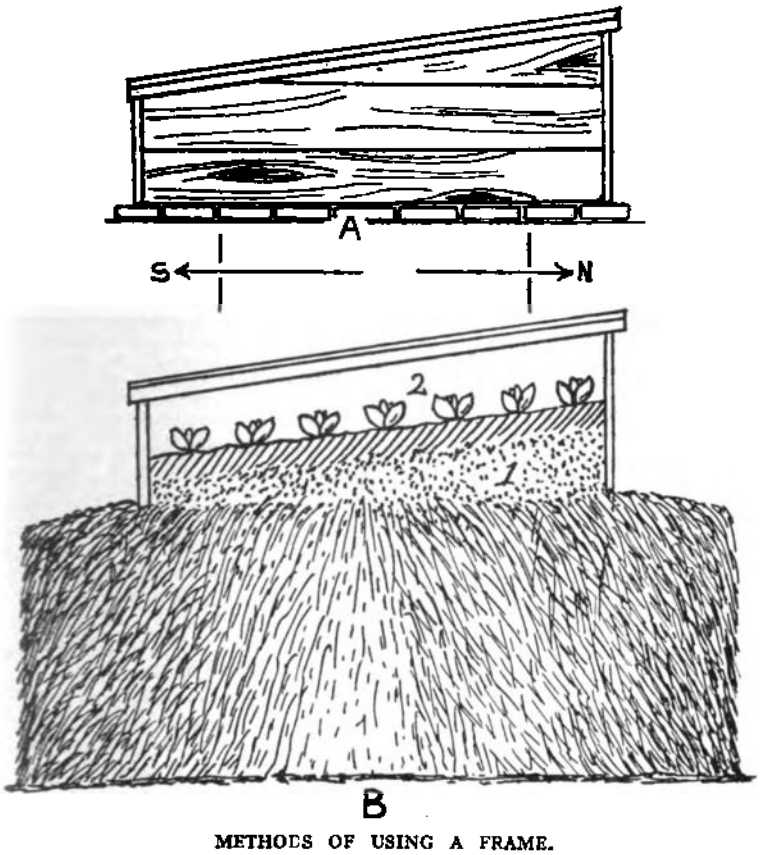
FORCING VEGETABLES IN A COLD FRAME

EARLY vegetables brought on in a little heat should be very tender and be much appreciated accordingly. They may not be large, owing to the somewhat crowded conditions under which they are grown, in comparison with those grown in the open border, but almost every part of vegetables grown under glass may be utilised, so there is no waste.

There are thousands of suitable cold frames in gardens throughout the country, and, with judgment and forethought, many tons of early vegetables may be grown in them during the first months of the year. The frame taken for granted, the cultivator should procure litter and leaves, old soil rather finely sifted, empty bags, mats or tiffany and a few empty boxes about 16ins. deep, the latter to be used to ensure the blanching of certain produce, while the full light is needed for the benefit of other occupants of the frame.

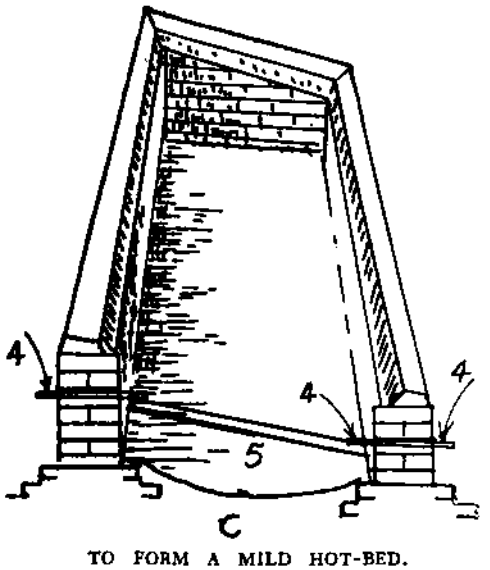
An ordinary wooden frame is very useful, as it may be moved from place to place and can always be fixed so that the maximum amount of sunshine reaches the vegetables in it, whether the frame be on level ground, as shewn in the sketch at A on a single layer of bricks, or on a hot-bed as shewn at B. The ideal position is one facing due south, or south-south-east. A brick or permanent frame must be made the best of, whether suitably or unsuitably placed.



METHODS OF USING A FRAME.

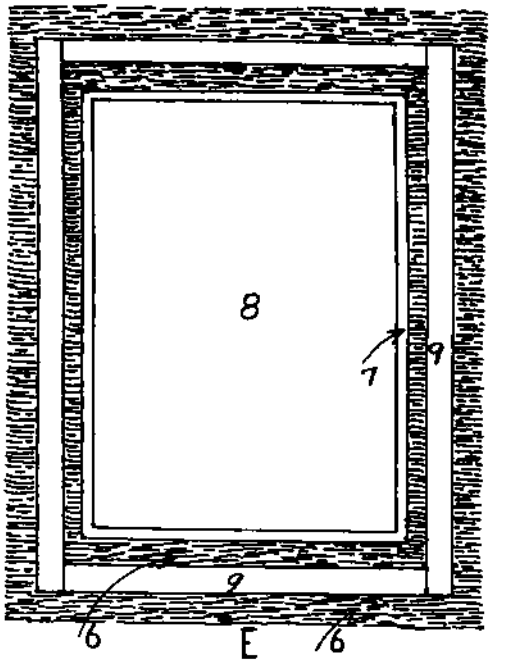
Litter from stables and last autumn's tree leaves, used at the rate of two-thirds of the former to one-third of the latter, will form a useful hot-bed. The bed should be 18ins. wider on all sides than the frame to be placed on it. Fig. B shews bed, frame and soil in section. Shake out the litter and lightly build up the bed 5ft. high; it will gradually settle down to half that height. No. 1 shews soil placed on the bed and No. 2 Lettuces planted. Several kinds of vegetables may be grown in a bed of this kind at the same time.

In a cold pit, whether of bricks, stones or wood, as shewn at Fig. C, it will be of advantage if some of the old soil is removed as shewn at No. 5, so that a mild hot-bed can be made inside to the height indicated by the Arrows, Nos. 4, 4, 4.



TO FORM A MILD HOT-BED.

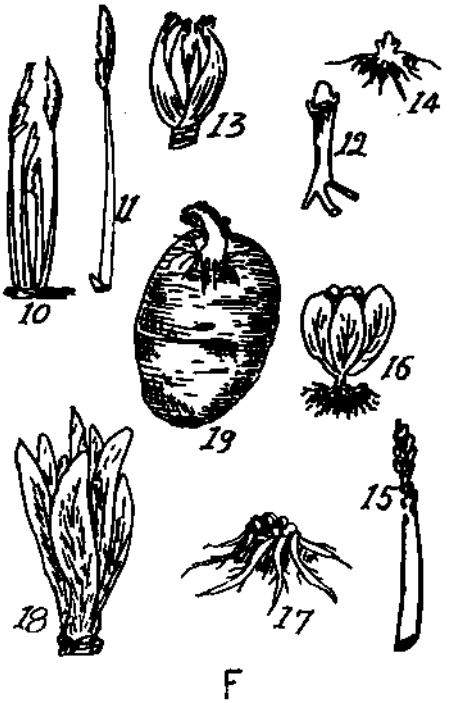
Fig. E shews the surface or top of a hot-bed; Nos. 6, 6, hot-bed portion outside the frame; No. 7, the outline of frame; No. 8, inside of frame; No. 9, broad boards placed on the bed for the cultivator to step on while attending to the vegetables inside and so prevent the treading away of the bed itself. Fig. F will shew the inexperienced amateur how to deal with some of the vegetables. No. 10, Rhubarb fit to pull; No. 11, how to pull, not cut off, the stalks; No. 12 shews a good, strong Seakale crown, and No. 13, how to cut the growing blanched tops. No. 14 shews the right kind of Asparagus root to lift and plant in a frame, and No. 15, the Asparagus cut well below the soil level; No. 16 represents a Lettuce plant suitable for transferring to a bed from a box; No. 17 shews a clump of Rhubarb possessing plump crowns (clumps with small crowns are almost useless); No. 18, Chicory grown to the stage when it is fit to cut; No. 19, a Potato set possessing one strong sprout, the right kind to plant. Sets without any sprouts or having very thin, long ones are unsuitable.



PLAN OF FRAME ON HOT-BED.

Autumn-raised Lettuces do remarkably well in a bed of rich soil in a cold frame without hot-bed assistance if they are carefully lifted and replanted in the frame about 8ins. apart every way. Maintain cleanliness of soil, ventilate when the weather is not frosty, and cover carefully to exclude frosts.

Three crops may be grown at the same time in one frame; the bed of soil should be 1ft. deep on a mild hot-bed. Potatoes, well sprouted, should be planted 1ft. apart every way and 3ins. deep; then sow very thinly seeds of French Breakfast Radishes and of an early Cabbage Lettuce and lightly cover. In a short time the seedlings will appear and will be cleared before the Potatoes are large enough to lift. Earthing-up of the Potatoes is not necessary. Carrots grow rapidly on a mild hot-bed and in fine soil 9ins. deep. The early forcing horn or stump-rooted



SOME FORCING VEGETABLES.

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sorts should be selected; thick sowing is fatal to success, so broadcast the seed thinly. Carrots always thrive best and form the best roots when it is possible to expose the young plants to the wind.

Cauliflowers may be grown to maturity in cold frames where the latter can be spared. Young plants, however, do well in a cold frame if transplanted 4ins. apart in a bed of soil 6ins. deep. They require plenty of air on all favourable occasions in readiness for the final planting in the open border in April.

Early Onions and Leeks should be raised in the cold frame. The most economical way is to sow the seeds thinly in boxes and, later, transplant the resultant seedlings in a bed of firm soil at least 6ins. deep. Long White Frame Turnip is as easily grown quickly in a cold frame as the Radish; the only difference in treatment is that the soil should be firmer.

Mustard and Cress should be sown once a fortnight at this season. Seeds may be sown in rich soil in boxes or in beds. Water the flattened surface with the aid of a fine-rosed watering-can and immediately scatter the seeds on thickly and evenly, pressing them into the wet soil with a piece of board, but do not cover them.

The first sowings of Tomato seed should be made late in January in boxes or pots; in February sow seeds of early white Celery and Cucumbers, and late in that month seeds of Vegetable Marrows, one seed in each small pot, plunging the pots to their rims in the warm bed. Very careful watering is essential where seedlings of all kinds are concerned and equal care in providing ventilation. Grow only early-maturing varieties of vegetables and salads. Light is essential in the case of young plants, and care should be taken to remove covering material when this is not needed to exclude frosts.

The crowns of Asparagus should be buried about 3ins. under the soil; but Rhubarb, Seakale and Chicory crowns should be kept on the surface and the new growths blanched by excluding the light. The roots under the soil may almost touch each other.

Early Peas and Broad Beans raised in pots or turves in a cold frame where the border soil is cold and clayey ensure crops in advance of those from open-air sowings. GEORGE GARNER.

THE NEW FOREIGN ROSES OF 1921

OF the new foreign Roses of 1921 those of M. Pernet-Ducher have already been repotted upon, and of the rest, though numerically they are strong, there are very few which can be considered superior to our home productions.

ALICE KÆMPFF (H.T., J. Felberg Leclerc).—Origin General McArthur × Radiance. The blooms are pale pink and flat, the buds small and rather pretty. It is a free bloomer, the foliage is large and good, and the height about 12ins. It is fragrant.

BLANCHE AMIET (H.T., E. Turbat and Co.)—The blooms are light salmon with a coppery centre, resembling, but not so good as Mme. Butterfly, and are quickly spoilt by rain. The foliage is good and the height about 18ins It throws good autumn blooms.

CECHOSLAVIA (V. Berger).—Origin Pharisäer × Mme. Antoine Mari. The blooms are too much like Pharisäer and no improvement on it, as they have the nasty habit of going dirty. The foliage is large and light coloured, the growth strong, and the height about 18ins.

EDOUARD BEHRENS (H.T., W. Kordes).—Origin Richmond × Admiral Ward. The blooms are of a rich crimson colour and very bright, but lose colour quickly. The foliage is good and clean and the height 15ins.

ELISABETH MUNCH (Dwarf Poly., Munch and Haufe).—This is a sport from Orleans with blooms deep pink to red; not a true sport, however, for it throws back to Orleans and does not beat it. It is a big grower, too high for a "Dwarf" Poly., but no novelty and no improvement on what we already have.

FLORE BERTHELOT (Dwarf Poly., E. Turbat and Co.).—This is described as a lemon yellow, but we could only get discoloured white blooms from it. The growth is stunted and poor—quite an undesirable, in fact.

FRAU FELBERG LECLERC (Pernetiana, J. F. Leclerc).—The rich yellow blooms are quite pretty, but it is not a strong grower. Souvenir de Claudius Pernet is far better. The shoots grow almost horizontally.

HEDWIG KOSCHEL (Dwarf Poly., Munch and Haufe).—Sport from Ellen Poulsen. These so-called sports of existing standard varieties are quite overdone. This is not so good a grower as Ellen Poulsen and by no means so clean a bloomer. The blooms vary from pink to creamy white, and the foliage is spotty.

HUGUETTE VINCENT (H.T., Chambard).—The blooms are thin, but produced in big trusses. They open red shaded yellow, but quickly turn bluish pink, and the foliage rusts. It is a good grower, about 24ins. high.

JOSEPH GUY (Dwarf Poly., A. Nonin).—This is yet another bright red Polyantha, growing 18ins. high. The trusses are good as regards size, but unreliable in colour. The buds are bright red and promising, but the blooms lose colour quickly. There is no call for such so-called new Roses.

JULIANA (Dwarf Poly., H. Den Ouden).—This is an absolute counterpart of Coral Cluster, being also a salmon sport of Orleans. Registration of names is imperative to prevent two identical Roses being placed on the market at the same time and under different names.

KLEINE LEO (H.T., J. Timmermans).—This small dark red buttonhole Rose carried its blossoms singly. It is a pretty little thing with foliage somewhat inclined to mildew. The height is about 15ins.

LOUIS BOURGOIN (H.T., F. Gillot).—The flesh-coloured blooms are quite shapeless and the growth stunted, so that this is quite an undesirable and useless novelty.

LOUISE KIESE (H.T., H. Kiese).—The pretty golden yellow blooms resemble Melody in shape; the buds are particularly pretty. The growth is clean and strong, and about 24ins. high. It is worth trying another year.

MME. ADOLPHE LAFONT (H.T., J. Croibier).—The blooms are apricot red, the buds small and pointed and best in autumn. The foliage is reddish and the growth about 12ins.

MME. ALEXANDRE DREUX (Pernetiana, Soupert and Notting).—Origin Rayon d'Or × Primrose. The orange-coloured blooms are very small and the growth fair. This is not wanted.

MME. ANDRE CHARMET (H.T., J. Croibier).—Origin Mme. Mélanie Soupert × Mme. Maurice de Luze. The blooms are rose pink and the foliage mildews badly. The growth is strong and about 30ins. high, but there is no call for such a Rose, which represents no improvement on existing varieties.

MME. FEARNLEY SANDER (Pernetiana, Ketten Frères).—Origin General McArthur × Rayon d'Or. The blooms are carmine with yellow base, and are flat or globular in shape. The variety, which is liable to black spot, has erect, but not vigorous growth about 12ins. high.

MME. MERCIER DE MOLIN (H.T., A. Schwartz).—Origin Comte G. de Rochemur × Liberty. A small buttonhole Rose, this has deep pink blooms, and there is no call for it as such. The foliage rusts. It grows about 18ins. tall.

MEMEE AZY (H.T., F. Gillot).—Origin Etoile de France × Le Progrès. The deep pink blooms are small and globular. It has no qualification as a novelty. The growth is tall, reaching about 30ins.

SOUVENIR D'ANTONIER PONCET (H.T., A. Schwartz).—Origin Mme. Maurice de Luze × Lady Ashtown. The buds are quite pretty and deep pink in colour, and the blooms almost exactly like our old friend Konigin Carola, and nearly all come with split centres. The height is about 15ins.

SOUVENIR DE JEAN CROIBIER (H.T., J. Croibier).—Origin Mme. Mélanie Soupert × Lyon. The heavy blooms are of Lyon type, but paler. It should make a good exhibition Rose. Its height is about 24ins., and it has dark leathery foliage.

SOUVENIR DE MME. GAUTHIER-DUMONT (H.T., G. Gillot).—This throws clean velvety scarlet fragrant blooms and makes excellent and erect growth. It is almost too big for a bedding Rose, as the growth runs up to 4ft. high. It should be worth trying as a standard, as the growth is freer even than that of Griiss an Teplitz.

SOUVENIR DE RENE GROGNET (H.T., C. Chambard).—The large full coppery orange blooms are of a good clean colour, and it is a very strong grower. The foliage is dark and tough, of Pernetiana type, and the height 24ins.

SOUVENIR DE SERGENT CUTTE (H.T., C. Chambard).—A seedling from Mme. Mélanie Soupert, this has pretty blooms, rather a bronze than yellow. The foliage is tough, the height about 24ins., and it is not very free.

VICOMTE MAURICE DE MELLOR (H.T., Ketten Frères).—Origin Earl of Warwick × Sunburst. The semi-single blooms are pinky apricot in colour. The foliage mildews and it can hardly be considered novel. The height is about 24ins.

VICTOR MAYER (H.T., Buatois).—This is a buttonhole Rose with small blood red blooms carried singly. The height is about 18ins.

VULCAIN (Dwarf Poly., E. Turbat).—A bicolour Polyantha, pink and red mixed, this is not a desirable new Rose at all.

YVETTE (H.T., Buatois).—Origin Mrs. T. Hillas × Mme. E. Herriot. The blooms are salmon yellow, but shapeless, and the growth weak.

Of the above twenty-nine varieties there is practically nothing worth calling a novelty, nor one that is any improvement on existing varieties. The only exception to which we have taken a slight fancy is P. Gillot's Souvenir de Mme. Gauthier-Dumont, which looks to be a free-blooming scarlet Rose, though fitter for the shrubbery than as a bedding variety.

We shall give several of them a second year's trial, but so far as can be at present seen there is nothing striking about any of them, and probably the bulk will have to be discarded and blotted out for something better.

Oxted. HERBERT L. WETTERN.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

The Kitchen Garden.

Onions.—In addition to the seeds sown in the open in March we make a practice of sowing a little seed of selected Ailsa Craig during the present month, and from this batch, with just ordinary cultivation, we get some really fine bulbs. Pans or boxes, are filled with a mixture of loam and leaf-mould in equal parts with a moderate sprinkling of sharp sand added. Sow the seeds thinly: this is most important, or the seedlings will be weak and spindly. Before sowing takes place the soil should be made moist; then, if the pans are covered with a sheet or two of paper, water may not be needed until germination is effected. Arrange the pans in a heated pit, and when the seedlings appear keep them near the glass. Gradually harden them off until they occupy a position in a cold frame from which frost is excluded. Here they may remain until the time arrives for transferring them to their permanent quarters. If thought desirable and space is available, they may be pricked off in boxes containing light soil. The seedlings should be about an inch apart. Personally, I always keep them in the seed boxes until they are planted out in the bed. They should, however, be grown as cool as possible.

Seakale.—Where this crop has not been lifted, the roots should be covered with pots or boxes and then the spaces between filled up with long manure and leaves. It is necessary to exclude all light, because unless the leaf-stems are thoroughly blanched the crop will be spoilt. Rhubarb may be treated in a similar way.

Lettuce.—It is too early to sow in the open ground, but a small variety, such as Tom Thumb, may be sown in boxes and placed in a warm house until the seedlings appear. A gentle hot-bed is also suitable for raising Lettuces, Radishes, and Mustard and Cress.

The Flower Garden.

Antirrhinums.—These plants have rapidly come to the front for bedding purposes and for producing a display in the borders. To have good strong plants for putting out in May the varieties should be selected and the seed sown during the present month. Boxes or pans should be chosen and filled with a light compost. Make the surface firm and level, sow the seeds thinly, and just cover them with fine soil. Arrange the boxes in a warm greenhouse, and directly the seedlings appear, raise them well up to the roof glass to keep them short and sturdy. Overwatering should be guarded against, and a watch should be kept for woodlice, as these pests will devour the seedlings just as they appear through the soil. There are dwarf, medium and tall varieties, and for general bedding the medium are the most suitable.

Verbenas.—At one time these plants were largely increased by cuttings, and even now this mode of propagation should be resorted to if it is desired to increase the stock of any particular variety, but for everyday requirements, where a good show of bloom is needed, plants raised from seeds are the best. Seeds may be sown at any time during the next three months, but if they are sown now a warm greenhouse will be required. Verbenas are often ruined by green and white fly and mildew. Excessive heat predisposes to all these troubles. If mildew appears, dust the leaves with flowers of sulphur, and for aphis fumigation is necessary. When the seedlings appear they should be pricked off in boxes of light soil or potted singly, and they should be grown as cool as possible. Many of the varieties offered can be relied on to come practically true from seed.

Newly Planted Trees and Shrubs should be examined to ascertain if they have become loose in the soil, and, where necessary, the soil should be made firm. Labelling trees, shrubs and herbaceous plants should receive attention and stakes be prepared for use later on.

The Hardy Fruit Garden.

General Work.—The weather during the past few months has been far from favourable for carrying on the necessary work among the fruit trees. In fact, the ground has been too wet to do any planting. Now, however, every endeavour should be made to catch up arrears. When an opportunity occurs look over the bushes of Black Currants and remove all large-sized buds. These should be placed in a basket and be burnt as quickly as possible.

Vegetables Under Glass.

Cucumbers.—In most establishments these are required as early as possible, and where a suitable house exists a start should be made. The low span-roof house is best, but a lean-to facing south is perhaps nearly as good. If the house is constructed so that a hot-bed can be made inside, so much the better. When the rank steam has escaped the seeds may be sown singly in 3in. pots. The soil should be fairly moist, but not wet, then no water will be needed until the seedlings appear. At this season it is always advisable to sow a few extra seeds, because however well they are treated some will not germinate. The temperature of the house should not fall below 60°, and during the day, with sun-heat, the thermometer may safely rise considerably. When the young plants have just filled their pots with roots they may be placed in receptacles 5ins. in diameter, using a mixture of good loam and leaf-mould. Cucumbers should never be starved, so directly the plants are ready they may be transferred to heaps of soil arranged on the stage, where they will bear fruit.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

Vegetables Under Glass.

Onions.—Both as regards avoiding the fly and having the bulbs perfectly ripened, the sooner a start is made with Onions the better. The seed should be sown rather thinly in ordinary propagating boxes nearly filled with a mixture of fibrous loam and "odds and ends" of soil from the potting bench, the whole to be passed through a half-inch sieve, the rough residue being placed in the bottom of the boxes. Stand these in a temperature of from 50° to 55° and keep them near the glass. Ailsa Craig and Cranston's Excelsior are the varieties to sow if big bulbs of first-rate quality are required.

Potatoes.—If extra early Potatoes are required, a start should now be made. Make up a mild hot-bed of fresh leaves, and place a single or double light frame on it. A week later cover the leaves with a 6in. layer of moderately rich light soil, and on the surface place sprouted tubers of an early variety, such as Sharpe's Express or Duke of York, in lines from north to south 15ins. apart and 9ins. apart in the lines. Afterwards cover with 3ins. of soil. No water will be required for a time. Ventilate carefully during mild and bright weather. Protect from frost with double mats and cover with a single mat every night.

Tomatoes.—A full sowing should be made for summer supply. Earthenware seed-pans are preferable to wooden receptacles. Use light soil of not too rich a character, as firm fibrous-stemmed plants are what are wanted. Germinate the seeds near the glass in a temperature of about 55°. The names of Tomatoes are legion, but Holmes' Supreme, Kondine Red, Sunrise and Lister's Prolific are all reliable varieties.

Cucumbers.—This is a suitable time to make a sowing for spring and early summer supplies. Sow in 3in. pots partially filled with fibrous loam and place in bottom-heat in a temperature ranging from 60° to 65°. Lockie's Perfection (black spined) and Tender and True are two good varieties.

The Hardy Fruit Garden.

Apples.—Mussel scale is a pest which often does serious injury to the bark of Apple trees. This is a suitable time to combat this enemy, which the uninitiated might fail to observe, as it clings close to the bark, covered by its tiny, inconspicuous, mussel-shaped scale. It can generally be annihilated by repeated syringings with a solution of paraffin at the rate of 1 gill of paraffin to 5 gallons of water. However, as this and other mineral solutions if not very carefully manipulated are apt to injure the young shoots, the best plan is to apply with a stiff brush a solution of plain yellow or white soap at the rate of ½lb. of soap to 1 gallon of hot water.

Training.—There are many systems of training the various hardy fruit trees (fan, horizontal, cordon, etc.), but in training young, partly developed trees there is one guiding principle which should be observed when dealing with the extension of leading shoots on any part of the tree, and that is when the shoot is abnormally vigorous it should be checked by being inclined downwards for the time being, the opposite policy being pursued when a shoot is abnormally weak.

Raspberries.—Although late, new plantations may yet be made in soil that has been well enriched and deeply cultivated. The old system of training five or six canes to a stake has largely given place to the better system of training the canes to wire trellises, the wires being strained on either wood or iron standards, two wires being quite sufficient. The trellises should run as near as practicable north and south and at a distance of about 4ft. apart. Superlative is one of the best varieties.

The Flower Garden.

Bedding Plants, such as Heliotropes and Salvias, which are to be increased by cuttings, should now be placed in moderate heat to produce fresh growths. Paul Crampel "Geraniums" which were rooted in small pots should be shifted into 4in. pots and placed in heat. As they are not subject to attack by pests they may be placed in the early vinery if that has been started.

Lawns.—Where a lawn is shewing signs of deterioration it should receive a dressing of light rich soil or old hot-bed manure. The material, after being passed through a half-inch sieve, should be swept in with a birch broom. All lawns should be swept and rolled occasionally, as it is only by such means that a lawn can be kept in first-class order.

The Seed Order.—Seed lists will now be to hand, and the sooner the annual order is placed the greater will be one's chance of being well served. Written or mental notes will have been made of extra good results or comparative failures with any of last year's novelties, and one should be guided accordingly. A fresh set of novelties with their strong claims will again be pressed upon customers' attention: they may be all that they claim to be, but both common-sense and experience should lead one to go warily and test them only in small quantities, relying in the main on well tried varieties.

CHARLES COMFORT
(Formerly Head-Gardener to Mrs. Haig, Broomfield, Davidsoh's Mains, Midlothian).

GREENHOUSE AND CONSERVATORY.

General Work.—The first week in the New Year is the best time to formulate plans for the coming season. Thus one should compile a list of seeds and also of any new plants that may be required for propagating purposes. The ordering of these is very essential if one is to have seeds and plants at hand at the time most favourable for sowing or propagating. New plants that may be required for stock purposes should be ordered, as they are often small and not in a condition to give a good supply of cuttings if left until later, whereas if they are obtained at once they can be potted on and prepared for propagation. Nowadays, plants raised from seed play a very important part in keeping the conservatory and greenhouse bright and well furnished throughout the year. Here, it may be well to note at least some of the plants that can be raised from seed and may be depended upon to give a good display in their season. There are quite a number of foliage plants that are more or less indispensable for mixing with the flowering plants, as well as furnishing a supply of plants for decorative purposes in the dwelling-house. They include such useful plants as Albizzia lophantha (syn. Acacia lophantha), Fatsia japonica (syn. Aralia Sieboldii) and F. Moseri, Asparagus Sprengeri, A. plumosus nanus and A. decumbens, the last-named species making beautiful basket plants; Coleus, Cordyline australis, Cyperus alternifolius, Eucalyptus globulus and E. citriodora, the latter worth growing for its scented foliage; Grevillea robusta and Kochia trichophylla. The latter plant is generally grown for summer bedding, but it is also very useful in the greenhouse. Hardy annuals at the present day are very important, as they are largely used for furnishing the greenhouse. Although the best results are obtained by sowing them during September, still quite good results can be obtained by sowing early this month. Some of the most useful and popular for pot cultivation are Acrocliniums, rose and white; Alonsoas; and Clarkias, of which there are fine varieties in white, pink, salmon, scarlet and purple. Collinsia bicolor, with lilac and white flowers, is quaint and pretty. The tall double-flowered Godetias in various colours are very effective and useful, as also are the tall stock-flowered Larkspurs. Mignonette is, of course, indispensable, a good selection of Machet being as good as any for pot work. Nemesias again are very charming when well grown. Salpiglossis are very beautiful, but are by no means easy to grow. Schizanthus, of which there are many fine strains, are also very popular. Here I would say that the S. retusus varieties are

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deserving of more general cultivation. Statice sinuata is largely cultivated, but the more difficult S. Suworowi should be more generally grown, as it is a charming plant and lasts in flower for a long time. Lobelia tenuior is very beautiful, and should be sown in successional batches. Some of the essentials for the successful cultivation of annuals in pots are thin sowing, early transplanting and cool, airy conditions at all stages of their cultivation, remembering that any check is fatal to them. The following are some of the more tender annuals and plants of a more or less perennial character that may be raised from seed, viz., Achimenes, Angelonia grandiflora, Asclepias curassavica, Balsams, Browallia speciosa major and B. viscosa, tuberous-rooted Begonias in many varieties, Calceolarias, Campanula pyramidalis, Celsia Arcturus, Celosias, Clerodendron fallax, Clianthus Dampieri and C. puniceus, Ipomœa rubro-cœrulea, Cinerarias and Cyclamens in variety, Exacum macranthum and E. affine, Francoa ramosa, Freesias, Gerbera Jamesonii and its many beautiful hybrids, Gesneras, Gloxinias and Streptocarpuses, Humea elegans, Gilia coronopifolia, Nicotiana suaveolens and N. Sanderæ. The many varieties of Petunias give a lasting display. The Chinese Primulas are a host in themselves, but some of the others, such as PP. malacoides, kewensis, verticillata and Forbesii should not be overlooked. Rehmannia angulata is also very useful, while all the varieties of Salvia splendens are easily raised from seed. So are Tecoma Smithii, Thunbergia alata and the beautiful T. Gibsoni, Torenia Fournieri grandiflora and Trachelium cœruleum. Nierembergia frutescens gracilis and N. filicaulis are very graceful, dainty and charming, and should be more generally grown. Although the foregoing do not by any means exhaust the list, they may, perhaps, be helpful to some in making a selection for the coming season. When buying seeds it is always advisable to go to a firm of repute.

Gesnera cardinalis.—Where anyone has a stock of dry tubers they may now be started in a warm house. They succeed under the same treatment as Gloxinias; either lay them out in boxes containing light soil until they start or place them directly into small pots. During their growing season they enjoy a temperature of 55° to 60°, but when in flower will stand in the greenhouse. This plant may be raised from seed sown some time during this month, while the resulting plants should flower towards the end of summer.

Royal Botanic Gardens, Kew. J. COUTTS.

SOME OLD BUT FIRST-RATE DESSERT APPLES

WHORLE PIPPIN, a summer Apple of first-rate quality, being ripe in August, is well known in Scotland and worthy of cultivation. The fruit is below medium size, oblate, handsome and regularly formed, the skin smooth, shining, almost entirely covered with fine bright crimson and marked with broken streaks of a darker colour. The stalk is a quarter of an inch long, and set in a wide cavity, the flesh yellowish-white, firm, crisp and very juicy, with a pleasant flavour.

COURT OF WICK.—This is a valuable dessert Apple—indeed, one of the best—the flavour of the fruit being rich and delicious. It is in season from November to March. The variety succeeds on most soils, is not subject to canker, and is most prolific on the Paradise stock. The fruit is below medium size, roundish ovate and handsome, and just the right size for dessert. The colour is clear yellow and bright orange, with a flush next the sun, the surface freckled with russet. The flesh is yellow, tender, crisp and juicy.

CLAYGATE PEARMAIN.—This valuable Apple of quality ought to find a place in every garden. It is especially useful for small gardens as it produces abundant crops on the Paradise stock. The fruits are in flavour similar to a well grown Ribston Pippin, the flesh being yellowish, crisp, juicy, rich and sugary. It is of medium size and in shape not unlike Christmas Pearmain. The skin is dull yellow and green with a coating of russet and numerous dots on the shaded side and marked with broken stripes of dull red next the sun. The fruits after being stored become golden yellow with streaks of bright crimson. This is an Apple of exceptional properties and one to be cherished, as it will keep well until March.

BULL'S GOLDEN REINETTE.—This excellent and superior Blenheim Orange type of Apple is met with occasionally in the Herefordshire orchards, the fruits being firm, heavy and good. The flesh is yellowish, tender, juicy and sweet, with a fine aroma. It is a grand Apple but not generally known. Often sold in the local market as highly coloured Blenheims, Golden Harvey or Brandy Apple, the variety is fast dying out, which is a pity, as it is worth a place among the very best. Its late-keeping qualities also commend it, as firm fresh samples have been shewn at the end of May. A few old tumbling-down trees are found in the Herefordshire orchards, and no one takes care of them, yet everyone says it is just as good as Cox's Orange Pippin, the flesh being yellow, firm, crisp, juicy and sugary, with a rich and powerful aromatic flavour. The fruits are on the small side, about 2ins. across and about the same in depth. The skin is covered with rough scaly russet, the ground colour being yellow, which is overlaid with brownish red on the sunny side.

KERRY PIPPIN is a never-failing variety on the Paradise stock. Although not a late keeper, it is of good quality in its season (September—October). The fruits are below medium size, oval or roundish oval, the skin greenish yellow, changing to clear yellow, tinged and streaked with bright crimson, the flesh yellowish white, firm, crisp, juicy and sugary and of aromatic flavour. This is a splendid Apple for smaller gardens.

MARGIL.—This Apple to my mind is on a par with Ribston Pippin and Cox's Orange Pippin for flavour, as everyone who knows or grows it will testify. It excels in juiciness, aroma and flavour, and is just the size for dessert purposes. The colour is orange streaked with deep red and covered on one side with patches of russet. The fruit is conical in shape, five-sided and angular, the angles terminating at the crown in five prominent ridges.

PEARSON'S PLATE.—This is a late Apple of distinctive merit. When properly stored it will last well past March, and is, if the expression may pass muster, "as sweet as sugar." The fruit is small, roundish ovate and regularly formed, the skin smooth, greenish yellow in the shade, mottled with red and streaked with deeper red next the sun, and the flesh greenish yellow, firm, crisp and full of juice. This is a delicious fruit and ought to be extensively planted. The tree makes a good standard, and also crops well in the bush and espalier forms.

REINETTE DU CANADA.—I have often wondered why this excellent utility Apple is not more generally planted, as it possesses all the qualities of a first-rate fruit, being large in size, luscious in appearance, crisp and juicy to the palate, free in growth, prolific in crop, and has every other essential point an Apple can claim. Its keeping qualities render it valuable, too, as sound specimens have been handled by the writer in the first week in May. The skin is greenish yellow, with a tinge of brown next the sun and strewn with brown russety dots and veins of russet, and the flesh yellowish white, firm, juicy, brisk and richly flavoured. This variety makes a splendid bush and crops well trained as an espalier.

WHEELER'S RUSSET keeps until April, is a prolific bearer, with fruits small to medium in size and of rather irregular outline. The skin is pale yellowish grey russet, freckled with russet and reddish brown next the sun, the flesh greenish white, firm, juicy and sugary and with an aromatic flavour. The tree makes a large standard and is free in production.

DUAL-PURPOSE APPLES

WHEN I visited the gardens of the late Dr. Bull (Herefordshire's great pomologist) his daughter, Miss Maud Bull, pointed out to me several items of great interest, sentimental and practical, but those which interested me most were some fine Apple trees of varieties thought highly of by her late esteemed father.

NEW BESSPOOL has fruit of medium size, and the particular tree I was looking at, planted by the late owner over fifty years ago, is now capable of carrying 12cwt. to 15cwt. of fruit. This tree came to Dr. Bull from Yorkshire, and after a while many trees were grafted from it in the orchards of Herefordshire, and it is known by many of the older school as Yorkshire Pippin. The tree is a healthy grower of somewhat upright habit and insists on a "rest" season, this being one of its noticeable traits. The fruit carries a nice bloom, is about 3ins. wide and about the same in length, the skin dull yellow on the shaded side, streaked with broken stripes of pale red and dark red next the sun, strewed with russety dots. The stalk is stout and straight, inserted in a russety cavity, the flesh greenish white, crisp, juicy, sweet and of excellent flavour. One of the good points of this desirable Apple is its long keeping qualities, it being an ideal dessert fruit for those who can masticate firm-fleshed Apples. Another good point is the lateness of its flowering. It is, in fact, about the last to blossom, and appears to be self-fertile. It succeeds as standard, half-standard or bush.

Another little-grown sort Dr. Bull thought well of was WORMSLEY PIPPIN, and although not a late keeper, it is, assuredly, a valuable Apple. The tree he planted was beginning to shew signs of age, but the few fruits shewn me were as luscious looking as pretty. A seedling raised by the late Mr. T. A. Knight and brought to notice about 1811, this particular tree came to Dr. Bull from Mr. Knight's private nurseries at Tillington, a village about five miles from Hereford. Mr. Knight was born at Wormsley Grange on August 12, 1759, and no doubt his seedling was named in compliment to the old home. The fruit somewhat resembles that of the American variety Newtown Pippin, the skin being smooth, of a clear deep yellow, the fruits medium to large in size, ovate, with angular sides, which terminate at the crown in several prominent ridges. The tree is healthy, hardy, and in favourable seasons an abundant bearer; the flesh yellow, tender, crisp, sugary, with abundance of juice. I noticed that the foliage was large and of a pale green colour.

Another Apple highly esteemed by Dr. Bull was GRAVENSTEIN, and he was always emphasising its utility to his many friends. This beautiful and excellent Apple is so useful, both for kitchen use and for dessert, that it is strange more trees are not to be found in gardens. The fruits are medium in size, the skin smooth, pale yellow and streaked with bright crimson on the side next the sun, the tree a vigorous grower and free from canker; at least the tree I saw was perfectly clean. It is a mid-season variety, keeping to about the end of December if properly stored. The flesh is white, crisp and juicy, with an aromatic flavour. Miss Bull considers Gravenstein to be the best early and mid-season variety in the garden.

GEO. LOVELOCK

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THE GARDEN

No. 2721.—Vol. LXXXVIII.] [January 12, 1924.

THE LABURNUMS

During May and June there are no more beautiful flowering trees for garden and open woodland than the Laburnums.

FOR small and large gardens the Laburnum is equally suitable. The trees thrive in nearly all soils, the exception being ground of a boggy nature. While the Laburnum is one of the best known of the smaller flowering trees it is by no means so freely planted as its beauty deserves. In addition to the two well known species LL. alpinum and vulgare, and the little known L. caramanicum, there are quite a host of hybrids and varieties, forming, when a representative collection is grown, an interesting and showy group of flowering trees.

The Laburnum has been so long and widely cultivated in our pleasure grounds that one is not surprised if a doubt is expressed when an interested party hears for the first time that it is not a native tree. The date of its first introduction does not appear to be definitely recorded. Under the name of Anagyris, Laburnum, and Bean Trefoil, Gerard cultivated either L. vulgare or L. alpinum in 1597. Miller, in his "Gardeners' Dictionary," was apparently the first to describe the two as distinct species. In Vol. V of the "Botanical Magazine," Tab. 176, published in 1792, the name Cytisus Laburnum is used with the proviso that "our nurseries afford two principal varieties, the broad and narrow-leaved; the latter (which is the one figured) Mr. Miller was induced to make a species of, under the name of L. alpinum."

In suburban gardens, unfortunately, many Laburnum trees come in for a share of the indiscriminate yearly pruning, hence are unable to develop their full beauty. It is as lawn trees, preferably with an evergreen background, that we can appreciate their full worth, specimens 15ft. to 20ft. in height, occasionally higher, and usually more in width, with a short, thick, often slanting trunk. This defect, if it is one, can be obviated by staking the trees for the first few years after planting.

Though so readily raised from seeds, it is, no doubt, the indiscriminate raising of seedlings which accounts for so many poor varieties being cultivated. When seedlings are grown the seeds should be gathered only from the very best forms. Grafting or budding, using seedlings as a stock, should form the main source of increase. The Laburnum is also a good stock for some of the Cytisuses, notably C. Dallimorei and the pretty standards of CC. purpureus, kewensis and Beanii.

A PLEASING CONTRAST, LABURNUM VULGARE AND A HANDSOME PÆONY.

L. ALPINUM.—The Alpine or Scotch Laburnum is a native of Central and Southern Europe, being found wild in most of the localities where the Common Laburnum grows. The name Scotch Laburnum apparently arose from the erroneous idea that a tree so long grown (over 300 years), and widely cultivated, must be a native. The most important differences between the two species are tabulated at the end of the article.

With trees so long and widely cultivated it is not surprising that many sports and hybrids have been raised, so that to-day it is not easy to determine to which species many of the forms belong, while some of the hybrids partake of the best characters, long racemes, large individual blooms and rich colour of both species.

The following varieties are usually included under L. alpinum.

Var. autumnale is so named because the trees usually develop a second crop of blossoms in autumn.

Var. fragrans is a form with more scent.

Var. hirsutum.—In this form the downy character of the leaf suggests that this may be a hybrid with L. vulgare.

Var. pendulum is a form with more or less weeping branchlets.

L. VULGARE.—The Common Laburnum is a native tree of Central and Southern Europe, which includes Southern and Eastern France, Switzerland, Italy,

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Southern Austria, Hungary and Serbia. Among a large number of varieties the following are the most distinct and desirable.

Var. Alschingeri is a wide form from Eastern Europe with leaflets conspicuously downy and a two-lipped calyx.

Var. aureum, the golden or yellow-leaved Laburnum, is a novel and pretty tree when well placed in the landscape. Other names for this tree are chrysophyllum and foliis aureis.

Var. involutum, which has curled or twisted leaflets, is also named cristatum and bullatum.

Var. quercifolium.—As the name suggests, the lobing of the leaf resembles that of an Oak.

Var. sessilifolium is a form with larger leaflets which have little or no stalk.

For general garden planting it is large-flowered, long-racemed hybrids which should receive the most attention. These it is obvious must be increased by grafting to reproduce them true.

L. PARKSII originated in a seedling, obviously a hybrid, raised by Mr. J. D. Parks of Dartford. The raceme of flowers is long and notably rich in colour.

L. VOSSII has racemes of glistening pale yellow flowers in racemes often 18ins. to 22ins. long and is very free flowering.

L. WATERERI, raised in the nurseries of Messrs. Anthony Waterer, is notable for freedom of flowering, length of raceme and depth of colour.

A very beautiful form at Kew labelled "Latest and Longest," well merits the name.

L. CARAMANICUM is a little known species, a native of Greece and Asia Minor. It was first introduced about 1879 or 1880. Described as a small tree, the one or two specimens I have seen were thin bushes some 3ft. to 5ft. high. Flowering late in the season on the shoots of the year, a little shortening of the growths is desirable about March. The yellow flowers are in terminal racemes, quite unlike those of the other two species. It is figured in the "Botanical Magazine" Tab. 7898. The plant is evidently one for a sunny corner and light well drained soil.

L. ADAMI.—This remarkably interesting tree appeared in the nursery of M. Jean Louis Adam at Vitry, near Paris, in 1825. As is often done, M. Adam budded Cytisus purpureus, using the Laburnum as a stock. To his surprise one of the branches grew more vigorously and developed purplish-yellow racemes of flowers. This character he was able to perpetuate by budding or grafting. Later some of the branches of the graft-hybrid produced growths shewing signs of reverting to the two parents. Many of the trees growing in our gardens to-day develop the three types of growth and flower. I can call to mind no tree which has created so much interest among scientists, and it has furnished a theme for many writers. Though so much has been written upon the subject, as regularly as June comes round we receive at Kew flowering specimens, sometimes with novel suggestions to account for the "freak." The interest attached to the tree has evidently resulted in its being fairly widely planted for some years, if one may judge by the description of the trees from which the specimens come.

The planting of Laburnum trees in parks where cattle browse is not desirable. While trees in the woodland and pleasure grounds are frequently damaged by hares and rabbits with apparently no harm to themselves, cattle have been known to develop poisonous symptoms after eating Laburnum leaves and twigs, sometimes with fatal results, while other records tell of cattle making sumptuous meals from the trees without harm. There is a very decided risk, which is not worth taking. Children who have eaten the seeds in a green state have been violently affected with symptoms of poisoning, death even resulting in one or two instances.

A HANDSOME TREE OF LABURNUM ALPINUM.

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LL. ALPINUM AND VULGARE COMPARED.

	L. alpinum.	*L. vulgare.*
Leaflets	.. 2ins. to 4ins. long, glabrous or only slightly downy.	.. 1½ins. to 3ins long, downy beneath.
Racemes	.. 12ins. to 18ins. long.	.. 8ins. to 12ins. long.
Flowers	.. ½in. to ¾in. long.	.. ¼in. or more long.
Seedpods	.. 2ins. to 2½ins. long; flat, winged suture.	.. 2½ins. to 3ins. long; thickened suture.
Flowering Season	Second half May.	June.

A O.

NOTES FROM FLORAIRE

CAMPANULA ALLIONII ALBA (see Mr. C. Elliott's note in THE GARDEN, for December 8, last, page 634), is indeed a beauty. I found it in August, 1909, on a barren slope near the Lake Foréant (Haut Queyras), and we cultivated the form here and sent it over to many gardens up to 1914; we planted it in our gardens at Bourg-St.-Pierre (4,300ft. altitude), and on the Rochers de Naye (6,000ft.) and it grew there, especially on the latter, very happily. But from 1914 to 1920 we could not take care of these two gardens so that weeds invaded the rarest plants and killed our most treasured specimens. Now, Mr. Elliott seems to have ascertained that the plant has disappeared from English gardens and I believe he is right. I would advise him—he is one of the keenest of growers and collectors—to go to Lake Foréant and seek the plant again. I took only a bit of it, letting the bigger part of the plant remain.

There is at the foot of the Mont Aiguille (Dauphiné) at Les Pellats, a dazzling "pierrier" where I once found C. Allionii at its best, much bigger and more deeply coloured than anywhere else. I believe it to be what Mr. Elliott calls the Backhouse Variety. The flower is very large, not solitary, as it should be, but grouped in fives and sixes on the stems, just like those of C. speciosa in the Pyrenees, and deeper in colour than is common. At first sight I thought it was C. speciosa, but it really was C. Allionii. It was there mixed with the rare Eryngium Spinalba, with Erinus, Dryas, Primula Auricula, Globularia, and that great beauty Gentiana angustifolia.

Our Primula Allionii, which we grow on the eastern or western sides of perpendicular walls, are doing well; we grow them in limestone. They flower well, but give little seed. We ought probably to pollinate them artificially.

P. cottia, which is very near to P. villosa of the Eastern Alps, is a curious plant, covered with brown hairs, as in P. pedemontana; it is, however, more woolly and has deep carmine flowers. It wants a cliff with a north aspect, as does its companion plant, Campanula Elatines. This Campanula is one of the most curious plants I know, growing on the hardest granitic rocks and carpeting them with its long flexible trails of deep blue flowers which open in autumn. Its near relative, C. elatinoides, which I used to find all above the Presolano group in the Bergamasc Alps, has woolly and bigger foliage, larger and brighter flowers and grows in limestone rocks, always in shady places protected somewhat against rain.

Campanula Raineri grows near it, but in very sunny situations, covering barren limestone rocks exposed to the full sun. The plants spring up from the surface of the stones in such a way that one cannot determine how they take root in them. The same peculiarity is noticeable with C. Morettiana, which grows only on shady cliffs in the Tyrol; it is very difficult to extract and most difficult to grow.

The rare C. petræa, with yellow flowers, is also a rock lover and spreads by insinuating its stolons into rock crevices; they form at the surface of the cliff large, woolly, fleshy rosettes. The flowers in little heads of yellowish colour spring from the oldest rosettes in late summer.

GENTIANA ACAULIS ALBA (= G. GENTIANELLA ALBA?) AT FLORAIRE.

THE BEAUTIFUL GENTIANA VERNA CHIONODOXA AT FLORAIRE.

The white Gentiana acaulis* is seldom found in Nature. I have myself never found it, but one of our men did. It is exceedingly pretty, with the five green spots in the throat of the flower. But the white G. verna is more easy to find on limestone pastures. The flowers are pure white and

Farrer, when once he saw it here, said it should be called G. chionodoxa (Glory of the Snow). It must be given a rather light soil and sunny aspect.

G. bavarica is by far the deepest blue in Nature. The plant is moisture-loving, always growing near running water and in spongy soil in a damp but sunny situation.

The carnea group of the genus Androsace is the cause of much confusion. There are six different forms of the species, one of which (A. Laggeri) is quite a distinct plant, although the French botanists consider it merely a form of Erica carnea (see Coste Gillet and Magne, etc.). I once gave in THE GARDEN (May 16, 1903, page 333), a note with two drawings representing Androsace carnea and A. Laggeri, from which the difference is easily realised. While A. carnea grows on granitic Alps, A. Laggeri is entirely Pyrenæan. The former makes small, thin tufts of lax rosettes, the leaves of which are recurvate, slightly glaucescent and very shortly ciliate, the whole plant being pink coloured in autumn. The flower stems are upright, 2ins. to 4ins. high, each bearing a small umbel of little pale pink flowers. A. Laggeri is confined to the Pyrenees, where it replaces A. carnea and

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has hitherto been considered a form of it. The Index Kewensis, of which the tendency is against setting up an unnecessary number of species, keeps it as a true species, I am glad to say. Moreover, both its aspect and its cultural needs would separate it from its congener. Seen side by side here, the difference is so clearly marked that nobody would confuse them. A. Laggeri is stoloniferous, forming sometimes patches 10cm. to 30cm. broad; its leaves are very narrow, never recurvate and often imbricate, light green, quite smooth, forming little cylindrical shoots tipped with a small rosette. The greater number of the shoots remain sterile and the others rarely bear more than one flowering stalk. Curiously enough the flower stalks are sessile when the flowers open, being attached to the end of the shoots like those of Aretia glacialis, Douglasia Vitaliana, etc. By degrees, however, the stem lengthens as well as the pedicels of the flowers, so that, after a few days they form a little rose-coloured bouquet of five to six flowers on a stem 2ins. to 3ins. high, taking on the appearance of a little Primula farinosa.

The varieties of Androsace carnea are A. puberula (Monte Viso and neighbourhood), with whitish pubescent leaves; A. Halleri, with leaves sometimes longer than in the type, always recurvate and strongly ciliate, from the Cevennes and the Vosges); A. Reverchoni from Piedmont, which is a pure white form; and A. brigantiaca, from the French and West Italian Alps, with thin, long stalks, often approaching 1ft. high, very pale pink flowers and very narrow leaves. All these are readily raised from seeds and easy to grow in light soil in sunny situations or between rocks.

"*Floraire*," *Geneva.* H. CORREVON.

[*The picture which M. Correvon sends is apparently of the white form of the Gentianella, which, we take it, could hardly be collected in the Alps. It would be interesting to know which of the five related species comprising G. acaulis *L.* throw albinos and how many of them have white forms in cultivation.—ED.]

THE TREATMENT AND PLANTING OF DRY BANKS

Some Suitable Shrubs.

HAVING for a number of years been confronted with the problem of covering the dry soil of steep garden slopes, I think some of our experiences may be of interest to the many others who are at times "up against" similar difficulties. It should be understood, however, that over a considerable portion of the ground our object has been not only to make the desert "blossom as the rose," but also, at the same time, to defeat the law of gravity as it affects a loose, gravelly soil.

In the first place, and for obvious reasons, we have always contrived to avoid, as far as possible, the cultivation or breaking-up of such areas. Rather have we endeavoured to select plants that will suit such conditions, strong-growing, drought-resisting shrubs and herbs which actually delight in exploring with their roots and binding together the gritty, often-stony, crumbling soil.

When, as in the case of the choicer Heaths, it has been deemed desirable to add something in the way of moisture-retaining material, leaf-mould has been the main stand-by, this sometimes being supplemented with old cow manure, well weathered peat moss litter and decayed vegetable rubbish. Where the slope allowed, one or other of these substances would be worked in to the subsoil prior to the planting, and the plants would also be given something of this kind about the roots in addition. In any case, one is faced with the fact when planting slopes of this description that whatever has to be done by way of improving the soil can only be carried out before or during the actual stocking of the ground. Subsequent top-dressings are a waste of time and material when one's slope is too abrupt to allow anything to lie with a fair chance of its being incorporated with the soil. If there were no birds and no heavy rains things might be different, but having an abundance of both we prefer to put our dressings underground.

Deep planting is the rule in tackling work of this kind. That is to say, most kinds are put in much deeper than would be considered desirable under more normal conditions. Then in opening the holes for any plants that allow of such treatment, the former are made at right angles to the lie of the land, not with the handle of the spade at the perpendicular. This is especially important in the case of Heaths and, indeed, there are few plants or shrubs which, in the circumstances, are not better planted in that way.

Considering first those drought-proof shrubs which will prosper in a poor, gravelly loam which has undergone no cultivation of any kind, save, perhaps, a rough surface-cleaning, the Brooms are of primary importance. We have found no ground too hot or too impoverished for these, and (unless they happen to come in pots) we always plant them, as seedlings or rooted cuttings, by simply slipping them into a deep slit made with the spade. Beyond reducing the leading stems by about one-half they get no further attention and we rarely lose a plant.

It is not necessary here to name the various kinds of Brooms which can be employed for the purpose under discussion. All of them are excellent. But the discerning will, naturally, make his selection in accordance with the dimensions and nature of the space he has to cover, since in the Cytisus group alone he has a wide choice from CC. Ardoini and decumbens, of 4ins. to 5ins., to CC. scoparius (in great variety) and albus, which may go up to 8ft. and more. In Genistas the range of suitable kinds is even greater, such superb species as GG. virgata and cinerea making 10ft. with a circumference in proportion, and then there is a whole host of smaller ones of infinite diversity, many of them producing ground-hugging mats and mounds of dense growth which are admirably suited for clothing sterile, sun-beaten banks.

These latter shrubs may, of course, be used alone, grouping the various sorts of like character together, or they may be worked in with such as the dwarfer Heaths. They also make a first-rate undergrowth, however, for any of the tall kinds of slender, sparse habit, such as C. albus, G. ætnensis and that fine old shrub Spartium junceum, all of which are liable to be rather too thin and leggy for use alone. Moreover, it has to be borne in mind that a good ground covering is half the battle in any work of this kind. And now that I am on the subject, I may add, by way of illustrating possibilities, that we have dry slopes clothed with Erica carnea, Vinca major and creeping Ivy among which the taller Brooms and other shrubs are disposed with most satisfactory effect.

BROOM, SPARTIUM JUNCEUM.

Not less adaptable for our purpose here is the Double Gorse (Ulex europæus fl. pl.), than which there is no more gorgeous shrub in British gardens. Few seem to realise how fine this is and how superior to the type. Indeed, not a few are as unfamiliar with it as the lady who, on gazing with rapt astonishment at a broad belt of Double Gorse blazing in the sunshine of last May and being told what it was replied, "But I thought all Gorse

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was double!" This magnificent plant scorns the terrors of drought in the most abject apology for soil, and is quite easy, especially if put out from pots. It makes a fine background for Erica cinerea, rosea and other varieties. The dwarf, autumn-flowering Gorse (Ulex nanus) and the superior U. Gallii of the same style and habit are both useful for our purpose here. What we need, however, and what I have been waiting for for a long while is a double form of one of these, preferably the latter. Then we should have a low-growing, compact, autumn-flowering Furze which would prove of inestimable value, either alone or for use with other shrubs, such as the later Heaths.

In addition to the Ericas already mentioned, viz., EE. carnea and cinerea, we have found darleyensis equally good for dry places. Calluna vulgaris in many varieties is also happy in very hot land provided it gets away, but we find it generally needs more helping during the first season, bracken or hedge brushings being laid over it in trying weather. The dwarf form of E. scoparia makes a good ground cover in such conditions and is a useful substitute, where such is needed, for the much slower, prostrate Junipers.

Though they are often recommended for arid, sun-scorched soils, the hybrid Helianthemums do not stand up to our extreme conditions as courageously as their reputations would seem to promise. Even so they will generally prosper if given a fair start, and nothing can be gayer where a display of brilliant colour is desired. Better than any of these when resistance to drought is a first consideration is the beautiful H. formosum, a low-growing shrub which, owing to its semi-prostrate, sweeping habit, is admirably suited for growing on sloping ground. This species will, moreover, cover a considerable area with its thicket of spreading, grey-leaved branches, and the form known as H. f. unicolor is certainly not less useful and charming. After the same style but taller and more upright are HH. halimifolium and algarvense (ocymoides), and H. alyssoides, which is greener in leaf and closer in growth, is also a first-rate plant—probably the best of all the dwarfer yellows. The white-flowered H. umbellatum, with foliage like a small Rosemary, also claims special mention here. There are a number of quite dwarf yellow-flowered species of which H. lunulatum is one of the choicest, and the Sun Rose usually sent out as H. polifolium is a robust and reliable grower anywhere.

All of the above are hardy enough for most places and, being lime lovers, they will prosper where Heaths might not be so successful. The true Cistuses, good as they are for dry soils and sunny aspects, are no more long-suffering here than the Helianthemums of garden origin. We have places that even they cannot stand without a check should the summer be droughty. But, even so, the Rock Roses are, as a race, reliable enough for the general run of dry gravelly soils and, provided the climate is suitable, very beautiful effects can be produced by massing these shrubs on warm slopes, either alone, or as a backing to groups of Helianthemums.

All the creeping or semi-prostrate Cotoneasters are first-rate for covering sloping ground that does not admit of cultivation, and CC. congesta, microphylla, thymæfolia and adpressa are all particularly happy in such conditions. C. horizontalis, with the prostrate form, is also vastly more pleasing grown thus than it is against a wall, and C. humifusa, most prostrate of all, is ideal for the purpose. Any of the dwarfer among these may be used as a ground covering for other shrubs, or they can be interspersed with their own kind, such as CC. pannosa, Dielsiana, bullata, Francheti and others, with good effect, most of these being able to stand a deal of drought without signs of suffering.

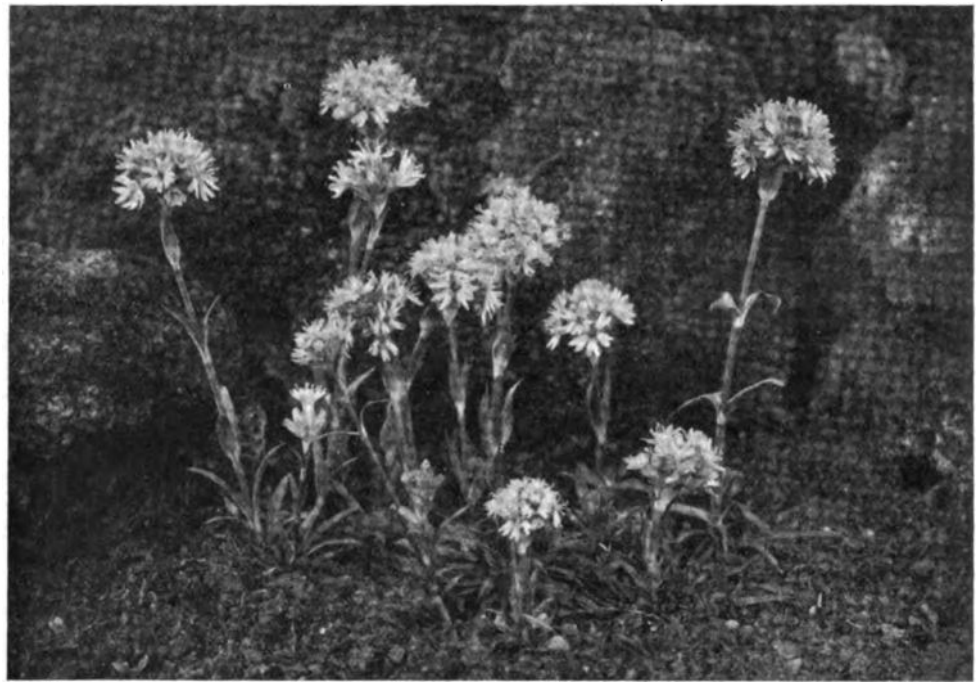
The shrubby Salvias and Lavenders are good dry-soil plants and, as a low-growing flowering shrub, the prostrate Rosemary would be difficult to excel, for its fine dark green is cheerful at all seasons. Santolina Chamæcyparissus must also be mentioned here, and the peculiarly vivid green of a patch of S. viridis is a heartening thing to look upon when most shrubs are shrinking beneath a pitiless sun. The hybrid Colutea media is a trustworthy shrub, for such conditions and we are trying Adenocarpus decorticans in one of our hottest places where it will also get some winter protection.

Artemisia tridentata, the grey-leaved, fragrant Sage Brush of American plains, is quite content with the most sterile of baking soils, and there are a number of other shrubs in this genus, including A. Abrotanum (Southernwood) and its varieties which are eminently suited to our purpose here. The shrubby, or sub-shrubby, Rest-harrows (Ononis), Muehlenbeckias, Convolvulus Cneorum, Burnet Roses, Rosa Wichuraiana, Berberises buxifolia and Hookeri and others, Olearia Haastii, Yuccas and Cassinea fulvida may also be mentioned, in concluding a very incomplete list, as serving to show what a great variety one has to choose from in selecting shrubs for the purpose in view. A. T. J.

THE CAMPIONS

THE Campions belong to the Pink Order (Caryophyllaceæ). There are thirty species spread over the Northern Temperate Regions, mostly in Europe and Asia. There are only a few in America, and those of little value from a garden point of view. Included in the genus Lychnis are several species which have been placed in other genera by various authors. These genera include Agrostemma, Viscaria, Githago and Petrocoptis. The differences, however, are so slight that there is no purpose in keeping them up, and it is more convenient to retain the plants in one genus. The characters of this genus are those of Silene, from which it differs in having five styles and in several other minor points. The Campions have showy flowers, some of which are so brilliant as to give rise to the name Lychnis, which signifies a link or lamp. All the species, including perennials and annuals are of easy culture, thriving in almost any garden soil, but succeeding best in a half-shady position in light rich loam. The perennials may be propagated by division in autumn or spring, or by means of seeds, which as a rule are produced freely. The annuals may be sown in the autumn or spring in the open border where they are to flower. Thinning out the seedlings should be attended to early in order to give them plenty of room to develop.

The various members of the genus are useful for all kinds of gardening. For the wild garden we have one of the easiest-grown species in L. coronaria, commonly known as Agrostemma coronaria. It spreads rapidly by means of self-sown seedlings, and makes striking groups of vivid colour that are very effective in the distance. For the border few dwarf plants are brighter than the German Campion (L. Viscaria) and its fine varieties, while other good border plants are the lovely forms of L. Haageana and L. chalcedonica. Such dainty plants as LL. alpina, Lagascæ and pyrenaica make pretty groups in the rock garden and are useful for growing in pans for display in the alpine-house in spring. The following are all good garden plants:



THE NEAT-GROWING LYCHNIS ALPINA.

L. ALPINA.—The Alpine Campion is a charming little plant which is found wild on the alpine moors and ravines in Cumberland, and in parts of Scotland. It is also spread over the mountain chains of the northern regions, usually found on the highest granitic and limestone rocks near the snow line. It is a tufted plant with rosettes of narrow leaves from which are produced the flower-stems, only 3ins. or 4ins. high. The rose-coloured

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flowers of the typical plant are produced in dense heads in May and June. It is variable in colour, some forms having pale pink and others almost pure white flowers. There is also a double-flowered form which is very attractive. This plant thrives on a sunny ledge in gritty soil, and is easily raised from seeds sown in spring.

L. CHALCEDONICA (Jerusalem Cross).—There are several varieties of this showy species, including forms with single and double scarlet, and single and double white flowers, and others of intermediate shades of colour. Both the species and varieties have been grown in our gardens for over three hundred years, as they were mentioned by Gerard in 1596. It is a native of Russia, but it is also found now in other parts of Europe, forming bushy plants up to 3ft. or more high with leafy stems bearing bright scarlet flowers in terminal heads from July to September. The type may be increased by division or seeds, but the varieties are best increased by cuttings taken off in the early summer.

L. CORONARIA (syn. Agrostemma coronaria).—The Common Rose Campion is a short-lived perennial, and is remarkable for its thick woolly leaves, which are covered with a silky down so as to look quite white in the distance. There are several forms, including var. alba, a good white; var. oculata, having white flowers with a rose centre; var. atrosanguinea, rich crimson purple; and var. Walkeri. The latter has rose-crimson flowers and is supposed to be a hybrid with L. Flos-jovis, but appeared spontaneously in a garden in Chester, where the two parents were growing. The species is a native of the mountains of Italy and other parts of South Europe, extending to the Caucasus, and has been in cultivation as long as the above species.

L. DIOICA, Red Campion (syn. L. diurna), is a native plant which grows from 1ft. to 2ft. high, and bears purplish rose-coloured flowers from May to September. It is a showy and pretty plant under cultivation, especially the double-flowered form, which can only be increased by division. The single-flowered type is a good wild-garden plant and effective in the hardy fern border. L. Preslii is a glabrous-leaved form of this species of more erect habit.

L. FLOS-CUCULI, Ragged Robin.—Another pretty British plant which is usually found in moist situations on the edges of streams or in marshy ground. It grows about 2ft. high, and bears rosy red coloured flowers having deeply cut petals. Var. alba is a beautiful white form, and there is also a double-flowered kind grown in gardens. In congenial situations the typical plant spreads rapidly, soon forming large colonies.

L. FLOS-JOVIS, Rose Campion, Flower of Jove (syn. Agrostemma Flos-jovis).—A native of Switzerland, this is closely allied to the Common Rose Campion (L. coronaria) in habit and appearance. It grows about 18ins. high and has purple to scarlet flowers in umbellate heads in July.

L. FULGENS.—A handsome plant from Siberia, from whence it was introduced into cultivation in the year 1819. It grows about 1ft. high and bears large flowers of a brilliant vermilion colour during spring and summer. The petals have a ragged appearance, being four cleft, with two large and two small divisions. The stem and leaves are hairy, as in most members of this genus. It thrives in a light rich soil in a half-shady situation.

L. GRANDIFLORA (syn. L. coronata).—This handsome species is a native of China and Japan, and has been in cultivation about 150 years. About 1ft. high, it differs from most other species in having smooth leaves that are ovate in shape and sessile on the stem. The scarlet flowers, 2ins. in diameter, are solitary or in twos or threes, and are produced in the summer and autumn. It is a good perennial, but requires a sheltered, warm position in good soil. In contrast to L. fulgens, of which it is sometimes classed as a variety, the segments of the flower overlap, forming a perfect-shaped bloom with a toothed margin instead of the laciniate one of L. fulgens.

L. HAAGEANA.—Under this name we get a race of beautiful border plants with flowers of various shades of colour. L. Haageana is of hybrid origin and one of the parents must be L. fulgens, as it has the same shaped flowers with similar cut-flower segments. Indispensable for the border, it grows about 1ft. high, with shaggy hairy stems, purplish lanceolate leaves and flowers two or three together during the summer. The flowers range in colour from brilliant scarlet to pure white, and are each about 2ins. across. It is easily grown in the open border, and is a good perennial, easily raised from seeds or increased by division. Probably only one of the numerous forms of this, a plant was exhibited at the Holland House Show in 1913 under the name of L. Arkwrightii. It was stated to be a hybrid between L. Haageana and L. chalcedonica, but shewed little, if any, trace of the latter. It had traces of the purplish leaves of L. Haageana and large flowers.

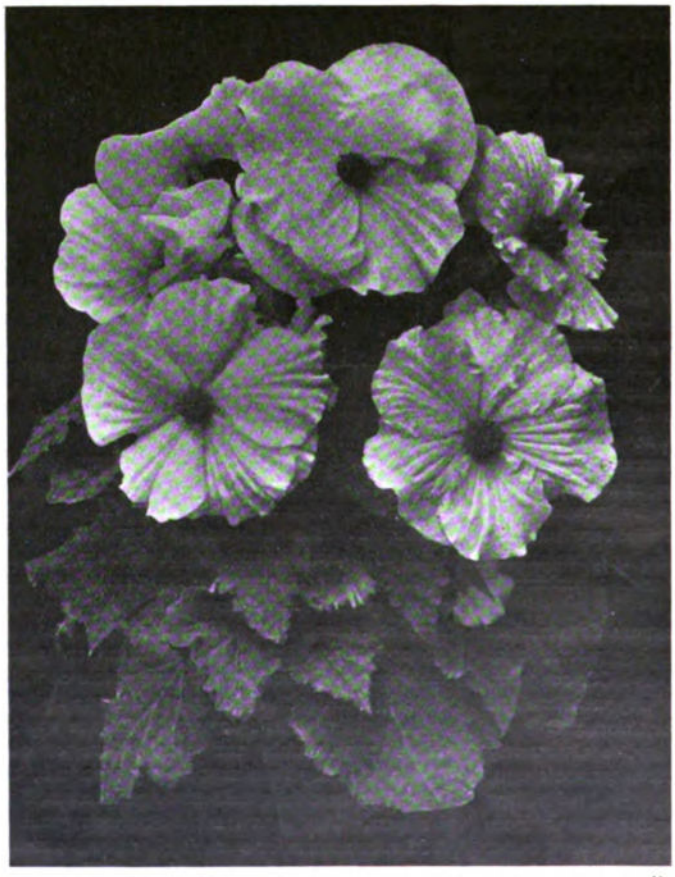
L. LAGASCÆ (syn. Petrocoptis pyrenaica).—An elegant little compact-growing plant for the rock garden, it will thrive on sunny ledges. Only 3ins. high, with freely branching stems and glaucous obovate leaves, it produces during spring and summer bright rose-coloured flowers with white centres in great profusion. A native of the Pyrenees, it is easily raised from seeds sown in spring.

L. PYRENAICA.—Closely allied to the above, of the same growth and habit, but with flesh-coloured flowers, this is probably only a colour variety, although given specific rank by some authorities. It also comes from the Pyrenees.

L. VISCARIA, German Catchfly or Campion.—A valuable border or rock plant of low tufted habit with numerous dark green, narrow leaves and smooth clammy stems 1ft. high. The rosy-coloured flowers are produced in close heads during the summer months. There are several very desirable varieties of this pretty plant, the double-flowered form and one with deep red flowers being especially so. It is a native of this country, and its distribution extends through Europe to Siberia. W. I.

THE CULTURE OF THE BEGONIA.—II

THIS brings us to the method of starting the tubers. The time of starting depends largely upon the date when flowering is required or the temperature that is available. Great heat is neither necessary nor desirable; the more naturally they start, the better the result. Where a long succession of flowering plants is the aim, it is best to start two or three successive batches at intervals, and a note should be made to do this in such a way that the plants which were the first to go to rest the previous year should be the first to be started in the following spring, so that all tubers may enjoy an equal resting period. Whatever batch one starts, it is best to give a brisk warmth at first, about the same as that recommended for seedlings, and cool it down later when the growth is well started. If the heat is not sufficiently brisk at the commencement, one finds that the tubers are very irregular in starting. Shallow wooden seed trays are the best receptacles for the tubers, which should be embedded in the compost just level with the surface but without covering the tops.



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BEGONIA QUEEN OF WHITES.

The favourite compost for starting is almost pure leaf-mould, kept evenly moist. Daily overhead sprinklings will do much towards hastening the starting of the dormant tubers, although there are two points on which care should be taken in connexion with this. One should always use the water tepid, not drawn fresh from the main nor dipped direct from large store tanks; and water should not be allowed to collect in the concave hollow which almost invariably exists on the top of the tubers, as this may start the process of decay. Once the plants are well started and forming leaves, the sooner tubers are transferred to single pots the better. Root production runs

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considerably ahead of top growth and, if one waits too long, damage is inevitable in separating the tangled roots. The best compost for potting consists of two parts fibrous loam to half a part each of rotted manure and leaf-mould. Do not use too large pots for the first potting, about 1in. larger all round than the tuber itself is sufficient at first; then, when these smaller pots are filled, give a shift.

Similar growing conditions to those detailed under seedlings should be provided until the plants begin to form their buds, when more air should be admitted and a considerably drier atmosphere maintained. Careful management at this time makes all the difference, and it is only by judicious shading, careful watering and ventilation that the best results are ensured. One ought not to shade too heavily; a light screening during the hottest hours of the day is all that is required. Dense shading results in drawn plants, with thin, flabby foliage and poor flowers. Keep the temperature down to a reasonable limit, as an excess in this direction considerably shortens the flowering season and produces flowers which are poor in colour and wanting in substance. Watering is a tricky matter to the unskilled, and considerable trouble with that most annoying phase—bud-dropping—is likely to be experienced.

The ideal is to have the soil always damp, but never too wet nor too dry, and the nearer this can be reached, the less the plants will drop their buds when just upon the point of expanding. Keep the under-stage ventilators open both night and day; space the plants well out so that there is no crowding; and, when water is required, apply enough thoroughly to soak the soil, then no more until the surface begins to dry slightly. Light-coloured Begonias are considerably worse behaved in the matter of bud-dropping than those with darker flowers, and therefore greater care should be exercised when watering light-coloured varieties.

The question of feeding the plants is an all-important one. Never feed until the flowering pots are well filled with roots, then use as wide a variety of stimulants as possible, but always with one proviso—let them, whatever their nature, be weak. Liquid animal manure, patent fertilisers, chemicals, soot—each and all of these have their value and should be used after previously watering the soil with plain water.

After carrying the plants through their flowering season, we come to another very vital phase of their future well-being, the slow, gradual ripening off and putting to rest for the winter. Increase the amount of air, lower the temperature and, as the tops become yellower and yellower, correspondingly reduce the water supplied to the roots so that the sap is gradually driven back into the tubers themselves and the stem falls off, a sure indication that perfect ripeness has been attained. But it is possible to hasten this by too suddenly cutting down the water, and, although the stems may fall, such tubers are the ones that fail to start freely in spring or become a hard, dried-up mass during winter. After the stems have parted from the tubers, give them a few days more for the outer skin to harden, then store.

One cannot propagate named varieties, which are usually double, true to type by means of seeds, and, in their case, cuttings must be used to increase one's stock. These cuttings are easier to root than one might suppose in view of the succulent nature of the stems, the main point being great caution in the application of water until a callus has formed and begun to form a few roots. The best time for this work is as early in the season as sufficiently long shoots can be obtained. The cuttings are then far less liable to decay than when taken off later in the summer. The best cuttings are formed of shoots 2ins. or 3ins. long, snapped rather than cut off, so as to avoid bruising the succulent stems. Lay these on the greenhouse shelf (but out of the sun) for a few hours partially to dry the base, then insert in very sandy soil and place under a bell glass in a temperature of between 60° and 70°. Do not press down the soil too hard, keep the atmosphere moist and water very sparingly. When roots begin to form—which can be told by renewed growth—the cuttings should be gradually hardened off and accustomed to the air of the house in which they were rooted, and, shortly after this, transferred to single pots and grown on steadily and rapidly to obtain as fine tubers as possible before winter.

W. CANNING-WRIGHT.

(To be continued.)

PREPARED CYNTHELLA HYACINTHS

I HAVE been told by trade growers in Holland that my advocacy of Cynthella or, as many still know them, miniature Hyacinths was an important contribution to their popularity. The old men of the Hyacinth world were aghast at the very idea of anyone liking these "hobbledehoys" better than the properly finished article. Some looked on the suggestion almost in the same spirit that greeted the introduction of Arkwright's new machinery among the weavers; it would spoil to some extent the trade *par excellence* of Holland—and then the deluge! The result has falsified their fears. Every English bulb-list contains an offer of Cynthella Hyacinths, and very often gives a picture of some in low pans or small pots to shew would-be purchasers that the letterpress that accompanied it was no high-falutin description. Cynthella Hyacinths have come to stay. Readers may remember a picture of pans of Hyacinths in full bloom at Haarlem on, I think, December 23, 1922, which appeared last February in THE GARDEN. It was an example of what "prepared" Cynthellas are capable of doing under proper treatment.

CYNTHELLA HYACINTHS AND OTHER BULBS AT A HAARLEM SHOW IN DECEMBER, 1922.

I doubt if we shall ever be able to "prepare" Hyacinths in Great Britain, for, akin to what Mrs. Glasse said of the hare in her famous book of cookery, we must first grow them, and it is almost certain that this can never be done successfully. In fact, I rather think that the South of France has been laid under contribution for their last season's growing and preparing. Something has gone wrong with the well known old Roman Hyacinths of late, and the best bulbs are very expensive. Prepared Cynthellas may be relied upon to take their place from the middle of December onwards. Anyone with a warm greenhouse that never exceeds 55° can very easily have them in full flower at or just before Christmas provided the bulbs are obtained and potted in good time.

My own were started on August 17 and grown in a darkened cold frame in the usual way until they had made good roots and about 1½ins. of top growth, when they were transferred on October 26 to a temperate greenhouse of which some three hundred Nerines were the only other occupants. Naturally, the Hyacinths were not forced in any way. But when December came, a trifle more heat and rather less air was given, with the result that I had a number in flower for Christmas. It would have been an easy matter to have had a big display on December 20, hence I can safely recommend these "prepared" Cynthellas as good substitutes to readers who like the old Roman type. Better, let me say, that I found the Dill seeds which grocers sold as Caraways in war time.

The three varieties which I have grown are L'Innocence, Schotel (pale blue) and Grand Vainqueur (pink). The last named has more slender-looking spikes than the other two. L'Innocence comes into bloom the first of the three. All three provide attractive little spikes of bloom for small vases.

JOSEPH JACOB.

FORTHCOMING EVENT.

January 15.—Royal Horticultural Society's Fortnightly Meeting.

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A HANDBOOK OF CONIFERÆ

REVIEWED BY PROFESSOR A. HENRY.

THE cultivation of conifers in this country is on a grand scale, both for ornament and for production of timber. The number of species that has been introduced into our gardens, parks and forests from foreign lands is immense and their discrimination is not an easy matter. In addition to the typical wild forms, which are always reproduced by seed, there are numerous sports which have arisen from solitary buds or stray seedlings; and these are usually propagated by grafts or cuttings. The occurrence of sports and hybrids increases the number of distinct sorts of conifers in cultivation to well over a thousand, and much study is required to guide the student through the maze. The most recent treatises of a general nature in English are Clinton Baker's "Illustrations of Conifers," in which plates reproduced from photographs of accurately named specimens clearly elucidate the form of branch and leaf and cone that is characteristic of each of the introduced species; and Elwes and Henry's "Trees of Great Britain," which contains full accounts of the conifers in cultivation. Both these works were issued in limited editions, and are now expensive and hard to procure. Veitch's "Manual," which for a long time was the standard textbook on conifers, is now out of date, and indeed was never really satisfactory, as it contained no keys for the identification of closely allied species. To those who know German, Beissner's "Nadelholzkunde," the second edition of which appeared in 1909, is replete with information on sports and peculiar forms in particular; but otherwise it is similar in character to Veitch's "Manual." Tarouca and Schneider's "Unsere Freiland Nadelhölzer," of which a new edition was published this year, is a fine book, with over 300 illustrations, depicting admirably the habit and botanical characters of numerous species.

Photo, Sir John Stirling Maxwell, Bart.

SCOTS PINE (PINUS SYLVESTRIS) AT ORTON, SCOTLAND.

The frontispiece to "A Handbook of Coniferæ."

This volume* fills a gap in the English literature on conifers. The authors have been aided in their researches not only by their colleagues at Kew Gardens and the Kensington Natural History Museum, but also by the eminent French authorities, MM. Pardé and Hickel, who sent them many interesting specimens from the National Arboretum at Les Barres and other French gardens and nurseries. Mr. Dallimore's long experience at Kew, both in the Arboretum and as an Assistant in the Forestry Museum, enables him to write with knowledge concerning the uses and qualities of coniferous timbers, and gives authority to the notes on cultivation, fungoid diseases and insect attacks, which he has interspersed throughout the volume. Mr. Jackson, who has catalogued the fine collections of trees at Syon, Woburn and Westonbirt, has seen most of the species and varieties in the living state—an indispensable qualification for the botanist whose task lies in their determination and description. I congratulate the two authors on the result of their labours, which have been crowned by the Royal Horticultural Society's award to them of a prize and the Veitch Memorial Medal.

The handbook is carefully compiled and can be relied on for accuracy within the limits imposed by the authors, who state that they write more from the point of view of the forester and the gardener than that of the botanist. The result is a practical work. The genera and species are alphabetically arranged under the two families, Taxaceæ and Pinaceæ, into which the conifers are divided. This renders the book easier to consult than if the species had been grouped according to their natural affinities; but one wonders why a single alphabetical series was not adopted as a further step in simplification. The handbook differs from most of the treatises hitherto published, in including all the known species of living conifers, which are estimated at 380 in number, grouped into forty-four genera. The non-introduced species are very briefly dealt with, but their inclusion will render the book more acceptable to residents in the warmer regions of the Dominions and Colonies, where species unsuitable for our climate are met with.

The book is well printed and finely illustrated, a most useful feature being the 170 excellent drawings by Miss G. Lister, which faithfully portray the branches, cones and seeds of the most important species. In addition there are thirty-one plates depicting individual trees and forest scenes. Those of the conifers of Western North America, reproduced from photographs taken by Mr. F. R. S. Balfour, are of great interest, especially that of Picea Breweriana, the rarest tree in the Pacific Coast region, with wonderful pendent branches, and that of the grove of Abies amabilis in an alpine meadow on Mount Rainier. Such scenes remind us that earthly paradises still exist. That we can grow splendid forests of timber within our own shores is proved by the fine photographs of Scottish plantations of Larch, Common Pine and Sitka Spruce. These were taken by Sir John Stirling Maxwell during war time when the best of our timber was felled. The plantation of Sitka Spruce on the hills at Drumlanrig, however, remains, as it was then only eighteen years old, a fact almost incredible when one looks at the astonishing size of the individual trees, well brought out by the figure of the stalwart forester in their midst.

The authors have maintained throughout the volume a sane system of nomenclature. The trees appear under well known and long established appellations; and the plain man is not bothered with the pedantic names which every now and again are resuscitated from obscure publications, on the plea of priority, by Continental and American botanists. We are also spared, because printing is dear and time is valuable, the long lists of useless synonyms and references to forgotten works,

* "A Handbook of Coniferæ, including Ginkgoaceæ," by W. Dallimore and A. Bruce Jackson. Pages, 570. Plates, 31. Figures, 120. London: Edward Arnold and Co., 1923. Price, 42s. net.

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which usually head the descriptions of species. Such information can be readily found elsewhere when required by specialists.

For the ready identification of species, artificial keys are essential, as without their aid it is almost impossible to match an uncommon species with its description. Such keys should enable a tree to be identified on branch, bud and leaf characters only, as cones are often unavailable, on account of the season or of the youth of the specimen under examination. The artificial keys provided by Mr. Jackson will prove, as a rule, workable; but in some cases may be of little use, as in the genus Larix, where the characters of the cones are invoked to aid in the difficult task of discrimination; while for the genus Taxus no key is furnished. The Key to the Genera on page 14 could also be improved. Indeed, the whole of the introductory matter, pages 1 to 17, is scanty in its treatment of matters like seedlings, buds, foliage, wood, etc.; while no information is given about seeds, which are an important article of trade. The plan of the work may, possibly, justify such omissions, but references could have been given to the best accessible authority on each subject.

The writer differs from the authors in regard to some disputable points, such as the origin of Larix pendula, page 296, which is undoubtedly a hybrid, but this is not the place to start a discussion. One may, however, note that L. Mastersiana cannot be separated from L. Potanini; in fact, the Larch of Western China constitutes one species, somewhat variable in the size of the cones.

In conclusion, I have no hesitation in recommending this book to all lovers of conifers. It will prove a reliable guide to foresters, gardeners and landowners.

CORRESPONDENCE

THE TREE POPPY OF CALIFORNIA.

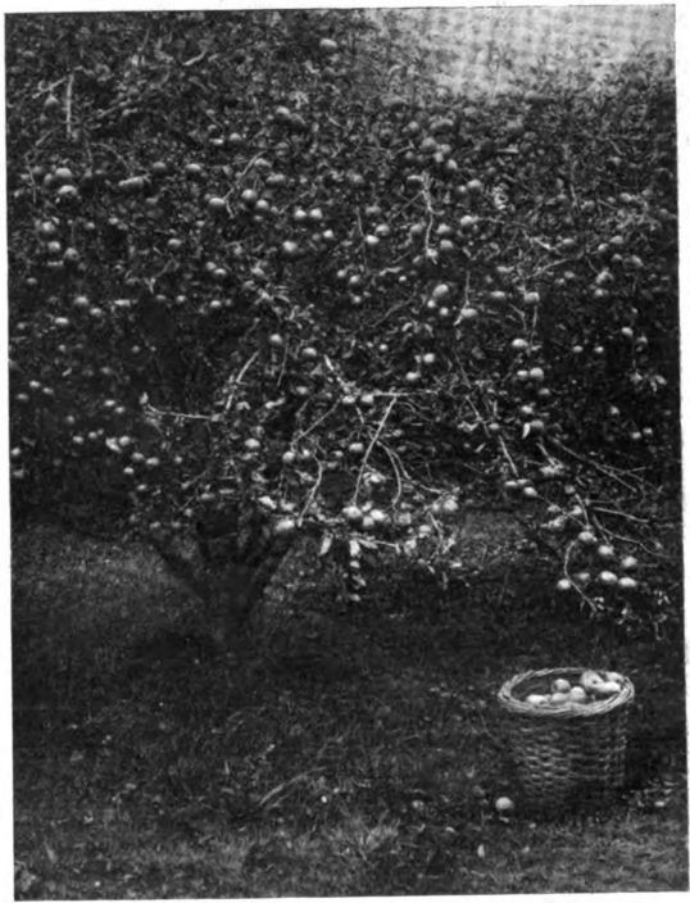
DENDROMECON RIGIDUM is a remarkably beautiful shrub, and although it has been in cultivation for more than a generation, is still rare. This may be attributed to the fact that it is rather tender, but it is not more so than many much commoner plants. Indeed, it is probable that D. rigidum might be grown to perfection in any of our westerly counties, either against a wall or in the open, and it is apparently hardy at Kew, save under extremely severe conditions. There is no doubt but that its life might often be more prolonged were it grown among rocks, or in a stony, free soil, since in such circumstances a very light covering over the base will preserve the root from injury and enable the plant to throw up a fresh crop of branches in spring after the manner of Romneya Coulteri. That, at any rate, is how it is treated here (and we expect our Dendromecons to stand anything in the region of 20° of frost) and it is in a root-run of this kind that it flourishes on the rocky hills of California. D. rigidum is a most graceful shrub, sending up willow-like wands to a height of 6ft. to 8ft. These are furnished with lanceolate, grey-green leaves and, branching freely, they bear at their tips golden-yellow, orange-centred, poppy-like flowers nearly 3ins. across. These open almost flat, are fragrant and last for a week or more. Though the normal flowering season is early summer, the Tree Poppy is seldom out of bloom, and it is this habit of putting out continuous fresh growth that is so liable to lead to injury by frost. The soil, as suggested, should be on the poor side and the situation sunny, a south-westerly aspect probably being the most desirable. In propagation we have have had more success with short, firm laterals taken in spring than with summer shoots.—A. T. J., *North Wales.*

SENECIO ROTUNDIFOLIUS.

DOUBT is expressed by "A. T. J." about the native country of this fine Groundsel (page 678). It is a New Zealander, from the South Island, which ought to ensure its hardiness in all but the colder districts of Great Britain. Cheeseman, whose recent death all good botanists much deplore, describes it as a stout branching shrub or small tree, 6ft. to 30ft. high, growing from sea-level to 3,500ft. We have only small plants here as yet in the open, but these have not flinched under 9° of frost. The flower-heads are without rays, so the bloom is not nearly so handsome as that of Senecio Huntii from the Chatham Islands, which grows to a height of 20ft. and makes a fine display when decked with large panicles of yellow flowers like those of S. Greyi. Its foliage in winter is very beautiful.—HERBERT MAXWELL, *Monreith.*

ABOUT APPLE PRUNING

I AM sending to THE GARDEN a picture that I hope may be of interest. It is a photograph I took, late this autumn in my garden, of an old bush Apple tree of Allington Pippin laden with fruit, and it shews clearly the heavy crop the tree was bearing. Nearly four bushels of nice clean Apples of good size and colour I gathered from this old tree this autumn!—not a bad crop from one tree and in a year, too, when Apples are not plentiful. All those who saw the tree "weighing down" with fruit this autumn were amazed at the sight of so large a crop on the tree. Now, it is of interest to note that very little attention indeed has ever been given to the tree, and yet almost every year it bears this wonderful crop of fruit. No, it has hardly ever been pruned or manured or helped in any way. Weeds, brambles and tough grass grow thickly under the tree, for the soil has not been touched for years! How is it, then, it does so well? The soil of course, is very deep and good, but I say this: "Leave the trees a little more to Nature and they will do well." I never did believe very much in hard pruning: cutting and slashing the trees about as fast as they grow! This seems to me quite the wrong way to go to work. It certainly is with orchard trees. The only pruning I care to do is to keep the middle of the tree fairly open and cut away the boughs and shoots that rub against others and, of course, cut all dead wood away. Sometimes I shorten long shoots a little here and there, principally to keep the tree a nice shape. I grow a good many trees in my orchard—about 350—and many excellent varieties, and large quantities of fine Apples I gather from my trees each year; I have Apples nearly all the year round. Just to mention a few, I have a long row of each of these: Cox's Orange Pippin, Blenheim Orange, Ribstons, Worcester Pearmain, Lane's Prince Albert, Bramley's Seedling, Sturmer Pippin, etc. The trees are about twenty years old, and nearly every tree, let me say, is a perfect half-standard, but I do little pruning. Although I leave my trees very much alone, I always have some very beautiful fruits in my orchard each season, and I should like just to add here that for my brilliant red Apples Worcester Pearmain I was given second prize at the first great exhibition of fruit held at the Crystal Palace a year or so ago.—SIDNEY M. HALLOWES, *New Milton, Hants.*



A LADEN TREE OF APPLE ALLINGTON PIPPIN.

CHRISTMAS BLOSSOM.

FOR several years now you have published a list of the flowers in bloom on Christmas Day in two gardens at West Porlock, that of Mr. G. W. W. Blathwayt and my own. Christmas, 1922, established a record with 250 species in flower after an exceptionally mild spell. As we experienced 9° of frost on two nights in November last year and a few degrees on several other nights, we did not expect to be able to record more than 100 kinds this Christmas, but find the actual score is 144. The list is as follows: Abelia floribunda, Abutilon megapotamicum, A. Canary Bird and a red variety, Acacia falcata, Anchusa myosotidiflora, Anemone coronaria, Antirrhinum majus, A. semperviren, Aster Amellus, Arabis

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albida, Aubrietias, Auricula, Anthemis Cupaniana, Berberis Darwinii, Buddleia auriculata, Brachysema, Cassia corymbosa, Calceolaria alba, C. Forgetii, Campanula Medium, Cassinia leptophylla, Cistus florentinus, Clematis cirrhosa, Cotoneaster sp., Choisya ternata, Chrysanthemum indicum (many varieties), C. frutescens (white and yellow), Cheiranthus linifolius, C. Allionii, C. Harpur Crewe, C. Newark Park, C. Cheiri (Wallflower), Chimonanthus fragrans, Chorizema cordatum, Celsia cretica, Cyclamen Coum, Crocus Imperati, C. Tomasinianus, Cytisus racemosus, C. monspeliensis, Coronilla glauca, C. valentina, Cineraria lanata, Daphne Laureola, D. pontica, Dianthus deltoides, D. plumarius (varieties), Diplacus glutinosus, Delphinium Ajacis, Eccremocarpus scaber, Erica darleyensis, E. Veitchii, Erodium hymenodes, Erigeron mucronatus, Eupatorium Weinmannianum, Escallonia montevidensis, Eryngium tripartitum, Fuchsia Cottinghamii, F. microphylla, Galanthus cilicicus, Gentiana Gentianella, G. sino-ornata, Geum Heldreichii, Grevillea Preissei, G. rosmarinifolia, Hamamelis mollis, Helleborus niger, H. corsicus, Helichrysum (annual), Iberis sempervirens, Iris unguicularis, Jasminum nudiflorum, Kennedya sp., Lavandula Stœchas, Lonicera fragrantissima, L. Standishii, Lithospermum prostratum, L. rosmarinifolium, Leptospermum scoparium, Matthiola (Stock), Menziesia polifolia, Malvastrum phœniceum, Medicago arborea, Nicotiana affinis, Omphalodes verna, Primula Juliæ, P. sinensis, P. obconica, P. malacoides, P. elatior, P. Sieboldii, P. cashmeriana, P. capitata, P. vulgaris (single and double), P. frondosa, Pelargonium absinthifolium, P. zonale, P. ivy-leaved varieties, Pentstemon heterophyllus, P. hybrids, Potentilla nepalensis, Polygala Chamæbuxus, P. Dalmaisiana, Roses (Teas, Hybrid Teas and Polyanthas), Reseda odorata, Rehmannia angulata, Rhododendron campylocarpum, Rosmarinus prostratus, Salvia fulgens, S. leucantha, S. rutilans, Saxifraga Haagei, Schizostylis coccinea, Solanum jasminoides, Spiræa Thunbergii, Sedum Palmeri, S. reflexum, Sollya heterophylla, S. Drummondii, Scabiosa (annuals), Senecio Greyi, Sternbergia lutea, Tacsonia quitensis, Vinca difformis, V. major, Viburnum rhytidophyllum, V. Tinus, Viola cornuta, V. odorata (single and double), V. tricolor, Valerian (Centranthus), Verbena radicans, V. Chamædrys, V. (bedding variety), Veronica Cataractæ, V. Cookiana, V. angustifolia, V. speciosa and V. hybrids.—N. G. HADDEN, *West Porlock, Somerset.*

ABOUT FREESIAS.

IN reply to Mr. Joseph Jacob's letter (THE GARDEN, December 22, 1923, page 665), *re* Freesia "duds." I gave my opinion about this trouble and it was rather scoffed at two or three years ago. However, I have never been troubled with duds and I overcome the difficulty of a sunless summer quite easily. The whole thing is a matter of thorough ripening, and, chiefly, warmth. I gave Mr. Jacob instructions as to what to do and I think he is giving readers the impression that *he* discovered the cure. I do not "heat the corms," merely ripen off thoroughly in the pots or beds. I keep them, after harvesting, in a warm, dry atmosphere. Of course, if the corms do not get sufficient moisture after potting, there is a great likelihood of their becoming duds, but the trouble is easily overcome by a little careful cultivation in either case.—G. H. DALRYMPLE, *Bartley, Southampton.*

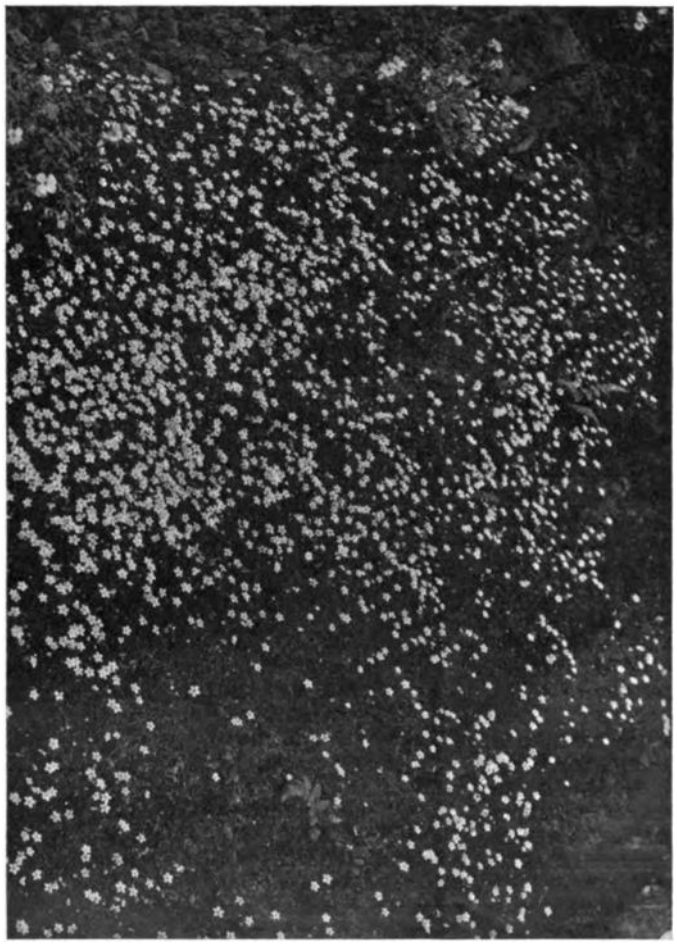
FREESIAS SEEDING OUTDOORS.

A CORRESPONDENT in THE GARDEN for December 22 (page 665), asks if Freesia seeds ever have been gathered in any part of the British Isles. Here, in Maidencombe, Devon, Freesias in the open have flowered and seeded regularly every year for the past twenty years and more. From a dozen seeds first planted there are now borders and patches of them. The colour and markings vary, and the stems are stiff and carry many blooms, which are stronger in scent than pots of Freesias grown in a cold greenhouse. They come into bloom about the same time, according to weather.—PENWARRE, *Maidencombe, Teignmouth.*

A HOLLY PUZZLE.

HAVING become possessed of some very fine Golden Queen Holly, I shared it with two friends. In each case part of it was placed in water in vases or epergnes, the remainder being utilised for decorative purposes without water. In both instances the twigs which were placed in water began in a few days to shed their leaves, and in ten days had shed about half of them, while the pieces which were not placed in water in the same room had not shed a single leaf. A lady friend of mine tells me that she has had a similar experience with Common Ling. I wonder whether any reader of THE GARDEN can give a scientific reason for this strange behaviour, which is the direct antithesis of the usual order of things.—CALEDONIA.

["Caledonia" is, no doubt, well aware that when newly planted evergreens shed their leaves the symptom is regarded as favourable. When the foliage shrivels on the tree, however, the planter's hopes fall. The casting of the foliage indicates that the sap is circulating and the tree making a serious attempt to accommodate itself to the new conditions. Surely the behaviour of the cut Holly sprays is, in the light of this experience, exactly what one might expect.—ED.]



ARENARIA BALEARICA ON A SHADY DRY WALL.

THE BALEARIC SANDWORT.

I HAVE often suffered through taking too readily to my heart plants recommended to me by friends and I should like, with your permission, to point out the importance of keeping Arenaria balearica, so often—and rightly—recommended for dry walls and semi-wild paths, away from choice plants in the rock garden. The late Reginald Farrer wrote that ". . . It should never be admitted within seeding distance of anything choice or precious, otherwise the gardener's time is taken up for ever more with clearing the latter anew every day from the octopus-like attentions of the Arenaria." It is a true indictment, but it is equally true, as he says, that "for wild rocks, walks, walls and cliffs there is nothing more . . . beautiful." It may be well to point out that as a carpeter for bulbous plants such as Muscari, Scillas, Chionodoxas, etc., this species is unexceptionable, always provided that no really choice alpines are within range of broken-off fragments or self-sown seeds.—G. HARVEY.

THE FIFTY BEST ALPINES.

I MUST apologise for the excessive delay in accepting Mr. Stewart Wacher's invitation (THE GARDEN, November 24, 1923) to correspond with special reference to certain plants. Perhaps I should commence by saying I am a new-comer to the delights of rock gardening, and that my list was primarily intended to provoke discussion, thus furthering my education and providing selections for future operations. And now to discuss the plants he mentions. Aquilegia alpina, seen while in Switzerland this year, was purchased and is apparently very happy. Whether it will flower remains to be seen. Treatment given is rough open scree, planted as received with extra sand added. Cyananthus lobatus grew readily and flowered, but so late in the year that the flowers did not get fully developed. I suspect the plant likes a lot of hot sun, and this summer was very scanty in that respect and far too late to be worth mentioning. Treatment is scree with more loam and a position which gives shelter from early morning sun and a chance to sprawl down the side of a ledge. Daphne rupestris is quite alive, though not yet big enough to flower. Evidently grafted on to another Daphne and, alas! rather the worse for cats, which have knocked off a couple of shoots. These appear to be terribly brittle. I am most anxious to see D. rupestris in its native haunts, and hope to achieve this next summer. Ranunculus glacialis, collected in the Oberland this year, is still alive but a great worry, as slugs seem to worship it.

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Hope to see it flower safely, as it stood the journey well—treatment, granite chips, loam and sand (no lime) and a choice spot on scree. I fear the difficulty will be providing enough water in the spring. Viola Bertoloni.—What I have of this grows well on a rock bank facing west with limited amount of sun, in very sandy loam with touches of leaf-mould and peat. From this you will see I cannot render much assistance, which, indeed, is not surprising seeing I am such a novice. The lists contributed have helped me considerably, and I should like to thank Mr. Wacher for his. Many kinds he mentions I have not got, notably Dianthus gallicus, Polemonium carneum, Saxifraga Aizoon baldensis and Wahlenbergia vinceflora. The first two are quite unknown quantities, the third a prospective purchase, while the last is surely rather too tall growing to be welcome in association with the usual rock plants.—PURLEY.

RAISING GREENHOUSE ANNUALS.

TO many people there is little distinction to be drawn between these and what are known as half hardy annuals. If full success is to be attained with such kinds as Celosias, Sensitive Plants, etc., the difference must be recognised and observed. Early sowing and a fair amount of heat are the chief points of importance where greenhouse annuals are concerned, the more important of these twain being the early date of sowing. In almost every case, a longer period of growth is necessary before the flowering stage is reached than with the "half hardies," and sowing is best carried out early in the year, so that the plants may be gradually built up into fine specimens rather than "rushed" into bloom under the greater stimulus of extra sun heat and longer hours of daylight. Prick off at an early stage of their growth—preferably singly into small pots—and keep the atmosphere moist and the ventilators closed for a few days after the operation. Another important item is to see that the young plants never become potbound until the "final" size pots are reached and that free supplies of liquid manure are then given to the roots.—CROYDON.

THE HARDINESS OF THE MONTPELIER BROOM.

THERE seems to be such a wide difference of opinion as to the hardiness of this beautiful species that one wonders whether this may be accounted for by the possible existence of several forms of the species, some being more robust than others. We know that in a state of nature Cytisus monspessulanus (candicans) has an unusually wide range on both sides of the Mediterranean, and Mr. Bean ("Trees and Shrubs") tells us that it has been naturalised in N. India and introduced to this country from there. The same authority states that this Broom succumbs to 15° to 20° of frost at Kew. How, then, does it manage to endure that and more with us, without any worse injury than getting its foliage slightly "singed" at the extremities, while even that amount of damage is rare? Indeed, several groups of this Broom growing here came unharmed through a winter ordeal (such as we had in early 1917), which browned the Common Gorse. One can only assume in the face of these facts that there are tender and hardy forms of this species, as I have suggested.—A. T. JOHNSON, *Talycafn, N. Wales.*

IRIS UNGUICULARIS IN VICTORIA, B.C.

HAVING read several articles in THE GARDEN commenting upon the early-flowering of Iris unguicularis (stylosa), I think, perhaps, the following may be of interest to your readers. A year ago I imported half a dozen plants from Messrs. Bees, Limited, and planted them at the foot of a 5ft. dry wall, with a southern exposure. The soil consisted for the most part of gravel, with leaf-mould added. The first bloom opened on November 30 last and I have had three more open since, up to the time of writing (December 8). Is this unusually early? We find the climate here really excellent for growing alpines of all sorts.—NORMAN W. F. RANT, *Victoria, British Columbia.*

[It is not at all unusual for the first blooms of Iris unguicularis to open in November in Britain. —ED.]

LOOK OUT FOR SIGNALS!

WE hear of and see so many failures in fruit-growing which would not happen if the trees and plants were treated in a rational manner. Although our good old establishments with their skilled gardeners are, unfortunately, rapidly disappearing, there are perhaps more amateurs and owners of small gardens than ever. One of the mistortunes, however, is that these small owners are apt to depend too much on men who call themselves gardeners, and who may be worthy of that honourable name as far as growing some kinds of vegetables and keeping a lawn and walks neat go, but who are at the same time totally devoid of skill in the culture of fruits, though they profess, and probably think, that they know all about it.

I should like the owners of such gardens, if they cannot afford to keep a competent man, to try to master a few elements of horticulture, so that they may be able to take the direction of the work into their own hands and also participate in it if they can spare the time.

I do not envy the person who can find no enjoyment in gardening; there is such an amount of pleasurable interest to be found in it that I cannot conceive attainable in any other way. Heaping up money is very alluring to many, but we have proof in some of the American millionaires that money alone does not always bring happiness. Gardening, supposing the necessities of life are not wanting, may always do so.

When one gets to love his plants and understand their little ways of making their wants known, it is astonishing how they respond to what appear to be small attentions. It hurts me almost as much to see a plant suffer as to witness sickness in animal life. If a plant under my care seems not to be thriving, it almost says "Come and help me," and I am not satisfied till I find out its wants.

It is not only the members of the Mimosa family and Fly-traps that are sensitive. Even the common culinary Pea gave me a surprise a year or two since. Some rows were unavoidably allowed to grow without sticks longer than they should have done. I placed some small twigs against them at eleven o'clock one morning and at three o'clock the same day I called the attention of a lady and gentleman to them. Three of the tendrils had already clasped round the sticks and scores of others were reaching out towards them, some of them having actually bent back from their former position for the purpose. It is a mystery how the tendrils gained their information.

Then in the case of plants flagging for want of water or at the approach of night, some of them turn their leaves in such a way as to present the smallest possible amount of surface to radiation, but they are not all so well educated. One hot and bright day I was working in a vinery where the leaves had scarcely attained their full dimensions, when suddenly I noticed they were lowering, the leaf-stalks bending backwards. The border was not dry and the atmosphere felt comfortable excepting for the heat. I was puzzled. But soon a terrific thunderstorm came on. The Vines had evidently received a "wireless." Half-starved plants are not so sensitive, only those which have their wants attended to, and then, in the case of Vines, only in their early stages.

We often see plants flagging in the open air, even Potatoes and Cauliflowers, when we know they are not dry at the root, but this is easily accounted for when there is a sudden change in the atmospheric moisture. The pores in the leaves, which scientists call stomata, are automatic, opening and closing according to the humidity of the air, and if it suddenly turns drier these pores are caught napping and cannot close sufficiently rapidly to prevent moisture escaping from the leaves more quickly than it can be supplied by the roots. We cannot prevent this happening in the open, but we ought to be able to do so with the plants inside our houses. By the way, it is frequently overdone there, as when the plants are syringed and shut up towards the close of the afternoon. It may not hurt some plants much which are grown for their foliage, but I have long since learned to do without it in the case of fruits. You stop transpiration by drenching the plants, which has the effect of checking feeding by the roots, for we know that plant food can only be carried up by means of water and gases, and there is necessarily more water taken up than is wanted for building up the tissues, the surplus being discharged through the stomata, and when you check that upward flow you are starving the plant, although you make its leaves and stems more expansive. But expansion and development are not synonymous terms. The leaves also breathe or respire through these pores, and breathing is as necessary for plants as for animals, but a saturated atmosphere checks it. Again, by blocking the pores you prevent feeding by the leaves and, if we except water, plants feed more by their leaves than by their roots, the principal intake being carbon dioxide (or carbonic acid gas as it is commonly called). In the matter of breathing the animal has the advantage, for if the pores of its skin are rendered useless by dirt or grease, it still has the use of its lungs for inhalation and exhalation. The poor plant has no such convenience, and when its pores are blocked by dirt or water it can neither breathe nor feed. It may be said that the pores are frequently covered by natural dew, but the dew is chiefly on the upper side of the leaf and the pores are principally on the underside. In syringing Vines, for instance, the bulk of the water is given to the underside, where there is said to be thousands of pores to a single leaf. I do not claim to know much about plant physiology, but the little I do know is very interesting and a great help to me. I should like to tempt the amateur to learn a bit about it, and he or she will find it will provide pleasure for what might otherwise be a dull moment.

Many a proprietor when asked why a certain thing is done answers "I do not know, but my gardener says it is right." Then when "my gardener" is asked for a reason, he says: "That is the way it was always done at Bidlington, and Mr. Smith was a very clever man; nobody could touch him with Calceolarias."

WM. TAYLOR.

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COLOUR SCHEMES FOR THE ALPINE HOUSE

BELOW are set forth a few pairs of plants which are capable of producing lovely combinations of colour, all of which can be quite as effective in the alpine-house as they would be outside on the rock garden. Generally speaking, three plants each of two varieties selected for a specimen pan would be ample (the size of the pan depending on the habits of growth of the occupants), but in cases where tiny bulbous plants are being used it would be necessary in most instances to use many more to get good results. In selecting "partners," apart from the matter of colour harmony, it must not be forgotten to study the requirements of the plants as regarding composts and other cultural requirements, so that both occupants of the pan may be equally at home.

PRIMULA FARINOSA AND MYOSOTIS RUPICOLA.—This combination presents a very pleasing spectacle in May and June, when, from the dazzling azure blue carpet of the miniature Forget-me-not, only 1in. high, appear from mealy green rosettes of leaves the dainty pink blossoms of the Bird's Eye Primrose. They are borne in clusters at the top of mealy stems usually from 3ins. to 6ins. high. The compact tufts which the Myosotis forms also serve to keep the roots of the Primula cool in summer. A compost of loam and leaf-mould in equal parts with a fair amount of coarse silver sand is quite suitable.

GENTIANA VERNA AND ARENARIA VERNA.—These plants make excellent partners, and there is no doubt that the Arenaria is a great help to the Gentian, providing as it does a close resemblance to the natural turf in which the Vernal Gentian grows in its native habitat. A. verna is a rare Britisher, and it forms a dense emerald green mat of minute grassy growth and bears abundant white flowers, which are large in comparison with the size of the plant. G. verna is too well known to need description. Leaf-mould, lime-stone chips and sand make a "champion" recipe for a compost for both plants. They are in bloom together for the better part of two months, but the beginning of June should find them in their best form.

ASPERULA NITIDA AND ALLIUM CYANEUM.—A well drained gritty limestone mixture and a sunny position suit these plants admirably. The Asperula forms a dark green moss-like carpet and bears numerous dainty pale pink trumpet-shaped flowers that sit close to the foliage. Allium cyaneum should be used rather extravagantly, as the growth it makes is very fine and grassy and about 2ins. high. In June it carries heads of powder blue, gracefully nodding blossoms. It is bulbous and is dormant in winter, but the Asperula is evergreen and always attractive.

POLYGALA CALCAREA AND POTENTILLA AUREA.—Here is a happy combination of colour, and both species are quite at home in a gritty compost containing plenty of lime. The Polygala bears its flowers in short spikes of a deep blue colour, the keel-like centre being rather paler than the wings and being very heavily fringed, greatly resembling, indeed, an "Old Bill" moustache in miniature. The golden yellow flowers of the Potentilla are borne close to the foliage, which is prostrate and which, by the way, takes on pleasing autumnal tints. At the base of each petal is an orange blotch.

PHLOX DOUGLASII AND ALYSSUM TORTUOSUM are two delightful carpeters, both perfectly prostrate and evergreen, and of easy culture in ordinary gritty soil. The Phlox is one of the best of its kind, and forms a dense mat of dark green, narrow leaves on woody branches. Its flowers are almost stemless, of a delicate mauve shade, and are produced in quantity. Alyssum tortuosum seems rather uncommon at present, but it is a handsome plant with silvery grey foliage and small heads of clear yellow flowers on ½in. stems.

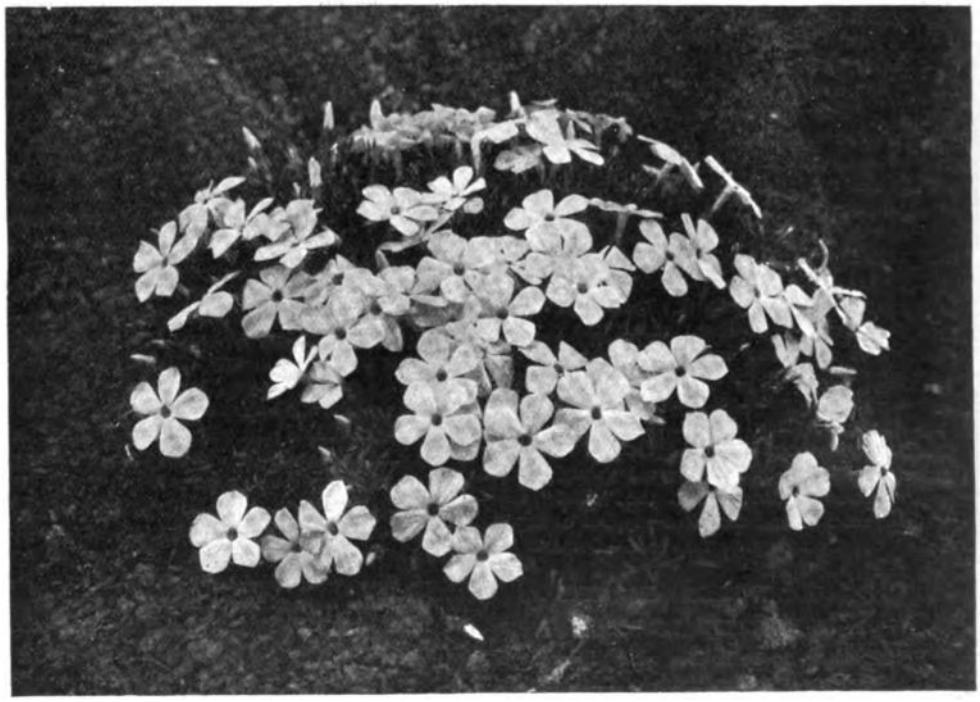
DELPHINIUM NUDICAULE AND ANTHEMIS AIZOON.—I think the only disadvantage with this combination is that the Delphinium is rather short-lived, but it seeds readily and the seeds germinate easily. It reaches a height of from 12ins. to 18ins., and the flowers are of an intense orange scarlet. The Anthemis grows about 3ins. high, with silvery foliage and white daisy-like flowers. Both plants appreciate plenty of sunshine and a fairly dry, well drained compost. The Delphinium is dormant in winter, but the Anthemis retains its foliage and is always good to look upon.

SAXIFRAGA OPPOSITIFOLIA SPLENDENS AND S. O. ALBA.—These two varieties make a fine show about the beginning of March. An open gritty compost suits them, and liberal top-dressings are of great value, as they tend to prevent the centres of the growths turning brown, which otherwise is a common failing with the species. Both varieties make a dense mat and flower profusely. "Splendens" bears large round flowers of purplish rose, but the white-flowered form has smaller flowers, which are rather star-shaped. Give them a cool position in partial shade.

VIOLA BERTOLONI AND SAXIFRAGA AIZOIDES VAR. ATRO-RUBENS.—A well drained compost of leaf-mould, loam and sand in which the leaf-mould should predominate and a cool, half-shady position will serve the two plants in question very well. The Viola has a neat tufted habit, and produces handsome mauve flowers more or less throughout the summer. They harmonise perfectly with the rich mahogany flowers of the Saxifrage. Neither of the plants grows more than 3ins. high under ordinary conditions.

RAOULIA AUSTRALIS AND ASPERULA SUBEROSA.—Here we have a pair that enjoys abundant sunshine and a gritty limestone scree mixture, and which it is advisable to keep fairly dry in winter. The first-named plant is grown for foliage effect only, the flowers being rather insignificant and of a dingy cream colour. The foliage is like silver, and forms a dense carpet which clothes the surface of the soil and does not exceed half an inch in height. The foliage of the Woodruff is a very grey green colour and is covered with silky hairs. It bears its trumpet-shaped flowers in heads, and they are of a most delicate shade of pink.

PRIMULA × PUBESCENS RUBY AND PRIMULA × PUBESCENS ALBA provide a good display of colour in May. Ruby, which has flowers of the colour its name would suggest, makes a splendid contrast to the snow white heads of blossom of pubescens alba, and is marked with a conspicuous white eye. Both plants are easy doers in a cool position if given a mixture of fibrous loam, leaf-mould and a little peat, and both are also deliciously fragrant. Another combination of colour in similar plants would be Primula × pubescens Mrs. Wilson (lilac blue) and P. p. Mrs. Robinson (clear yellow).



ONE OF THE CHOICEST OF DWARF PHLOXES—P. DOUGLASII.

DRABA IMBRICATA (of commerce) AND DRABA PYRENAICA.—These two plants present their blossoms in very early spring. Their foliage may then be likened to a baby Mossy Saxifrage of emerald green colour. D. imbricata bears bright yellow flowers in heads on 2in. or 3in. thread-like stems arising from a low-growing compact hummock of tiny rosettes. D. pyrenaica is very similar in the cushion it forms, but the flowers are almost stemless and are lilac in colour. A warm sunny aspect suits both; so does a limestone scree mixture.

CAMPANULA PULLA AND CAMPANULA PUSILLA ALBA.—These two plants are about the latest to flower in the selection, and both are easy doers in ordinary good sandy soil. The nodding bells of C. pulla are of an intense violet shade, and are about twice the size of the creamy white bells of C. pusilla alba. They flower on slender stems about 3ins. high.

F. BARKER.

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OBITUARY

MR. R. P. BROTHERSTON.

It is with deep regret that we learn of the death of Mr. Robert Pace Brotherston, which took place at the residence of his son-in-law, Mr. M'Naughton, Scone Palace Gardens, on December 21. Mr. Brotherston, who was advanced in years, was for a long period head-gardener to the Earl of Haddington at Tyninghame, Prestonkirk, and only retired a few months ago, when he went to live at Tyninghame, close to the gardens he had tended so long and with such distinction. He was known as one of the best and most accomplished of Scottish gardeners, and his reputation as a practical gardener and a writer on horticultural subjects was world-wide. The gardens at Tyninghame, which are very extensive, were managed with consummate skill, and the hall-mark of efficiency was apparent in every department. Fruit, vegetables and flowers, both outside and under glass, all received their full attention, and the many visitors to Tyninghame were deeply impressed by the ability with which the various departments were managed. During all the years in which Mr. Brotherston was in the service of the Haddington family he enjoyed their full confidence and respect, and he always spoke with deep appreciation of his employers. In Scottish horticultural matters Mr. Brotherston took a full share—in connexion with the Royal Caledonian Horticultural Society and the Scottish Horticultural Society, which are now united, and in all other movements for the advancement of gardening. Besides serving as an office-bearer of these bodies, he also acted as judge at many of the leading shows, and his decisions were always most conscientiously given. To a wider circle Mr. Brotherston was known as an able writer, and he was for many years a valued contributor to THE GARDEN and other journals, and recently a most interesting article from his pen appeared in *Chambers's Journal*. Apart from purely technical articles, which were always of high value, Mr. Brotherston contributed a large number on old horticultural literature, of which he had a deep and varied knowledge. In this he was greatly assisted by the access he had to the library of the noble family he served so faithfully. In private life Mr. Brotherston was very highly esteemed. He was always courteous and ready to help with advice, and all who knew him will deplore his death as that of a true personal friend.

MR. THOMAS D. GRIEVE.

WE regret to have to record the death, on December 25, of Mr. Thomas Douglas Grieve of Redbraes Nurseries, Edinburgh. Mr. Grieve, who was in the prime of life, was an active partner of the firm of Messrs. James Grieve and Sons, nurserymen, and was a well known figure in Edinburgh horticultural circles. He was keenly interested in gardening apart from its purely business aspect, and took an active part in the affairs of the Royal Caledonian Horticultural Society and of the Scottish Horticultural Association, serving on the committees of these leading bodies. Mr. Grieve was a skilful gardener himself, and was much interested in many of the flowers in which his veteran father, Mr. James Grieve, specialised, and maintained the high standard set by that able gardener, who survives his son. Mr. Grieve was much respected personally, and the deepest sympathy is felt for his widow and the other members of the family. The funeral was a private one.

GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

The Kitchen Garden.

Peas.—For early Peas an open, sunny and warm part of the garden should be chosen, and it is advisable to afford a liberal dressing of manure, when the Peas may be followed by Cauliflowers or Broccoli with excellent results. Flat drills about 6ins. wide are the best, and these ought to be as wide apart as the approximate height of the kind selected. A good hardy variety is Pilot, which grows about 4ft. high, and the rows should be that distance apart. Of similar height is Early Giant, while excellent dwarf varieites are Pioneer and Langley Gem. The seeds should be damped with water or paraffin oil and then dusted with red lead, for it should be borne in mind that at this period of the year germination is somewhat slow and there are many enemies to contend with. Mice should be trapped, and later on slugs will be very destructive to the tender shoots just as they are pushing through the soil. An occasional dusting of soot will help to keep these marauders in check.

Broad Beans.—Those sown in November are through the soil, and promise to yield a good crop. Another sowing of the Longpod type may now be made directly the ground is dry enough to work. Broad Beans enjoy a strong, deep, cool soil, and they may be planted in double lines about 3ft. apart. The seeds should be from 6ins. to 9ins. asunder and planted 3ins. deep.

Early Potatoes.—Where frames and fermenting materials are at hand there is no reason why a small quantity of Potatoes should not be produced early and a few weeks in advance of those grown on a warm border. Make up beds of leaves and long manure about 2ft. larger than the frames, and when the heat begins to recede a 1ft. layer of light rich soil may be placed inside the frames and the Potatoes planted 1ft. apart and 3ins. deep. Select an early dwarf-growing variety, such as May Queen, and the tubers ought to be sprouted.

The Flower Garden.

Crinums.—These are stately bulbous plants that produce their fine spikes of flowers during August and early September. One that calls for special notice is C. Powelli, a rose-coloured hybrid, and its pure white form known as C. P. album. A number of bulbs were planted in an open border ten years ago, and they have never failed to give a good display of bloom. They appreciate a strong loamy soil, and enjoy a liberal quantity of manure near the roots when the borders are dug over during the winter months. The bulbs should be planted 1ft deep, and ought not to be disturbed for a number of years. They may be planted at the present time.

Sweet Peas.—No garden is complete without a few clumps or rows of Sweet Peas, and although a reliable mixed strain has much to commend it, I would advise readers to try at least six named kinds. Last year we tried Royal Scot, Hawlmark Pink, Mrs. Tom Jones, Warrior, Picture and Constance Hinton, and they proved a splendid lot. For early flowers seeds should now be sown in 4in. pots, placing four seeds in each receptacle. The pots should be well drained, and the compost made up of three parts of fibrous loam and one part of leaf-mould, to which add a sprinkling of sharp sand. Arrange the pots in a cool greenhouse, and do not overwater the soil or the seeds will decay. When germination is effected, keep the plants near the roof glass, and directly the seedlings have made three pairs of leaves remove the centre of each plant. Cool treatment should be the rule, so remove the pots to a cold frame when the plants are well through the soil. The sowing of Sweet Peas in pots may be practised until the end of February.

Fruits Under Glass.

Strawberries.—Once the New Year has arrived the work of forcing is more reliable, and with ordinary care and attention few failures ought to be recorded. A brick pit which is heated will do admirably for the first batch, and if a bed of leaves with a little long manure is placed in the pit so much the better. Such a bed will furnish a gentle bottom-heat, which will encourage root action and prevent an attack of red spider. A high temperature is detrimental to the well-being of the plants when they are first removed from their winter quarters, so fire-heat ought only to be used when the temperature is likely to fall below 45° Fahr. When the flower-trusses are seen the temperature may rise 10° or so, and at this stage the plants placed on a shelf where they will receive ample light. Syringe the foliage on bright days with tepid water, but this should be stopped when the flowers are open. At this stage the temperature should be as near 60° as possible, and although plenty of air is needed when the plants are in bloom, it will be necessary to be cautious to prevent cold draughts. A little thinning of the fruits will be needed, six or seven being enough for one plant, and while the fruits are swelling freely the roots may be assisted with a little fertiliser or liquid manure.

Fruit-Houses.—Peaches and Vines not yet started into growth should be kept as cool as possible and such work as cleaning the trees and houses should be completed at an early date.

The Hardy Fruit Garden.

Pruning.—This work should be proceeded with and completed during the next few weeks, the prunings being collected and burnt. Strawberries and Raspberries may be mulched with manure, if the work has not already been done, and any suckers around the latter pulled out.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

The Kitchen Garden.

Jerusalem Artichokes.—As the tubers are perfectly hardy and the plants require a long period for their perfect development, planting should be taken in hand as soon as the state of the weather will permit. Select medium-sized tubers and pare off all the eyes except the strongest one. Draw drills with the draw hoe, as for Potatoes, 3ft. apart and plant the tubers 15ins. apart in the drill, cover in with soil, using the feet for this purpose.

Parsnips.—The remainder of the crop may now be lifted and pitted in the open; the pit may be excavated a certain depth to keep the roots moist. If this is done, the space the crop occupied may be manured and dug in preparation for the succeeding crop.

Rhubarb may be obtained for the table some time before the normal period, either by covering a portion of the crop with loose litter or placing over the stools seakale covers or collars made either of earthenware or compressed paper. Early Albert is the variety to grow for early work.

Leeks.—Where Leeks are required for the autumn shows, seed of a high-class variety, such as Dobbie's International Prize, should be sown now in gentle heat to be potted up singly in due course. If subjected to strong heat Leeks are apt to run to seed.

Fruits Under Glass.

Early Peaches.—As soon as the trees open their flowers, either of two methods (wet or dry) may be adopted to facilitate the process of pollination. The trees may either be sharply tapped about noon to disperse the pollen or the trees sprayed with tepid water, using a very fine spray.

Early Vines.—As soon as these have made about 1in. of growth the operation of disbudding should be taken in hand. In the case of young Vines they should be so disbudded that the laterals will be placed at about 18ins. apart on either side of the rod. It is very apparent that many cultivators leave the laterals too close to each other, with the result that the bunches of fruit (and the berries also) are comparatively small, and even the aggregate weight of those second or third rate fruits in a house is less, relatively, than where a more liberal policy is pursued, and where fewer but superior bunches of fruit are produced. In the case of established Vines the distances have been fixed, and if the previous year's laterals were cut back to two buds it will be the case of retaining the more vigorous or the better-placed bud of the two. Close attention should be paid to ventilation, especially in fickle weather, as a sudden burst of sunshine soon runs up the temperature in a closed house, and cloud soon lowers it when ventilation is on. Added to this is the fact that young tender growths are much more susceptible to heat and cold than those in a more advanced stage of development.

The Flower Garden.

East Lothian Stocks.—These deservedly popular flowers may be treated as annuals or biennials. If the whole or any part of them are to be treated

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as annuals, the seed should be sown as soon as convenient in a temperature ranging from 50° to 55°, or even a little higher. As damping is the young Stocks chief enemy, the seed should be sown rather thinly and in a fairly sandy compost.

Salvias patens and Pride of Zurich.—These two beautiful Salvias, although perennials, may be flowered the first season if sown sufficiently early. If sown now in a temperature of 60° and potted on in due course they will be fit for planting out early in June.

Seedling Pansies.—Seedlings resulting from an autumn sowing should now be pricked off into boxes in greenhouse temperature to be ready for planting out at the beginning of April.

The Shrubbery.

Planting.—November proved such a wintry month that planting was, in many districts, quite out of the question, and as December is not a very suitable month for planting operations, there are doubtless many arrears to overtake. If weather permits, this work may now be taken in hand. If purchases have yet to be made, one's aim in selecting should be to spread the maximum beauty of the various plants over as great a proportion of the year as possible, specially remembering the duller half, *i.e.*, late autumn, winter and early spring. This suggests, among others, the following: Berberises Thunbergii and Wilsonæ, the Witch Hazels (Hamamelis arborea and H. mollis), Cydonia japonica, C. j. Knap Hill Scarlet, Cotoneasters frigida and Simsonsii, Garrya elliptica, Rhododendrons arboreum, Nobleanum and præcox. Peat is not essential for Rhododendrons; they will succeed in a mixture of fibrous loam, half-decayed leaves (Oak or Beech for preference) and clean sand.

General Work.—Complete the pruning of deciduous shrubs and lightly fork over the entire area, leaving the surface rough so that it may be pulverised by the spring frosts. It should be borne in mind that early-flowering Rhododendrons will require protection should frost occur during their flowering period.

CHARLES COMFORT
(Formerly Head-Gardener to Mrs. Haig, Broomfield, Davidson's Mains, Midlothian).

PUBLICATIONS

The Horticultural Directory.—An exceedingly useful publication just to hand is the Horticultural Directory and Year Book for 1924.* This contains the names and addresses of all those who own gardens needing any considerable staff, as well as the names of the leading head-gardeners in Britain. This new edition should be welcome to many gardeners, as it should enable them to get into touch with old friends of whose whereabouts they have been uncertain. Here, too, will be found the names and addresses of the principal nurserymen, seedsmen and horticultural sundriesmen in England, Scotland, Ireland and Wales. Other useful information includes names of botanic gardens in the British Empire, together with the names of the officials; of the principal parks, gardens and open spaces in the British Isles and of horticultural societies. The publishers are to be congratulated on the very thorough way in which they have carried out the revision.

* "Horticultural Directory and Year Book for 1924." Published by the *Gardeners' Chronicle*, Limited, 5, Tavistock Street, Covent Garden, London, W.C.2. Price 4s. post free.

Answers to Correspondents

NAMES OF PLANTS.—W. F.—1, Cotoneaster salicifolia; 2, Litsea japonica; 3, Pinus Cembra; 4 and 9, Abies Nordmanniana; 5 and 17, Cupressus pisifera plumosa aurea; 6, Buddleia variabilis; 7, Cupressus Lawsoniana; 8, Pinus excelsa; 10, Abies cephalonica; 11, Escallonia macrantha; 12, Juniperus communis hibernica fastigiata; 13, Cupressus pisifera plumosa; 14, C. Lawsoniana erecta viridis; 15, Pieris japonica; 16, P. j. variegata.

Forthcoming Lecture.—A special lecture has been arranged to be given in the Royal Horticultural Society's Hall in Vincent Square, Westminster, at 4 p.m., on the occasion of its next Fortnightly Meeting, on January 15, by Mrs. Henshaw on "The Alpine Flowers of Western Canada." This lecture will be illustrated by means of hand-coloured lantern slides, and as it has been impossible to include any announcement of it in the Society's Book of Arrangements, Fellows and others interested should note it in their diaries.

CATALOGUES RECEIVED.

Messrs. Sutton and Sons, Reading.—Amateur's Guide in Horticulture and General Garden Seed Catalogue; beautifully illustrated both in colour and half-tone.
Messrs. James Carter and Co., Raynes Park, London, S.W.20.—General Seed List, profusely illustrated.
Messrs. Edward Webb and Sons (Stourbridge), Limited, Wordsley, Stourbridge.—Garden Seed Catalogue, with numerous illustrations.
Messrs. Herd, Bros., Penrith.—Seed List.
Messrs. Austin and McAslan, 89–96, Mitchell Street, Glasgow.—Seed List.
Messrs. Little and Ballantyne, Limited, Carlisle.—Forest, Ornamental and Fruit Trees, Shrubs, Roses, Alpines, etc.
Messrs. Hillier and Sons, West Hill Nurseries, Winchester.—Trees and Shrubs, including New and Rare Species and Varieties.
Messrs. Dicksons, Limited, The Nurseries, Chester.—Forest Trees, Ornamental Trees, Shrubs, etc., also Seed List.
Mr. Alfred Dawkins, 408, King's Road, Chelsea.—Seed List.
Messrs. Alex. Dickson and Sons, Limited, Hawlmark, Belfast.—Seed List.
Messrs. W. Drummond and Son, Limited, 57 and 58, Dawson Street, Dublin.—Seed List.
Messrs. Fisher, Son and Sibray, Limited, Royal Nurseries, Handsworth, Sheffield.—Seed List.
Messrs. Dickson, Brown and Tait, 57, Cross Street, Manchester.—Seed List.
Messrs. Stewart and Co., 13, South St. Andrew Street, Edinburgh.—Seed List.
Messrs. Wm. Cutbush and Son, Limited, Highgate Nurseries, Highgate, London, N.—Seed List.
Messrs. Robert Veitch and Son, 54, High Street, Exeter.—Seed List and Sundries.
Messrs. Dickson and Robinson, Cathedral Street, Manchester.—Seed List.
Messrs. Dobbie and Co., Limited, Edinburgh.—General Seed List and Sundries.
Mr. Alfred Edwards, Fordham, Ely.—Seed List.

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THE GARDEN

No. 2722.—Vol. LXXXVIII.] [January 19, 1924.

PRIMULAS FOR THE COOL GREENHOUSE

It is in these early days of the year that one appreciates to the full the species and varieties of Primula commonly grown in greenhouses. Most of the kinds so cultivated are not naturally of brilliant colouring, P. floribunda and the rather later-flowering P. verticillata, both with bright yellow flowers, being exceptions in this respect. The florist has succeeded, however, in endowing Primula sinensis and its form (if form it is) stellata, with rich and clean colouring far removed from the dull rose characteristic of the plant. Great things have been achieved, too, with Primula obconica and P. malacoides, and it is not too much to hope that the day is not far distant when the wonderful colour-range of Primula sinensis shall be theirs also.

Primula sinensis as introduced to this country was already a garden plant, and no wild specimens of it have ever been collected. It was for a while assumed that the beautiful soft lilac species now known as P. calciphila, collected on the cliffs of Ichang, China, was in fact the long-sought wild form of Primula sinensis, but apart from the fact that it refuses even to hybridise with the cultivated forms of P. sinensis, there is really very little about the appearance of the plant to justify the supposition. It is as certain as anything can be that is not capable of logical demonstration, that the typical Primula sinensis was of a not over-bright bluish rose hue. Leaving controversy aside, however, everyone with a greenhouse and a love of the gracious would do well, if they can procure seed, to grow P. calciphila.

Primula sinensis is a species of particular interest to those scientists whose speciality is the study of genetics, and despite an immense amount of research work, the application of the laws of heredity to the species is by no means completely unravelled. Nevertheless, the researches have greatly facilitated the work of those who specialise in the raising of new varieties, and it is really remarkable how easily a new variety with given characters may, as a rule, be produced, yet certain forms, the product of first crosses, which are particularly attractive, can never be anything but chimæra, doomed to fade with the passing of the plants.

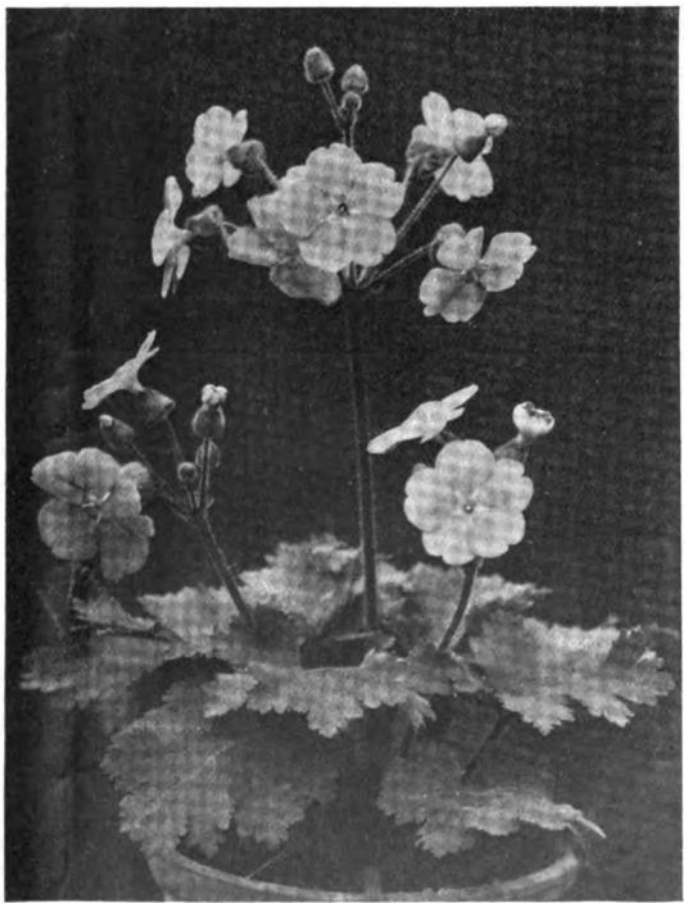
When first "crimson" Primulas were introduced, the term was very much a courtesy one, but the passing of the years and long-continued labour have brought forth forms of ever-increasing beauty and purity of colouring until to-day there remains in the present strain of Sutton's Improved Crimson King, for instance, no more "blue" than is necessary to make it a real crimson. The almost blood-crimson of the flowers of Etna, too, is combined with splendid purple foliage and leaf-stems.

Apart from the crimson shades, the biggest advance has been in the coral pink varieties which originated spontaneously from the crimson varieties, just as somewhat similarly coloured varieties have appeared in the hardy Primulas pulverulenta and japonica. The pink form apparently arises in all these cases by the loss of a "factor" which controls to some extent the vigour of the plant as well as the colouring, inasmuch as the coral forms are always less vigorous in growth and more susceptible to cold. For this reason they should be housed rather sooner than the other colour forms, and if grown on to flower in the same structure, should have the benefit of the warmest corner.

The "blue" varieties of this plant are still pretty much where the crimsons were a couple of decades ago; there is nothing approaching a real blue at present, and it may be that there never will be. The particular tones of purple affected by the species are not too pleasing either, unless very much diluted. It thus comes about that the most attractive of the "blue" tones is the palest of the three shades usually grown—and typified by Reading Blue. Whites as pure as may reasonably be expected—as pure, indeed, as are wanted—in the World of Flowers are obtainable, both with pale green stems and leaves and with the more robust-looking dark stems and foliage.

Every colour form, whether it first originated with the typical palm-like foliage or with the newer long type which is supposed to be fern-like, can readily be reproduced with the other type of foliage.

Primula stellata is usually considered to be no more than a form of P. sinensis and, botanically, there can be little doubt that both belong to one species, but the two distinct forms as we know them to-day were introduced together now more than a century ago and continue to reproduce true to type. Every colour known in the typical sinensis can be duplicated in the Star class, while, in addition, we have now the snow white eyeless form known as Silver Star illustrated on page 30. The absence of the "eye" so characteristic of these Primulas makes the flower startlingly unlike that of any other Primula in cultivation, but the



THE BEAUTIFUL NEW DEEP ROSE PRIMULA SINENSIS SYMMETRY.

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A PLEASING GROUP OF PRIMULA MALACOIDES.

THE SOFT MAUVE PRIMULA CALCIPHILA.

THE VERY REMARKABLE EYELESS PRIMULA STELLATA SILVER STAR.

variety is none the less at once charming and effective, and equally useful for decoration as growing or when cut.

Two new varieties known as Symmetry and Giant White Star, the former having deep rose blossoms, represent a new type which combines much of the form and substance of the sinensis varieties with the vigorous and more graceful habit of the stellatas. They are destined to become very popular.

Whatever doubts exist as to the wild type of Primula sinensis, there is none as to that of Primula malacoides, which was not introduced from Yunnan until 1908. So steady and so rapid has the improvement of this plant been, however, that we are in some danger of forgetting what the wild species is like. The height of the plant and the size of the blossoms have been doubled, the rather dingy colouring has been brightened, we have pure white and rosy forms and last, but by no means least, very effective double ones. The species is very nearly hardy, and its culture may be successfully attempted in any house from which frost can be excluded. The illustration at the top of this page shews how decorative a small group of this plant may be.

Turning now to Primula obconica, which was introduced in 1882, a very great improvement has, once again, followed the labours of the florists, yet is this species far less amenable to their "blandishments" than P. malacoides. A crimson malacoides we may expect in the not distant future; a crimson obconica we nominally have, but it has some way to go before it lives up to its name, and pure white ones are rare and cannot be depended upon to come true from seed. The flower has a natural tendency to come a cold lavender, and the florists seem, perversely, to have concentrated most of their attention upon getting it warm rose or red, whereas an effort to raise a strain of the clear pinkish lilac or china pink of P. calciphila might probably have been successful and would be far more desirable. The efforts to produce a blue obconica have met with some success, though the "blues" so far produced are called so only by courtesy. Efforts to cross the species with P. sinensis do not appear to meet with any success, though a broad-leaved, robust form called Eureka is reputed to be the result of such a cross. These robust but not very free-flowered plants, however, seem to "throw-out" occasionally where no question of cross-pollination can arise and appear to represent a natural development.

Primula obconica continues in flower for a long time and, by sowing for successsion or by keeping back some of the plants—it is a perennial—may be had in flower all the year round. It is, despite its limited colour-range, an attractive plant and an easily grown one, but unless one has proved oneself immune, it should be handled with caution, as the glands on the undersides of the leaves produce on some people an irritating, even dangerous, rash. All plants grown under glass object to sudden changes of temperature, but some feel the change more than others, and Primula obconica is one of those to which a considerable fall, if not fatal, is at least very serious. It is possible, even desirable, to grow the plant in a cool house—it will often winter safely outdoors—but if taken from a fairly warm structure to a cool conservatory it will immediately begin to languish.

Of the yellow-flowered greenhouse Primulas, the most generally useful is P. kewensis, which represents the result of a cross between P. floribunda and P. verticillata. It is a good perennial and easily increased by division. There is a very attractive paler form of Primula floribunda, too, called P. floribunda grandiflora Isabellina.

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There are a number of other charming species which are barely hardy in this country and which are suited in a cool, or even cold, greenhouse. Primula Winteri, which flowers at this season, is one; P. Forbesii, like a miniature malacoides, another; while kinds like marginata and some of the forms and hybrids of P. hirsuta show to advantage under glass. These, however, hardly come in the same category as the species previously described, and to mention their names must suffice.

The culture of these greenhouse Primulas presents no serious difficulties, though P. sinensis in both forms has an objection to leaf-mould. In order to get this species into bloom for early January, when flowers are apt to be scarce, it is well to sow about the middle of June. A little bottom-heat may be afforded the seeds, but it is not necessary; good plants can be and have been raised from sowings in a cold greenhouse, and if this is made about early April, nice plants should result which will flower in autumn and, if protected from frost, last till Christmas or after. The seeds, which are comparatively large, germinate irregularly, and they should, therefore, be sown thinly. Primula obconica has the same objection to leaf-mould.

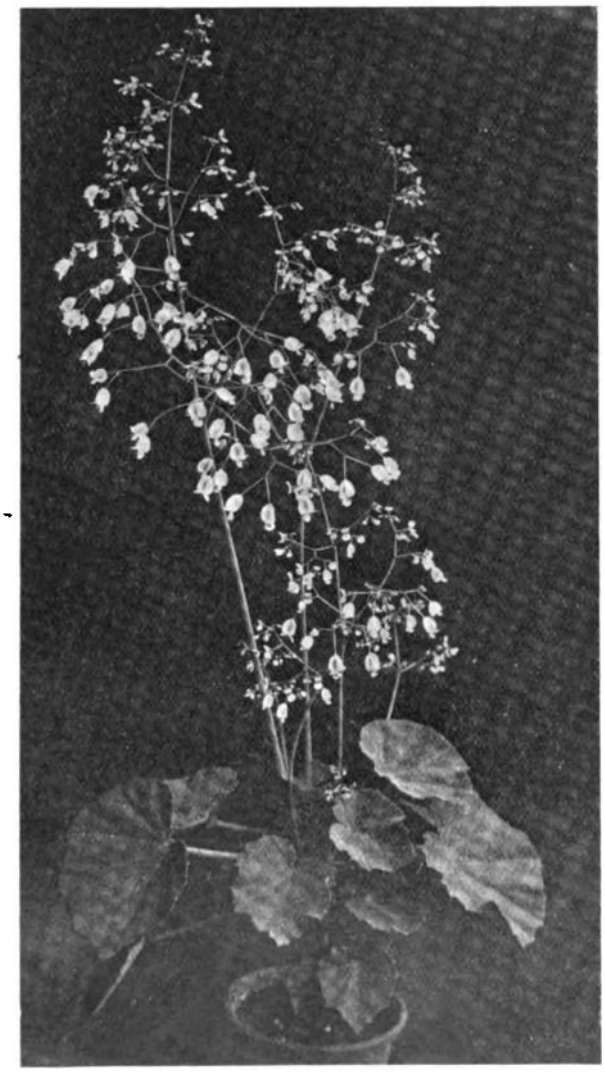
Primula malacoides makes soft growth and is rather subject to "damping off." A buoyant atmosphere and care in keeping water out of the crowns go far towards preventing this trouble. Care should be taken, too, with P. sinensis, as this also will "damp" under bad treatment. Keep the crowns of the plants clear of the soil when potting.

THE CULTURE OF THE BEGONIA.—III

THE fibrous-rooted Begonias are just as interesting and even more varied in flower and foliage than the tuberous-rooted forms. Everyone knows B. Gloire de Lorraine, one of the parents of a wonderful race of double and single winter-flowering forms, appreciated alike for pot and basket work. B. Rex, with its marvellous foliage, also enjoys wide popularity; while B. semperflorens is a notable bedding plant.

In view of the diverse habits of the kinds mentioned (and these are but a small part of the available range), it is obvious that very different methods of culture will be necessary. Gloire de Lorraine, as typical of the wide and important range of winter-flowering varieties, will have first claim. These are capable of very rapid propagation, for not only can the usual mode of increase by cuttings be used, but a vigorous plant may be raised from every adult leaf. Although one may undertake their propagation at any season of the year, February is the best time to select when winter-flowering plants are the object. The first step is to prepare some older plants by cutting them back some weeks previously. These, if cut down to within a few inches of the soil and well rested by a limited use of water, will send up a liberal supply of soft, short, young shoots about 3ins. or 4ins. long, which are just what are required for the basis of young stock. These should be detached from the parent by severing with a sharp knife just beneath a joint. Freely drain the pots in which it is proposed to insert these, and fill with a compost of two parts of loam to one each of leaf-soil and silver sand. Several cuttings may go into each pot and the base of each should rest upon a small heap of sand, which greatly hastens the formation of roots. Insert the cuttings firmly and then water well, and place the pots in a gentle bottom heat of about 60° Fahr., and keep close and moist until rooted. Do not over-water, and keep a sharp watch for decaying leaves, which should be promptly removed. When roots have been formed, remove the plants to a cooler position and allow plenty of light, although direct sunshine should be screened. Free spraying with tepid water encourages growth, and as the little plants grow they should be potted off into single pots.

Do this potting fairly firmly and keep the young plants in a night temperature of 55° to 60° Fahr., with a rise of from 5° to 10° during the day. Continue to syringe lightly overhead, and, when the small pots are filled with roots, transfer to a larger size. For the second and all subsequent pottings, use the following compost: Equal parts of fibrous loam and peat, with a quarter part each of leaf-mould, cow manure, bonfire ash and coarse sand. Through the whole summer it is important to shade when the sun is bright:



THE GRACEFUL WINTER-FLOWERING BEGONIA MANICATA.

keep the roots moist and give plenty of air, but take pains to avoid draught. When flowering begins in late autumn, feeding may be commenced, though care should be taken that buds are not permitted to develop until a good plant has been built up. Where stock is scarce and leaf propagation is adopted, fully developed leaves should be chosen, and these should be taken off with the leaf stalk and inserted in similar sandy soil to that advised above. Follow similar cultural conditions, and small shoots will soon be seen springing up from the base of each leaf, which, when strong enough, may be potted off as new plants.

Similar methods of propagation may be applied to BB. Haageana, metallica, weltoniensis, etc., though it should be noted in the case of the last named that this forms a tuber from which new growth springs annually, and thus the plant is capable of being grown on to an immense size. The type represented by B. semperflorens may also be propagated by means of cuttings, but a far more satisfactory method (where large quantities are needed) is to sow a packet of seeds under conditions described for the tuberous forms. The seed of Begonia semperflorens germinates (if fresh) with extraordinary freedom, and the little plants soon reach the flowering stage, so that a sowing made in January or February will produce splendid little plants for putting out in late May or early June. This species is far more of a sun lover, particularly in its bronze-foliaged forms, and a very sunny position should be given to the plants. Here the plants will form an ever-thickening belt of colour.

Finally, in a class by themselves, we come to the glorious Rex varieties, with their giant heart-shaped leaves so marvellously zoned, blotched and reticulated, with silver, olive, pink, etc., with very prominent red veins. The flowering qualities of these are negligible, but the gorgeous leaves place them in the front rank of warm greenhouse and conservatory plants. They do not appreciate sunlight, and are, indeed, shade-lovers. For bold pans too, they are simply superb—and I want you to mark that word "pan," for the Rex Begonia does not root deeply.

There is one point to which attention should be paid in their successful culture, and that is the need for fairly frequent replanting. The stems, which are thick and woody, are constantly elongating and rising higher and higher; hence the need, if neat and shapely plants are to be maintained, for lifting and replanting at a lower level. Neglect of this not only gives one ragged-looking examples, but inevitably results in smaller leaves. New roots evolve after replanting which greatly increase the absorbing power of the plant, hence the larger leaves which follow. While it is easy enough to obtain an increase of the plants by division, do not forget, where stock is short, that young plants can be obtained from the older leaves. Take off a fully developed leaf, in early summer, and nick the thick mid rib here and there. A pan should next be filled with light open soil surfaced with a good layer of coarse silver sand. Peg or weight the leaves into contact with the soil at the nicked places, and in course of time small plantlets will make their appearance, well furnished with roots, and these can be taken up and grown on into large plants within the space of a few months. H. W. CANNING-WRIGHT.

(To be concluded.)

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THE MEADOW RUES

THERE are about fifty species of the genus Thalictrum which have been found distributed over the Temperate and Arctic regions of the northern hemisphere, with a few in the Andes of South America. The genus belongs to the Natural Order Ranunculaceæ, and is closely allied to Anemone. The flowers of the plants of this genus have no petals, but they have four or five petal-like sepals, which in some species—T. Delavayi, for instance—are large and attractive, but in others, like T. minus, are small and inconspicuous, and fall so quickly that the flowers appear to be all stamens. There are several excellent garden perennials among the Thalictrums very useful for flower border, waterside or woodland, while two or three species may well find a place in the rock garden on account of their dwarf elegant habit and showy flowers. Our native species, T. flavum, was probably one of the earliest in cultivation in our gardens. It has handsome foliage and yellowish flower-heads, but there are several others now grown that are much more attractive.

One of the latest arrivals—T. dipterocarpum from China—is a handsome plant of tall, graceful habit and with pretty rose purple flowers. There are also several pretty Himalayan species, but on the whole they are more difficult to grow in this country than the European and North American kinds. These latter are easy to manage, and will grow in any good garden soil, while some of the more robust kinds will hold their own in the wild garden.

All Thalictrums may be propagated by dividing the roots in autumn or early spring. Plants may also be raised from seeds, but these, in common with those of many other members of the Order, are naturally slow and irregular in germinating, two years sometimes elapsing before they all sprout. As a rule Thalictrums thrive best in half-shady situations, but at the same time they are quite happy in an open sunny border if the soil is deep and well tilled. The following are the best kinds out of a large number:

T. ALPINUM.—The smallest plant in the genus, this little alpine is found wild on the mountains of Scotland and Wales, growing in rocky places among the short turf. It is also spread over the mountain chains of Europe. Very suitable for the rock garden, it is a pretty little species with an upright stem some 3ins. high, finely divided leaves and delicate, feathery, nodding flowers in July and August.

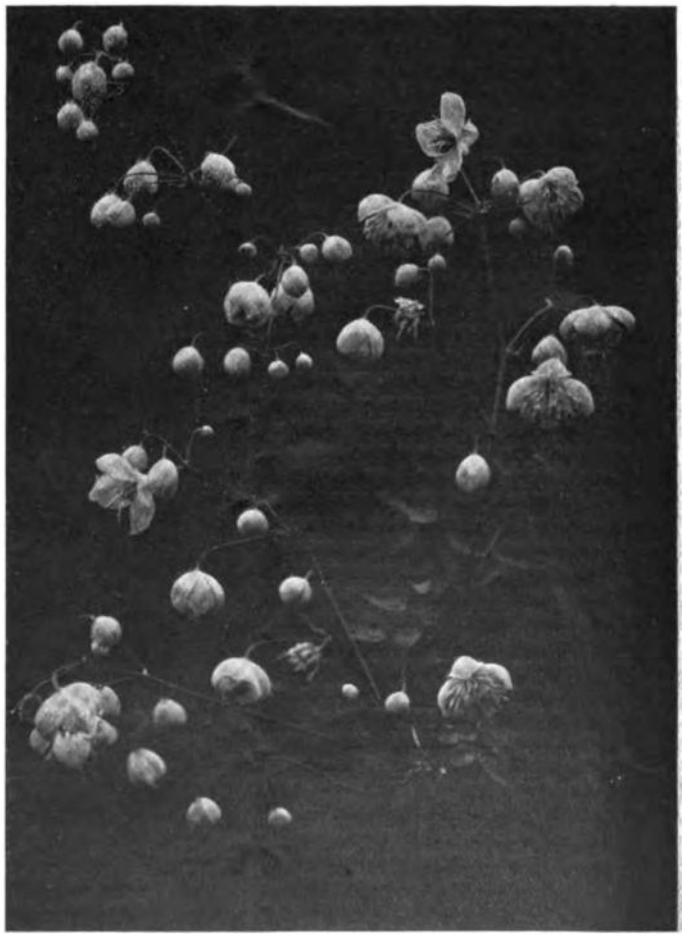
T. ANEMONOIDES (syn. Anemone thalictroides).—The Rue Anemone is a dainty little American plant that is best suited for the rock garden in partial shade, where the soil is moist and deep but well drained. It has tuberous roots, three-lobed adiantum-like leaflets, and panicles of white flowers that more resemble those of Anemone nemorosa than of a Thalictrum. The plant is slender in habit, rarely exceeding 6ins. in height and flowers in April. It is also a choice species for the alpine house, and may be successfully grown in pans in gritty soil with plenty of leaf-mould. It is native to the whole of North America, being found in every part of that country from Virginia to Canada. It was introduced into England in the year 1768 and is quite hardy. There is also a form with double flowers.

T. ANGUSTIFOLIUM.—This is a sturdy plant that grows about 6ft. high, with numerous stems, and pretty, narrowly divided foliage, overtopped by a foamy mass of pale yellow flowers in feathery panicles. The colouring is derived from the stamens only, the sepals being inconspicuous. This handsome border plant, of which the principal asset is its light elegant habit, is a native of Europe.

T. AQUILEGIFOLIUM.—The Feathery Columbine is a very ornamental species that has long been grown in our gardens. The typical form has yellowish flowers in flattened panicles, consisting mainly of stamens formed into foamy masses. The stems are hollow, purplish, and are furnished with broad leaves resembling those of the Columbine. These leaves vary in tint, but are more or less glaucous. Several garden forms have been produced differing mainly in the colouring of the inflorescence. Of these the best are album (white), atropurpureum (dark lilac) and roseum (pale rose). All these forms average 3ft. in height, and, when fully established, produce many stems and masses of feathery flowers in June. They will thrive in any soil, but prefer a strong loam with plenty of moisture, and are excellent border plants for bold groups.

T. CHELIDONII.—The chelidonium-like Meadow Rue is a Himalayan plant of slender habit, about 2ft. high, with ternately divided leaves that are pale green above and glaucous beneath. The lilac or purple flowers with conspicuous sepals are 1in. in diameter, and produced in large panicles with rigid branches during July and August.

THE PINK FORM OF THE FEATHERY "COLUMBINE," THALICTRUM AQUILEGIFOLIUM.



THE INFLORESCENCE OF THE BEAUTIFUL THALICTRUM DIPTEROCARPUM.

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It is a shade-loving plant and should be grown in the rock garden.

T. DELAVAYI.—One of the best, this Chinese species is of slender growth, having thin, wiry stems 3ft. high, and slight airy panicles of mauve-tinted flowers nodding among the maidenhair-like foliage. It should be grown in light, moist, sandy soil, and is more suited to the rock garden than to the border. It forms a loose bush studded in July and August with numerous flowers. It was introduced from Yunnan in Western China in the year 1890.

THE RUE ANEMONE, THALICTRUM ANEMONOIDES (=ANEMONE THALICTROIDES).

T. DIPTEROCARPUM.—This is a distinct and beautiful new species from China which is becoming well known in gardens. It was introduced by Messrs. Veitch and Sons through their traveller, E. H. Wilson. The persistent sepals are ovate, reddish violet or rose purple in colour, and contrast well with the pale sulphur tone of the stamens. In some respects it may be likened to an improved T. Delavayi, but it reaches a height of 8ft. or more in strong loamy soil of a gravelly nature, and produces large lax panicles of numerous nodding flowers in July. It is one of those species with large sepals, four to each flower, the whole being nearly 1in. in diameter. It was given a first-class certificate by the Royal Horticultural Society in July, 1917. There is also a pretty white-flowered variety now in cultivation.

T. FLAVUM.—This is a familiar plant in the hedgerows of many parts of this country, and makes a useful border plant for bold grouping. The stems reach a height of 6ft., being clothed with grey-green, much-divided leaves, surmounted by feathery panicles of yellow flowers consisting chiefly of stamens. It will grow almost anywhere, amid shrubs, or by the waterside, as well as in the wild garden.

T. GLAUCUM.—A very vigorous perennial, with stout, purplish stems reaching a height of 7ft. or more and glaucous leaves that are somewhat triangular in outline. The inflorescence consists of a flattened panicle of soft yellow flowers 2ft. or more across, due to the freely branching stem. It is a border plant with a bold, handsome appearance, very imposing in large groups or in isolated beds. It flowers in June and July, and is a native of South Europe. There is a form of this species known as T. flavescens, with green leaves, not glaucous, and paler yellow flowers.

T. MINUS is one of our native plants, being found in many rocky districts in this country. It is very variable in habit, and there are several pretty forms of it well worth growing. T. m. var. adiantifolium is a dwarf bushy plant 18ins. high, with minutely divided leaves of a bluish green tint and slender panicles of greenish yellow flowers. T. m. var. elatum grows 5ft. high, forming an elegant bush, surmounted by a cloud of greenish yellow flowers in July. It is very useful either as cut flower or foliage for table decoration. T. m. purpurascens has purplish tinted flowers.

T. ORIENTALE.—This is an Eastern species, being found in the fissures of rocks in the mountainous regions of Asia Minor. It is under 1ft. high, with biternate leaves of fair size, and loose panicles of white flowers ¾in. in diameter. It is somewhat rare in this country, and should be grown in rocky soil in the shady rock garden.

T. PETALOIDEUM.—This species, which hails from North-Eastern Asia, corresponds to the North American T. anemonoides. The sepals of this species are white, and longer than the stamens; and though they soon fall, the filaments of the stamens are so much dilated as to look like little flesh-coloured petals with a yellow anther at the tip of each. In this species the tubers differ from those of T. tuberosum in being long, sometimes over 1in. in length, instead of being short and rounded. It makes a pretty border plant, not exceeding 2ft. in height, with many handsome flowers of good size in summer.

T. PURPURASCENS.—This North American species grows 6ft. high, and can be recommended for groups in the border or by the waterside. It has the stem and leaves of T. glaucum, and is very handsome and imposing with an inflorescence consisting of a drooping mass of purplish flowers over 1ft. in diameter at the top of each stem.

T. TUBEROSUM.—This is one of the petaloid species, with stems about 1ft. high, much-divided leaves and clusters of small, pure white flowers, produced from July to September. It is a pretty plant for the rock garden, soon forming attractive groups in half-shady situations on the drier slopes. It is easily increased by dividing the mass of small rounded tubers which form the rootstock.

Many other species might be included, but the above constitute the cream of the genus. W. I.

GRAPE VINES

Their Pruning and Cleaning.

GRAPE Vines are grown by amateurs in structures where there is, also, a miscellaneous collection of plants, as well as in vineries built specially for the purpose. Very fine bunches of Grapes are grown in these houses, sometimes in circumstances not conducive to success. The work of pruning and cleaning the rods is a very important one. If wrongly pruned, Vines soon become a mass of shoots in summertime, their condition hindering the development of good leaves and the colouring and ripening of the berries. The tendency is to leave the side spurs too close together and, also, several stumps of shoots on each spur.

PRUNING OLD OR ESTABLISHED VINES.—Before any work is done, the cultivator should observe closely the condition of the Vines. If there is more than one side shoot on a spur, cut out all but the strongest entirely and shorten the one retained to two eyes, or buds. If the spurs are closer together than 18ins., saw out some of the weakest and badly-placed spurs entirely, so that the spurs will be, on both sides of the rod, about 2ft. apart. This distance is approximate, as it is not possible to have all spurs just so far apart the whole length of the vine. To prevent bleeding, paint over each cut end with styptic or painters' knotting. Do this one or two days after pruning.

PRUNING YOUNG VINES.—Those planted during the current winter should be pruned about the middle of January, and immediately painted to stop bleeding; paint the cut ends several times. The young vine should be cut back to within 2ft. of the soil—18ins. would be better: one young leader and a young shoot on each side of the rod being sufficient to retain the first year. If it is not possible to prune young Vines before the date named, the best plan will be to plant the Vines and depress the canes. In all cases young Vines should be allowed to start new growth very slowly, with the aid of sun heat rather than fire heat. When the new shoots grow, those nearest the extreme end of the rod will push first, and, as they attain to a length approaching 1in. rub them off, continuing till all are removed down to the desired point. At this stage the cultivator should leave a leading shoot and one on each side of the rod, exactly as in the case of pruning a young rod. The denuded cane should remain uncut till about the end of July, when it may be cut out, or it may be left till the next winter pruning. To cut it out earlier would result in excessive bleeding.

CLEANING THE RODS.—I am referring to naturally clean rods, that is, to those free from insect pests. A young cane will need no cleaning; the young bark should not be cut or peeled off.

The old rod will have some loose bark adhering to it; such may be removed, but none that is adhering firmly to the rod itself. If a knife is used to remove such loose bark, care should be taken not to cut in deep enough to expose the green cambium. All that I do, and advocate, is firmly to grasp the rod with the hand and, by working the hand round the rod rub off all loose bark and leave it at that. Rods so treated swell to a good size; those unnaturally peeled remain thin and sometimes lack strength. GEORGE GARNER.

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LOW-GROWING SHRUBS

Excluding Conifers.

THE subject of dwarf or low-growing shrubs, while interesting to all lovers of hardy plants, will appeal to readers with small gardens in particular. By the judicious selection and planting of shrubs of small stature, with just a few taller kinds to relieve any possibility of flat effect, at least three times as many shrubs can be readily accommodated as would otherwise be the case. The site for a house is frequently chosen because of the beautiful views of the surrounding country possible from the windows. Not only will dwarf shrubs find a place near the house, but their extensive planting, following the lines of the views, will enhance the scene. I have in mind a mansion of recent construction with glorious views over the Surrey hills. Standing at the head of a valley, the main vista is of sloping banks planted with masses of low-growing shrubs, Heaths, dwarf Rhododendrons, Cotoneasters, Helianthemums and Barberries. This is by the way, however, as such a position allows the planting of shrubs 3ft. to 4ft. or more in height, whereas the following notes deal with low-growing kinds which seldom exceed 18ins. tall. If eventually they overtop this height, it is the result of many years growth. Should the bushes shew signs of too vigorous shoots, a little trimming with a knife will soon put things to rights.

There is much to be said in favour of planting more dwarf-growing shrubs towards the front of shrubbery borders. This will do away with a vast amount of pruning and also with the crowded appearance, which too often is the most noticeable feature of these borders.

In the rock garden dwarf conifers usually find a place, not only because of their effectiveness in winter, but because of the contrast they afford to the many flowering species grown there. There are numerous other hardy shrubs of dwarf stature, both evergreen and deciduous, equally suitable for planting with rock plants, however, and which add variety, attraction and interest to the rock garden. The following notes draw attention, moreover, to a number of showy kinds admirably adapted for terrace or other formal gardens.

Quite a number of the shrubs brought under review can be cultivated in pots for use in window boxes, either throughout the year or for the winter season, giving place to "Geraniums" and Fuchsias in summer.

A few of the shrubs noted are dwarf forms (abnormal varieties) of larger-growing kinds, but, unlike most of the dwarf conifers, the low growth is their normal habit. They are on that account easy to propagate for the most part.

With regard to soil, except that the Heaths and Rhododendrons require a lime-free soil, the majority thrive in ordinary garden soils which have been well dug and manured. For sunny banks where the soil is light and sandy one should give particular attention to Helianthemums, Cotoneasters, Dwarf Brooms and Barberries.

EVERGREEN SPECIES AND VARIETIES.

Arctostaphylos Uva-ursi (Bearberry) is a trailing evergreen mountain shrub native of Northern Britain and Central Europe. It prefers moist, cool conditions and is admirable hanging over boulders in the rock garden. The long trailing shoots are quite at home, too, in the foreground of shrubbery borders where Rhododendrons thrive. The terminal clusters of drooping pink blossoms are borne from April onwards, and are followed by small red, globular berries. Seeds and cuttings provide ready means of increase, but trailing over suitable ground, the stems root freely, giving an abundance of rooted layers.

There are two forms of Berberis buxifolia—var. nana and var. nana compacta—of tufted habit and pretty as isolated specimens in the rock garden or grouped several together along the front of a border. The plants are normally evergreen, but the species, being a Chilian, severe frosts cause many leaves to fall. B. candidula (hypoleuca) is a slow-growing bush of neat close habit with dark green leaves which are noticeably grey-white beneath. It may grow eventually to 2ft. in height, but is readily kept to half this height by the free and annual use of the secateurs. B. nervosa is one of the Mahonia group, and a very attractive dwarf shrub with handsome pinnate leaves often as long or longer than the height of the plants, which averages from 12ins. to 18ins. The erect racemes of yellow flowers are attractive, so also are the clusters of purplish blue fruits. Seeds afford the best means of increasing this dwarf Mahonia of Western North America.

The Creeping Barberry, B. repens, also from Western North America, has smaller leaflets and dull green foliage, at least as compared with the previous species, but the creeping stems give the plant an inviting tufted habit, and it bears rich yellow flowers in spring and blue-black fruits in late summer. There are several dwarf forms of the beautiful hybrid Barberry B. stenophylla, the most valuable for the purposes under review being Irwinii and reflexa, with showy golden yellow blossoms in April and early May.

Bruckenthalia spiculifolia is an Ericaceous shrub native of the mountains of Eastern Europe and Asia Minor. Forming a carpet of growth 5ins. or 6ins. high, the pink-tinted blossoms are borne in terminal racemes during June. It thrives under similar conditions to the Heaths, and may be increased by seeds and cuttings.

DWARF BOX.

For certain positions several dwarf forms or varieties of the Common Box, Buxus sempervirens, are worthy of attention. The smallest is var. myosotifolia, a dwarf, slow-growing shrub of dense habit with tiny leaves; var. myrtifolia, which becomes eventually a slightly larger bush, but still of dwarf tufted habit and with narrow leaves. The popular Box Edging or Edging Box—var. suffruticosa—is a valuable shrub for formal gardening being readily trimmed or clipped to any small design, but it is worth cultivating naturally, when it forms as a small bushy shrub. The Chinese Box, Buxus Harlandi, is naturally a small evergreen bush of rounded formal habit. As a dot plant plant in the rock garden, for window boxes and flower-beds in winter the Chinese Box should find a place among the best half-dozen evergreen shrubs.

The many forms or varieties of the Common Ling, Calluna vulgaris, provide a wealth of colour from August to October. They vary in height from the 2ins. or 3ins. of var. pygmæa upwards. Var. alba minor is a dainty white-flowered plant of 5ins. or 6ins.; var. aurea has gold-tipped foliage, while that of var. cuprea has a bronzy tint; both grow from 6ins. to 9ins. tall. Var. argentea with silver-tipped growths; var. Serlei, one of the best whites with a mass of shoots about 9ins. high; var. flore pleno with rosy purple double blossoms and notable for the long period of flowering; var. Alportii, the best of the vigorous crimson-purple forms, 15ins. to 18ins. in height; and Hammondi, one of the freest and taller white varieties (18ins.) are others of special merit.

COTONEASTERS.

Because of their easy culture in nearly all soils, even those which are poor and stony, the Cotoneasters are very useful for banks and large rock

A GOOD DWARF FORM OF BERBERIS STENOPHYLLA AT HALLINGBURY.

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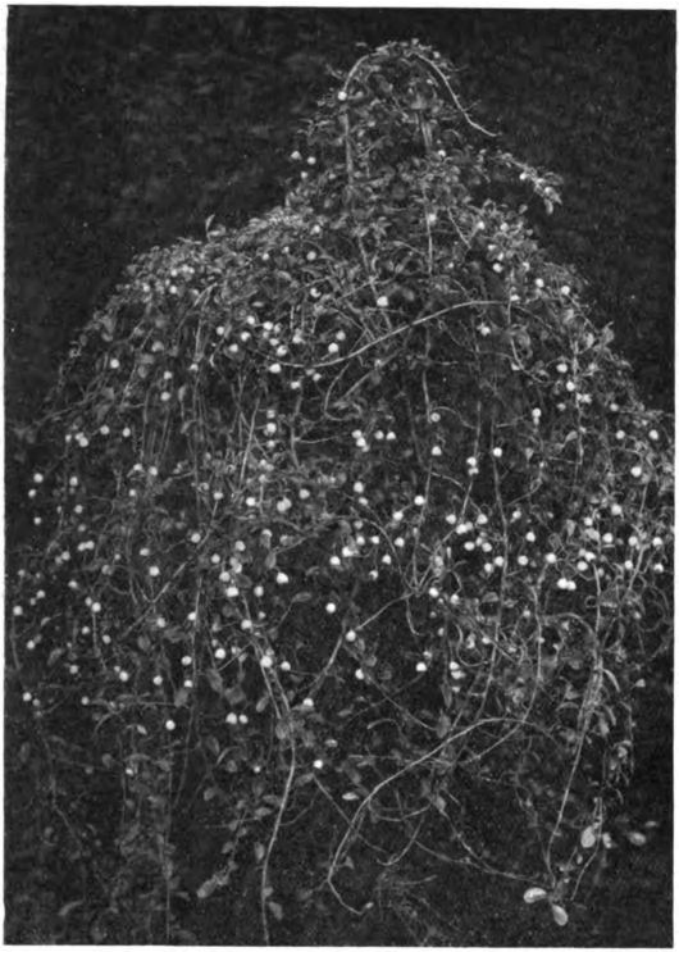
gardens. C. congesta, sometimes named C. microphylla var. glacialis, is a slow-growing dense little alpine shrub with foliage a paler green than that of C. microphylla. The latter is more vigorous and spreading in habit, with small glossy green leaves and showy red fruits. C. thymæfolia, which may also be a form of microphylla, has neat glossy green leaves, and the plants are of dense branching habit with scarlet fruits. These forms vary from seed, hence those of distinct and desirable habit should be propagated by layering or from cuttings. One of the introductions from China by Mr. E. H. Wilson (1900), C. humifusa (syn. Dammeri var. radicans) clings closely to the ground or rockery boulders if suitably placed, and is certainly one of the most distinct trailing shrubs of recent introduction; the fruits are coral red and very showy.

The Common Irish, or St. Dabeoc's Heath, Daboecia polifolia, rosy purple, and the three forms var. alba, var. atropurpurea and var. bicolor are even more attractive for planting in masses than the Common Ling. The flowering season extends from June or July to October. It is worth while lightly to clip over the plants in February to keep them low and bushy.



COTONEASTER HUMIFUSA (C. DAMMERI RADICANS).

The Daphnes are among the choicest of dwarf shrubs, their fragrant blossoms appealing to flower-lovers. D. Blayagana is a favourite rock garden shrub; stones should be placed on the branches as they spread. The dainty heads of creamy white blossoms are freely borne during March and April. The Garland Flower, D. Cneorum, is under happy conditions smothered with rosy pink blossoms in April and May, its height 9ins. to 1ft. A third species, D. oleoides (Fioniana), is an erect-growing bushy shrub with lilac rose blossoms in spring, and of an average height of 18ins.

THE HEATHS

provide a wealth of low-growing shrubby plants in flower more or less throughout the year. Except for the easy E. carnea a lime-free soil is desirable, otherwise the Heaths can be massed on slopes and banks with beautiful effect. The first, or last, to flower is E. darleyensis, which in mild weather opens its first flowers in November and continues until April. The buds of E. carnea and its named varieties open with the first weeks of the year. E. ciliaris and variety alba, E. cinerea and several varieties, E. Mackayi and double form, E. Maweana, E. Tetralix and var. alba, and the Cornish Heath, E. vagans, with several forms are admirable for planting in colonies.

Several forms of Euonymus radicans are useful in most soils and positions. Var. variegata with prettily silvered foliage is valuable as a carpeter, also as a plant for edging beds and borders; it stands frequent clipping. The variety Silver Queen is an adult form and very showy in masses. The Creeping Wintergreen, Gaultheria procumbens is a dwarf close-growing shrub with dark glossy green leaves, thriving in sun or shade, and producing plenty of red berries in autumn.

For light soils and sunny exposures the Sun Roses, Helianthemum, produce a profusion of blossoms in summer. They can be freely increased by cuttings in late summer under bell-glasses and hand-lights. The forms of the Common Sun Rose, H. vulgaris, can be readily raised from seeds, but as they hybridise freely the named sorts should be propagated by cuttings. The Bride, Golden Queen, Rose Queen, Mrs. Earle, Fireball and cupreum are six of the best. H. algarvense, H. alyssoides, H. formosum and var. unicolor all have yellow blossoms and H. umbellatum, white.

The dwarf Lavenders are invaluable for paved and old-world gardens, thriving best in well drained soils. Lavandula vera nana compacta flowers two or three weeks earlier than the Common Lavender, and has larger individual flowers on the spike of a deeper blue. A variety sold in nurseries as Dwarf Blue is paler in colour, its particular value being the grey foliage in winter.

A. O.

To be continued.)

FORTHCOMING EVENT.

January 24.—Annual Meeting and Election of the Gardeners' Royal Benevolent Institution, to be held at Simpson's, Strand, London, W.C.2, at 2.15 p.m.

PLUMS FOR CULTURE IN POTS

THE remarks of "S. O. K." in the issue for January 5, page 9, induce me to pen a few notes about the cultivation of Plums in pots, for of all fruits abundant in juice and sugar, none can beat the product of a Gage Plum tree. A cold glasshouse will answer their needs for setting purposes, and with a mixture of varieties, fertilisation should be assured. The compost should be a mixture of fibrous loam three parts; mortar rubble, quarter part; bone-meal, quarter part; crushed charcoal, quarter part; and Peruvian guano, quarter part, with a sprinkling of flowers of sulphur over the whole. Pots 10ins. to 12ins. in diameter will be ample in size for their requirements for two or more seasons. Firm the soil as potting proceeds, but do not make it too tight, or porosity will be endangered.

Prune carefully, as observation of growth and common-sense should guide the pruner's knife. Summer pruning must be studied in close detail, this being very important for the formation of fruit-spurs. Plunge the pots in ashes during the summer months to curtail severe evaporation.

After many years of observation I recommend the following sorts as being suitable in growth for the purpose and in every way of first-rate quality:

DENNISTON'S SUPERB GAGE is a delicious Plum of first quality and size, skin pale yellowish green with a few purple blotches and dots, flesh yellow, firm, juicy and rich. This is a great bearer and very hardy, and altogether a variety of great merit. Introduced to commerce about 1835, it is still one of the best.

OULLIN'S GOLDEN GAGE is a very productive sort, perhaps not quite so full of juice or so rich in sugar as some, but nevertheless a fine variety for pot culture, the fruit being of large size for a Gage and roundish oval, and the skin greenish yellow with light bloom. It is a first-rate bearer, and has the reputation of being self-fertile.

MONARCH, a noble and self-fertile Plum of excellent character, and one to be sought after for every garden, being a huge cropper and suitable both for the kitchen and dessert. For pot purposes it is really decorative. I have seen trees measuring about 6ft. in height and a yard in diameter carrying nearly two hundred luscious fruits. These are deep purple in colour and oval in shape, though some of them, I have noticed, are almost globular.

OLD TRANSPARENT GAGE is a delicious Plum and a free bearer. The growth is of a rather straggling habit, but by judicious pinching and pruning of the growths this can largely be overcome. The fruit is medium in size, round in form and yellowish green in colour with red dots, the flesh sweet and juicy.

EARLY TRANSPARENT GAGE bears luscious fruits, and is a great favourite in all well ordered gardens, being one of the very best of the early Gages. It is splendid for pot purposes and certain to give satisfaction. The fruit is medium in size and roundish, coloured apricot yellow with crimson spots, the coloration being exceptionally rich. It is very juicy and sugary and, being self-fertile, gives general satisfaction for pot purposes.

COMTE D'ALTHAN'S GAGE is a variety similar to Green Gage in shape, but red-purple in colour, the flesh very firm, richly flavoured and juicy, with a rich honeyed excellence rarely found in Plums. It is very prolific, and must be counted among the six best Plums for pot purposes.

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BLUE ROCK is a Plum of general utility, a great cropper, and useful both for dessert and cooking. It is medium round in shape and deep purple in colour, the flesh yellow, juicy and sweet. I have seen small trees in 10in. pots carrying a huge crop.

BRYANSTONE GAGE is a large late Green Gage of desirable qualities, being excellent in flavour and most valuable as a pot tree. This variety will stand feeding liberally after the setting of its fruits. A weak solution of manure water mixed with bone-meal and applied before watering, will help the trees over the stoning period. All stone fruits require lime in addition to their food, and it is well to let them have both on the little and often system.

JEFFERSON GAGE is the largest of all Gages, and very rich in flavour. The fruit is oval, golden yellow with reddish spots, and equal in flavour to any fruit grown. This should be given the warmest end of the house, and it is usual to run a rabbit's tail over the blossoms. Make sure that there is ample pollen, taken from another variety, on the fur before touching the Jefferson blossom. This process is conducive to perfect fertilisation, and it would do no harm lightly to touch all blossoms as the sun passes the meridian each day until the setting of the fruit has been completed.

The above-mentioned sorts will, I think, be found an excellent selection for the purpose named. GEO. LOVELOCK.

USING VEGETABLE RUBBISH

IN our efforts to counteract the extreme porosity of a sharply drained soil and so conserve as much moisture as possible during the growing months we have for many years relied very largely upon decayed vegetable matter. This material when wholly or partially ripe is used for all manner of purposes, such as the mulching of shrubs, including Rhododendrons and other ericaceous kinds, top-dressing herbaceous borders, rock garden and lawn, as well as in the kitchen garden as a supplementary organic fertiliser. Indeed, it has been employed for a good many years for the growing of vegetables, to the entire exclusion of animal manure, save poultry guano, and results have been extremely satisfactory.

We generally manage to have three heaps of this "stuff" on hand, so that while one, the oldest, is being used, another is maturing and a third in process of accumulation. This last, naturally, receives most attention during autumn, for it is then that suitable contributions are most plentiful. Among these, fallen leaves are the most valuable, but few things that will decay are consigned to the wasteful bonfire. In addition to leaves there are path cleanings, any weeds, other than such indestructible roots as Couch, Coltsfoot and the like, grass mowings, verge trimmings, turves, pea and bean straw, the clearings from herbaceous borders, any soft trimmings from hedgerows and shrubs, old packing straw which comes round the nurserymen's bundles, seaweed if one can get it—anything that will respond to the process of decay in a reasonably short period, is carefully collected. Even such woody growths as the stems of border Phloxes, Delphiniums and Michaelmas Daisies will make useful material.

All the year round, whenever any garden work is being done, the compost heap is growing beneath the rubbish that the garden casts off, rubbish that will, in less than twelve months time, be returned to it in the form of sweet vegetable mould, moisture-conserving and nutritious.

Where natural hollows occur, as in out-of-the-way spots in the woodland, these make first-rate places for the reception and preparation of this refuse. Failing these, a spare corner of the kitchen garden may be requisitioned for the purpose, or one may have to construct a special "pit," as we have done in the case of one heap. But even if this is actually in the garden it need not be an unsightly object. The one referred to is about 2ft. deep and 10ft. broad and long. It is surrounded on two sides by a low, ivy-clad wall, on the other by a thicket of Pernettyas, and it fronts to the path for convenience.

No lime is ever used in making our vegetable mould. This element is avoided not only because it would render the compost unsuitable for plants objecting to it, but because lime tends to destroy humus, which is the very thing we most devoutly wish to create and preserve. Instead of lime, salt is occasionally sprinkled over the growing heap, and any soot that is available also goes into the pie. A little gritty matter, such as sand from the roadsides, or path scrapings, is added now and then, more particularly in autumn when leaves are being gathered. This is not essential, but it prevents the leaves being blown away in dry weather, and I always think it assists in the acceleration of decay by giving the heap the weight, or pressure, it usually lacks.

When the heap is completed it is left to stand for about two months. After this all unrotted material from the top and sides is removed and put underneath, while the remainder is being thoroughly turned over. This is done somewhat on a simple trenching or double digging principle, a sharp spade being used to cut out each section, thus severing any woody material that may be only partially decayed. Another sprinkling of salt and more soot, if there is any at hand, are given during this operation, and the heap is then worked up into a ridge shape and beaten over with the back of the spade.

At this stage the material will be in a half-rotted condition, and after the lapse of another two or three months its contents, having been turned over a few days previously, will be quite ripe enough for mulching shrubs, digging into vegetable ground or putting into drills for Potatoes, etc. Indeed, it can then be applied to most purposes, other than top-dressing borders and the rock garden, for which an older sample will be better.

Generally speaking, a refuse heap completed in, say, December will be ready for all-round use early the following autumn, but a good deal will always depend on the nature of the material and the attention it gets. There is no doubt that salt speeds up decay, as does seaweed. Both have fertilising and anti-pest properties not to be regarded too lightly, and they are of material assistance in conserving moisture in summer. No less may be said of fresh soot, and the effect this has in darkening the mould is helpful in dry gardens where the loam is light in colour as well as light in texture.

By adding a sprinkling of poultry manure on the heap as it accumulates, one may also hasten decay and render the finished product a good deal more stimulative. As a matter of fact, vegetable refuse properly prepared with the addition of this manure will be found equal to most farmyard "muck" for garden crops generally, it being particularly efficacious in the growing of the Brassicæ, Spinach and salad vegetables. Theoretically, perhaps, this may be a wasteful way of utilising such a valuable guano as fowl dung, but I have found in practice that the compost made in the way suggested retains quite enough ammonia for the usual run of culinary vegetables and fruit.

There are gardeners who object to using vegetable compost on the score that it is weedy and may be infected by the spores of disease. All I can say in regard to that is that I have found vegetable-mould prepared in the above manner a good deal less weedy than an average sample of cow or stable manure of the same age, or older. No attack of fungoid or other disease has ever been traced to this material during nearly thirty years use of it, but, needless to say, one would naturally be careful to avoid putting on the heap any vegetable matter known to be infected with a disease that would be likely to be troublesome. As for wireworm and other pests, the mould is always remarkably free from them, and this, I think, may in part be due to the salt and soot. J.

CHRYSANTHEMUMS

Potting the Rooted Cuttings.

WHEN the shows are held throughout the months of October and November, interest in these flowers is very keen, and many new cultivators are now, as a result of that interest, engaged in the work of propagation. Experienced cultivators know how important it is that the young plants be cared for with as close attention as that bestowed on the maturing specimens bearing handsome blooms. The beginner may not be as careful in this matter and so lose valuable time.

From Christmas onwards to March the inserted cuttings form roots rapidly and the early-rooted ones soon fill the tiny pots with roots. The first batch of young plants will now require re-potting. If they are allowed to remain too long in the small pots a check to growth results, the stems prematurely hardening, and this check is, frequently, the cause of thin stems just above soil level, the thinness being apparent throughout the summer months.

If eight to a dozen roots are observed round the small ball of soil it is time to shift the plants to larger pots, usually the 3in. and 3½in. ones being large enough.

At this first repotting the future form of the plant should be decided upon. If the plant is to bear three large blooms, one specimen in a 9in. pot—or of the strongest-growing sorts a 10in. pot—will be sufficient. If the plant is to be one bearing a single bloom, one plant will be sufficient for an 8in. pot, two plants for a 10in. one. In the latter case the two plants should be placed in the 3½in. pot now, and be transferred to larger pots without their roots being disturbed till the 10in. size is reached. I consider 7in. pots too small for single plants at the final potting, where cuttings are rooted before the middle or end of January. They are suitable for March-struck plants if good cultivation is the rule right through. Where plants are grown for decorative purposes, too, it is wise on the part of the cultivator to arrange for the number of plants for each pot now.

The compost should be carefully mixed—a few ingredients are only needed. The most suitable are fibrous turf about six months old, sweet leaf-soil a little more than half-decayed and some old mortar rubble. Loam two thirds, leaf-soil one third will answer, with one peck of mortar rubble to a bushel of the above combined parts. Mortar rubble is preferable to sand, but the latter should be used if the former is not available. The leaf-soil will supply all the nutriment needed at this stage without any manure. GEORGE GARNER.

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CORRESPONDENCE

CRYPTOMERIA JAPONICA VAR. VILMORINIANA.

THIS interesting dwarf form I observed recently in the rock garden at Verrières le Buisson, near Paris. As a small specimen it was obtained in Japan by M. and Mme. Philippe de Vilmorin in 1903, and was planted by them at Verrières. It was obtained under the name of Juniperus japonica, and has been grown under that name ever since; but it is an undoubted form of Cryptomeria japonica. It is quite distinct from any other form and is a much smaller plant than var. Knightiana (syn. var. pygmæa, H.B. ex Knight). Its branches and branchlets are short, stiff and very crowded; its leaves are short, stout, recurved and very close together on the branchlets. It has been planted out over twenty years, and in that time has made a dense, globular bush about 2ft. high by as much through, its habit being very regular and compact. It will make an extremely valuable addition to the dwarf conifers on the rock garden, and as it is now being propagated, one may soon hope to be able to acquire it.—MURRAY HORNIBROOK.

FREESIAS SEEDING OUTDOORS.

I WOULD like to reply to the Rev. Jacob's query regarding Freesias growing and ripening their seed in the open garden (December 22, 1923, page 665). Freesias have been grown successfully here in the open at the foot of a greenhouse wall in a little soil in the gravel path. In the summer of 1922 the seed-pods were not picked off, and they ripened a heavy crop of seed (in 1923 they were picked off). Now, this year, all along the front of the plants are masses of seedling Freesias in the gravel path, some of them 30ins. away from the parent plants, the seed having no doubt been moved there when the gravel was raked over. The plants are not protected in any way, although the foliage is scarred a little this season by the 20° of frost which they withstood in November. The bulbs planted were just the small bulbs left over from potting. A small clump of Tritonias was tried last year in the same position and was quite a success.—E. HAYWARD, *High Hall Gardens, Wimborne.*

ROSCŒA CAUTLEOIDES.

I THINK one reason why this and other species of Roscœa are not so frequently seen in gardens, as "S. A." (page 10) reminds us they deserve to be, is that, after disappearing entirely in winter, they are very late in shewing above ground in the following year; wherefore, unless their position is distinctly and permanently labelled, the roots are most apt to be destroyed by hoe or fork. Of the five species which we have found to be quite hardy here, RR. Humeana and purpurea are generally visible by the end of April, the former flowering in June, the latter towards the end of July. R. cautleoides also flowers in June, but gives no sign of its presence till near the end of May; while July is nearly sped before shoots of R. capitata pierce the soil, only a week or ten days before it opens its fine violet blossoms at a height of 16ins. or 18ins. The variety named by Bees "August Beauty" behaves in a similar way. I do not know whether it is a distinct species; to all intent it is a late-flowering replica of R. cautleoides, but whereas that species grows in a compact clump, both R. capitata and August Beauty send out wandering roots and soon cover a considerable space.—HERBERT MAXWELL, *Monreith.*

EUCRYPHIA PINNATIFOLIA.

AS we are large growers of this plant, we are particularly interested in "Formakin's" letter in your last issue. We wonder if "Formakin" or any of your readers has ever noticed how many distinct forms there are in the plant under this name. Some types are much superior to others both as regards growth and quality of flower. Our best form makes growth of over 12ins. each year, and we get cuttings that root quite freely; other forms only make stunted growths, and it is difficult to find a suitable cutting and even more difficult to root it. The flowers of the better form are much larger and the trusses of blooms more than double the size of those of the inferior types; the anthers of our best form are quite a good crimson, while most of the others pass from yellow to brown and are not nearly so effective. We must say our experience of transplanting has been very different from that of "Formakin." We transplant our stock every second year, and never lose a plant. We also send away many plants each year, some over 6ft. tall, and have never received a complaint from any customer. The trade always take about 200 annually in 2ft. to 4ft. stuff, and if they did not have success they would certainly not come for them year after year. After reading "Formakin's" note, I at once went out and had two plants each 10ft. high removed, and have every faith in their success. Our best plant was put in twelve years ago and was then 4ft. high; to-day when measured it was exactly 16ft. 6ins. and in perfect health. From this plant we cut branches 8ft. long for a show last August, and each year it gets heavily cut for exhibiting purposes. Another plant put in at the same time and within 8yds. of the above has only made 8ft. of growth in the twelve years, and gives very few cuttings; in bulk it is not a quarter of its companion. The idea of planting Ericas at the root seems pretty general, and is even mentioned in Mr. Bean's book, "Trees and Shrubs Hardy in the British Isles," but we cannot agree with it all the same. Eucryphia pinnatifolia is a surface-rooting plant, and if Ericas were planted on it they would take all the surface moisture that came their way and rob the plant of its chief feeding ground. We consider a good mulching, which can be removed occasionally for hoeing, much better. It might interest some of your readers to know that on one occasion we broke up seventy large bushy plants into 600 pieces, and they all made fine saleable plants two years after, and on another occasion we cut large bushes into three and four pieces with a saw. Some of these pieces are fine specimens now; others were sold.—W. SLINGER (The Donard Nursery Company).

THE IMMENSE-FOLIAGED GUNNERA MANICATA.

THE GIANT GUNNERA.

I DO not know whether the enclosed photograph of Gunnera manicata may interest you, or whether it is worth reproducing in THE GARDEN.—R. HAGUE, *Osmington, Weymouth.*

[The picture well shews the stature of the species, for which, unfortunately, G. scabra too commonly deputises in gardens.—ED.]

THE GENUS ALLIUM

MAY I supplement the list of species described in "W.I.'s" interesting notice of this genus (pages 4 and 5) by adding three others which deserve attention. Allium sphærocephalum from Eastern Europe never fails to attract the attention of visitors by its globular heads of rich reddish purple, borne 2ft. high on thin wiry stems that no gale prevails to break or bruise. "The Hatpin Plant," my young people call it, from its resemblance to giant hatpins stuck into the ground. A. subhirsutum, from Southern Europe, bears abundance of clear white flowers in umbels in early summer. It spreads freely if allowed liberty, but is easily kept in check, and its slender grass-like leaves do not interfere with its neighbours. A third species landed here two or three years ago under the name of A. Beesianum, and has proved itself desirable. It carries heads of pendent light blue flowers on stiff stems 8ins. or 10ins. high.—HERBERT MAXWELL, *Monreith.*

SAXIFRAGA GUTHRIEANA.

ALTHOUGH I have known Saxifraga Guthrieana for very many years, I have never been able to ascertain with whom it first originated, and it is

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only recently that I have learned that its parentage is said to be between SS. Andrewsii and Aizoon. The former is itself a plant of hybrid origin, and there is a marked resemblance between it and S. Guthrieana, although the latter is smaller and not nearly so vigorous in growth. Indeed, some people find a difficulty in retaining it in their gardens. It is quite a good plant, although too much resembling the London Pride section of the genus to be as popular as some encrusted or Kabschia kinds. It has, however, a variegated-leaved variety, called S. Guthricana variegata, which is a great beauty. None of the other variegated-leaved Saxifrages, of which there are a few, can rival it in beauty of variegation. The pretty leaves are a wonderful combination of green, white, yellow and pink. It is now, I think, very rare, but has always been difficult to keep in the garden. Probably the paucity of chlorophyll in the foliage makes it more delicate, but, in addition to its inclination to be "miffy," it seems to be attractive to the birds, as from time to time I have found that feathered enemies were at work tearing up the rosettes. This happened in spring and was, I believe, due to the desire of the birds to employ the rosettes for nesting purposes, as they sometimes take other Saxifrage foliage for this. The green-leaved form is of no special value, but the variegated one certainly is, and those who are so fortunate as to possess it should take care of their plants.—S. ARNOTT.

CLIMBING FRENCH BEANS.

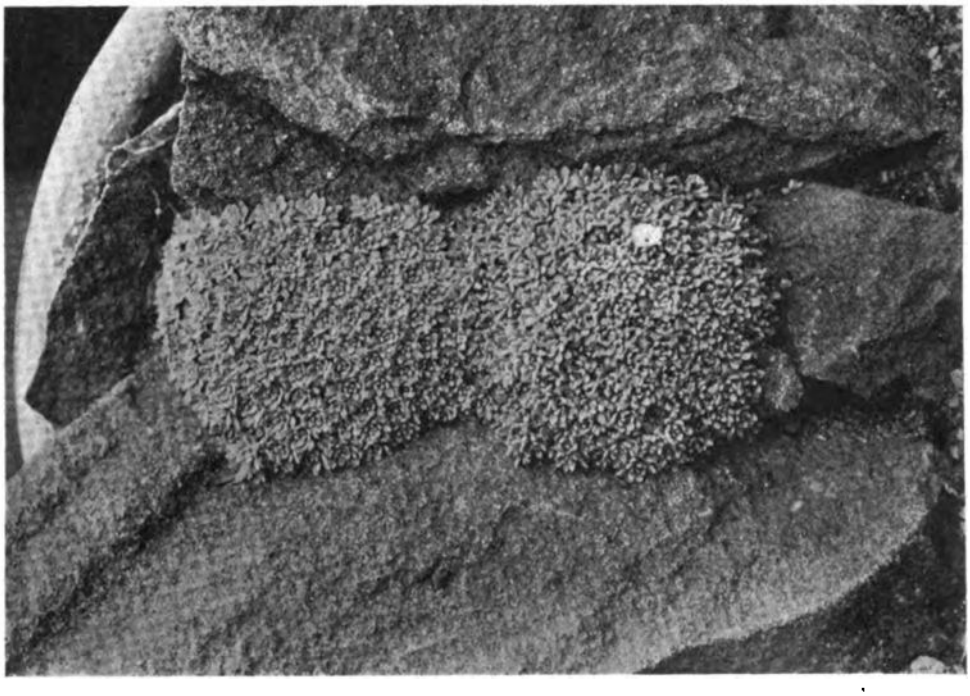
THESE have proved to be of great utility to us for several years past, both for indoor and outside culture. We commence in the early days of the year with a sowing in pots, the produce of which is subsequently planted out in a bed of soil against the back wall of a forcing-house, where the plants have a space about 8ft. high to grow on. The plants grow away quickly, and as regards cropping are but little behind the earliest section of dwarfs sown at the same time. They are, of course, much more prolific and continue in bearing longer than the latter. A little time later another sowing is made in 6in. pots. Not more than two plants are retained in each pot, and the pots are ultimately turned out against the back wall of a lean-to vinery. This sowing is timed to be ready for planting out at the time the Vines are started, which gives the Beans a good start before the Vine leaves form a canopy overhead. This formation of the canopy is, moreover, deferred by the method adopted of training the Vines. Instead of tying the Vines direct to the wires, which are about a foot from the glass, the rods are suspended in V-shaped slings at about 6ins. below the wires. This arrangement does away with the frequent tying down necessitated when the rods are nearer the glass. The shoots may, in fact, be allowed to grow on till flowering is over with a minimum of attention in this respect, and with no detriment to the Vines themselves. It is surprising, however, how well the Beans crop when the shading by the Vine foliage is complete; one can often pick them within a foot of the ground. Of course, such a plant as Phaseolus multiflorus must in its habitat produce fruit under and among the leaves of the shrubs or trees to which it attaches itself. The length of the two glasshouses above mentioned is 20ft. each, and from the two plantings of Beans we get a continuous supply for weeks. For the later supply of French Beans outdoors they are valuable also, comparing not unfavourably with the ordinary Runners for fertility and continuity of bearing when grown under similar conditions. The variety which we have found to be most useful for inside culture is Carter's Re-Selected Climbing French Bean. This sort is not so rampant a grower as Tender and True, which is a very good one, but which makes an extraordinary amount of growth when grown in heat.—R. DEAN, *Basingstoke.*

THE USE OF THE POLYANTHUS.

MY experience is much the same as that of "N. H. P." (THE GARDEN, December 29 last, page 678) with respect to Polyanthuses in the grass or wild garden. Some years ago I planted a considerable quantity of bulbs and plants in the grass of a lawn under some ancient Acacias to form a permanent semi-wild garden. I put in Daffodils and Narcissi in many varieties, Grape Hyacinths, Crocuses, Fritillarias, Scillas, Erythroniums, etc., and having a quantity of Polyanthus plants to spare, planted them here and there in bold clumps. At the time of flowering the bulbs gave a beautiful display, but the Polyanthuses seemed out of place—as Mark Twain's panorama man said of the piano accompaniments, "they didn't seem to gibe with the general gait of the picture." Their colours seemed out of harmony with the yellows, whites and blues of the rest, and they reminded one of spring gardening in the formal beds. However, when the bulb foliage had all withered, the Pennsylvania mower went over the ground weekly and the Polyanthuses disappeared. Looking over this site last spring, some ten years after planting, I found the Daffodils had done well in most cases, forming colonies and blooming profusely, but the Sulphur and Orange Phœnix, and the Polyanthus varieties Grand Monarque and Soleil d'Or were all gone and had not been seen for years, the Muscari had held on but had not multiplied much, and a few Snake's-head Fritillaries still lingered, while on a raised knoll some dainty little Dog's-tooth Violets were shewing their pretty marbled leaves, with Scilla sibirica keeping them company; but the real tenants of the land were the Daffodils, and Narcissi—Emperor, Empress, Horsfieldi, Golden Spur, Princeps, Figaro, Von Sion, Barrii and Poeticus were holding their own with breadths of Crocuses, yellow, purple and white. These are the really satisfactory bulbs to plant in the grass and wild woodland; so many of the other plants we try are, if I may use "N. H. P.'s" good phrase, "too sophisticated."—J. P., *Glos.*

ANDROSACE IMBRICATA.

I WONDER if the enclosed photograph of Androsace imbricata will interest your contributor "Ithaw." The photograph was taken on January 3 and is seven-eighths full size. The two plants are three year old seedlings and are descendants from plants collected in 1914 in Canton Valais. They have had alpine-house culture. I find that A. imbricata flowers freely; the flowers are as large as those of A. carnea and of the purest white. Good seed sets every year, last year's seedlings each consisting now of about half a dozen rosettes. The plants photographed are just coming into flower, being well set with buds. They will be at their best in May. The pans are kept quite dry during the winter and are laid on their sides.—M. W. JENKIN, *Trimmers Field, Hindhead.*



TWO HEALTHY PLANTS OF THE DIFFICULT ANDROSACE IMBRICATA.

VARIETIES OF SWEET PEA SUITABLE FOR AMATEUR GROWERS.

THE time will soon be here when growers of this favourite flower will be ordering their seeds for next summer's display. As the majority of lists are rather confusing owing to so many varieties being much alike, I thought it might be of interest to mention a few which I consider to be the best of their respective colours, good doers and equally suitable for exhibition or house decoration. I do not intend to deal with their culture, but before sowing, whether in pots or in the open ground, I strongly recommend that all black-seeded varieties should be chipped, that is, the outside skin, or husk, should be broken with a sharp knife. This gives an even germination and ensures much better results. The following is my list of twelve distinct varieties:

Edna May Improved, white.
Austin Frederick Improved, lavender.
Elegance Improved, lilac pink.
Hilda, deep orange, shaded pink.
Maroon King, dark maroon.

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Royal Scot, a grand scarlet.
Charity, crimson.
Hawlmark Pink Improved, richest coloured pink to date.
Mrs. Tom Jones, blue.
Royal Purple, the name describes the colour.
Sunset, bright rose.
Jean Ireland Improved, the best Picotee.
The above varieties are perfectly sunproof and require no shading.—ALFRED GURR, *Walmer*.
[Possibly other readers would care to give their views as to the best twelve varieties?—ED.]

THE TREATMENT AND PLANTING OF DRY BANKS.—II

Some Non-Shrubby Plants

WHEN dealing in a previous article with shrubs for the furnishing of dry, sun-beaten banks, I pointed out that it was a matter of the first importance to get the surface of the soil well covered, since this does so much for the conservation of moisture. Now, on coming to speak of herbaceous and other non-shrubby plants, the same rule holds good. Whether one's plants are put in along with shrubs or grouped alone, as they would be in an ordinary border, one's first object should be to cover the soil. But, since this takes time, even when quick-growing, creeping kinds are mainly chosen, recourse may have to be made to the temporary use of annuals, which, if carefully selected, will achieve all that is wanted and prove helpful rather than inimical to the progress of the more permanent things.

There is such a vast choice of kinds for dry banks, and the latter present such infinite degrees of dryness and other diversities, that each one must exercise some discretion in his selection of plants for his own particular use. I am referring here mainly to exceedingly porous gritty soils, often very abruptly sloped, which, for various fairly obvious reasons, have to be planted with the view to their lasting as long as possible with a minimum of attention. In that respect they are totally different from the border, which admits of a frequent lifting of plants, periodical manuring, staking and so forth. Many perennials, even though good dry-soil plants, are, therefore, omitted which might in other circumstances have been included; biennials are ruled out altogether save where they will produce self-sown seedlings, and the following paragraphs do not include such alpines as are generally considered fastidious.

If there is a general rule that may be fairly safely relied upon in such matters as these, it is that the great majority of grey-leaved plants are sun-lovers and good for poor, dry places. These include the Alyssums, of which the old A. saxatile is still perhaps the best, though its variety citrinum, with flowers of a soft lemon yellow, is equally charming in its own way. A spinosum (now among the Ptilotrichums) is a delightful grey-leaved little bush of about 5ins., well protected by a multitude of tiny spines. No place can be too hot and dry for this, and its variety roseum, in which the white flowers of the type are flushed with pink, is even more attractive. A pretty companion for this might be A. Idaeum or A. Moellendorffianum, silvery, slender trailers which have proved quite reliable with us.

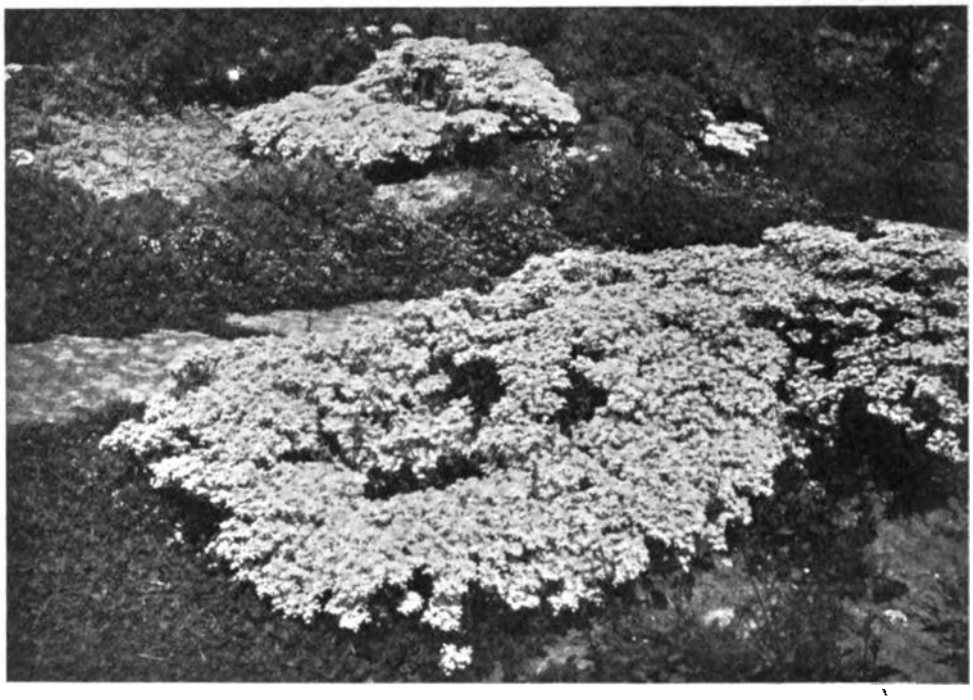
Pterocephalus Parnassi is a grey carpeter that will cover a considerable space, and its large, short-legged flowers—like pink Scabiouses—are very cheerful in the late summer. Some of the stronger-growing Antennarias will group well with the above in the poorest of soils, where a soft blend of grey, white and pink is appreciated, and along with the above and other things we have masses of Veronica pectinata, Æthionema iberideum, Prickly Thrifts (Acantholimum), Achillea serbica and tomentosa, Gypsophila repens and, where it will not get overgrown by bigger things, the dainty G. cerastioides.

The Acænas are first-rate plants for quickly covering a dry, stony place with a dense carpet of green, silvery or bronze foliage. Indeed, I know of no other plants which will do what is expected of them in this way in so short a time. We all have our own tastes in such matters, my own preference in Acænas leaning to glabra, Buchanani and microphylla. Anything put near these New Zealand Burrs must be a hearty doer. They are generally best left in entire possession of the spot they are intended to cover. But such as the stronger Cerastiums, the various forms of Iberis sempervirens, Catmint (Nepeta) in groups, Santolina and clumps of the bolder kinds of Anthemis (Cupaniana, Aizoon and tinctoria) will generally hold their own among the dense and wiry mats of the Burrs.

Saponaria ocymoides is an ideal plant for thirsty, sun-beaten slopes, making fine masses of rosy crimson in the later summer, and there is also a good white. For the rougher parts, or a "seat in the gallery," S. officinalis—the only double wild flower I know—is not to be passed over too lightly. This is a robust spreader, and spreading may be as useful in one spot as it is noxious in another; the tall-stemmed flowers are a fresh rose pink. Silene maritima fl. pl. may also be included in this company. It is not a choice plant, yet its blue-grey cushions of foliage and white flowers, like those of some degenerate Mrs. Sinkins Pink, are useful enough in places where few better things would grow. Then there is S. Schafta, an admirable late summer bloomer, and the dainty alpestris, both double and single, is one of the gems of its race. But it is not seemly to take advantage of the sweet temper of this choice little thing by putting it in too poor a place.

Waldsteinia trifolia has rapidly made carpets of bronzy green foliage under most trying conditions here, and its yellow flowers are by no means unattractive. In the same genus are one or two more which, though hardly so pretty, are excellent ground coverers, and near to the Waldsteinias come the Potentillas, some of which are no less useful in the same way. P. alba is one of these, a drought resister of the best—once it has got established. But not less notable in that respect is the tall and elegant P. rupestris with its branching sprays of blossoms, the latter like those of the Grass of Parnassus. The dwarf form of this is a delightful little plant.

Geranium sanguineum in any of its various forms (including the gorgeous nepalense of the lists) will adorn the most sterile of sunny banks with its brilliant colour, sowing its own seed. Nor have I ever known a soil too bad or too dry for the hybrid progeny, innumerable and pink, with which GG. Endressi and striatum people the world about them, and this twain need no encouragement for them to indulge in these extravagant flights of colonisation. G. nodosum is another of the race that never flinches with us under the worst of conditions, and it seeds itself as freely as sanguineum. All the Linums are first-rate for the purpose under discussion. Jasione humilis is equally indifferent to drought and starvation, while among the pea-flowered tribe are such useful plants as Hippocrepis comosa, Lotus corniculatus fl. pl., the sub-shrubby Rest-Harrows (Ononis) and the closely allied tribes of Orobus and Lathyrus. L. tuberosus deserves special mention as a dry soil plant which will soon cover a wide space, making large, tendril-bound clumps of a pleasing green, which it will adorn with a long succession of its rose pink, fragrant blossoms. This, however, is a species to be placed with



NO SITE CAN BE TOO DRY FOR THE BEAUTIFUL SEDUM ALBUM.

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discretion, since it is an irrepressible spreader in a warm, free soil.

The Labiates offer so wide a choice of suitable plants for the driest of dry places that one cannot do more than mention the Thymes, more especially the creeping kinds, Calamintha alpina and grandiflora, the Skull-Caps (Scutellaria), Stachys corsica and lanata, Teucrium Chamædrys and aureum, Prunella grandiflora, Marrubium velutinum, the Lamiums and Origanum pulchellum.

Sedums and Sempervivums are also practically all lovers of sun and dry, gravelly soils, and the former afford us, among innumerable others, such first-rate carpeters as SS. spurium and oreganum, album and reflexum, the two last covering the most sterile of ground in an astonishingly short time. Choicer species there are, of course, in plenty, but the above we have found the most indestructible of their kind. When the climate will allow, the Mesembryanthemums should not be overlooked as suitable for grouping with the above. Few plants will give a brighter display of colour in the most droughty of circumstances.

The larger Sedums of the spectabile set and others will group with such sun-worshippers as Inulas and Hawkweeds (Hieracium), dwarf Golden Rods (Solidago), Onosma tauricum, Heuchera, Tellima, Erysimum linifolium, Artemisia stellariana and A. rupestris, and the stronger Achilleas. Helichrysum lithospermifolium is an attractive, white-leaved sub-shrubby plant with bold heads of yellow that does well with us on sun-burned banks. H. bellidioides is well known as a handsome carpeter and a pestilent weed, but it does not take so rapidly to what our most sun-parched places have to offer it as the trailing and pretty H. trinerve.

The Spur Valerian (Centranthus rubra) is a grand old plant for dry, rocky slopes where it is well away from mischief, the raspberry red (not the pucy crimson) variety making a wonderful all-summer show which is none the worse for a little of the white grouped in with it. The Centaureas offer several species which serve excellently for our purpose here, the several varieties of C. montana and the taller, golden-headed C. macrocephala being the most reliable. The Sea Hollies (Eryngium) all delight in a dry, stony root-run and as much sun as they can get, and conditions would have to be bad indeed to break the spirit of such lusty growers as the Globe Thistles (Echinops), the great Plume Poppy (Bocconia cordata), our beautiful pink Musk Mallow (Malva moschata) with its white form and M. Alcea.

Though fully alive to the value of many good dry-bank plants which have been omitted, I must conclude with a mention of Tropæolum polyphyllum and a regret that this fine plant should now be so difficult to obtain. Elegant in growth, beautiful in foliage and flower, T. polyphyllum might adorn many an arid slope. But the probability is that it often fails to give satisfaction owing to the tubers not being planted deep enough, this leading to loss in winter, to insufficient moisture during the growing periods and other troubles. If the soil is hot and stony, 1ft. is not too deep for planting, and once established the plants should be left alone for ever. A. T. J.

GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

The Kitchen Garden.

Cauliflowers.—Where it is necessary to keep up a good supply of vegetables and as much variety as possible, early Cauliflowers are an important crop. Plants in cold frames should have the lights removed on every favourable opportunity, the object being to keep them hard and sturdy. To maintain a succession, seeds should be sown of such varieties as Early London and Magnum Bonum. They may be sown in boxes containing light soil or even in a cold frame; in any case they should not be subjected to heat. Slow, short-jointed growth should be encouraged. When the seedlings are large enough to handle, prick them off in a cold frame and transfer them to their final quarters in March or April. Choose a rich piece of ground for this purpose.

Cabbages.—The plants that were put out in the early autumn are not looking too well and there are many blanks. The latter may be filled up at any time when the weather is favourable, and, should the soil become dry enough, ply the hoe between the rows.

Turnips, Carrots and Radishes may be raised on a hot-bed. Where sufficient long manure and leaves are available a hot-bed should be made, and when the rank heat has escaped, a few inches of light soil may be placed over the surface. A frame is necessary, and the bed should be 2ft. or so each way larger than the frame. The heat should only be moderate, just enough to germinate the seeds. Due attention should be paid to ventilation and watering, or the young plants will damp off. Do not sow the seeds too thickly, and the Turnips will require thinning to a few inches apart directly they are large enough to handle.

Mustard and Cress.—These are useful and easily-grown saladings, and to keep up a supply a small quantity may be sown weekly in boxes of any light soil and placed in a warm greenhouse or pit.

The Flower Garden.

Hollyhocks.—These stately plants are well adapted for planting in the shrubbery border and similar positions, and if seeds were not sown last year in the open ground, they may now be taken in hand. The seeds should be sown in well drained pans containing light soil with plenty of sand but not much leaf-mould added. Place the pans in a warm greenhouse until the seeds have germinated. Pot off the seedlings when large enough, and gradually harden them until they can safely occupy a cold frame. They may be transferred to their flowering positions about April.

Gilia coronopifolia.—This striking plant with its brilliant crimson-scarlet flowers is a half-hardy biennial, and seeds are often sown in August to produce a display the following year. It also succeeds if treated as a half-hardy annual, the seeds being sown now in gentle heat. A little care is needed or many of the seedlings will damp off, but the failures are not so numerous as when sown in August. Pot off the seedlings singly when they are large enough and plant out in May.

Salvias.—The various forms of S. splendens, such as Fireball and Glory of Zurich, employed for bedding purposes are often increased by means of cuttings, but they can also be raised from seed. An early sowing will provide plants that will furnish a fine display in August or even earlier. It is important that the seedlings be potted on as they fill their receptacles with roots, because starved examples take a long time to recover.

Fruits Under Glass.

Vines.—In many instances Black Hamburgh Grapes will have been started into growth, and the temperature should be from 55° to 60°, according to the weather, but when the Vines are in flower a night temperature of 60° should be maintained. All surplus bunches ought to be removed at an early date, and the ends of the shoots tied down to prevent them coming in contact with the roof glass. Stop each shoot at the second joint beyond the bunch of fruit, and retain enough growth to furnish the roof with strong, healthy leaves. To promote atmospheric moisture the walls and paths should be moistened with water, but how often will depend upon the weather. The roots should not become dry, and tepid rain water should be used.

Muscats.—Now is a good time to start the first house of Muscat of Alexandria Grapes to furnish bunches of ripe fruit about July. The house should be closed and the night temperature kept at about 45°. An effort should be made to get the rods to break into down growth evenly, and this can be done by bending the top part of the rod, which will cause the lower buds to grow.

The Hardy Fruit Garden.

Cleansing the Trees.—The winter spraying of fruit trees should be done before the buds begin to expand, and although the middle of February is considered the best time, there is no reason why such work should not be accomplished directly the pruning is finished. By spraying with a solution of caustic alkali a large number of insect pests will be destroyed, all lichen and mossy growths will disappear, and the bark will be cleansed. If a large number of trees need treatment, a sprayer should be used, but for a few specimens the syringe will suffice. Every portion of the tree should be wetted and a fine still day chosen for the operation. Gloves and an old suit of clothes should be worn, and care taken of the eyes, as the insecticide has a burning effect upon the operator.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

The Kitchen Garden.

Early Peas.—In the milder districts a sowing may now be made on a south border. Only a strip of ground where each line is to go need be forked over at present. Unless the soil is a light one, a deep drill should be drawn with the draw hoe and filled up level with old potting soil. A drill of the ordinary depth—about 3ins.—should then be drawn and the seed sown therein. Among numerous early varieties Ringleader and William Hurst are to be recommended. In less-favoured localities a moderate sowing may be made on strips of inverted turf in a greenhouse temperature and transferred to a south border later on. Wherever sown, two or three mousetraps should be set beside the crop, as, food being scarce at this season, mice are sure to appear.

Broad Beans.—In favoured localities a small sowing of Early Mazagan may be made on a south border, following the directions given above for early Peas. Allow 2½ft. between the lines.

Vegetables Under Glass.

Rhubarb.—Another batch should be introduced into a gentle heat, and as the sap is now on the move very little forcing will be necessary.

Seakale.—Introduce another small batch of crowns into heat. Seakale should not be forced hard and, as the season advances, still less heat is necessary. A moderately moist soil with the exclusion of air and light are the requisite conditions for producing pure white, tender and crisp crowns.

Lettuces.—A small sowing should be made in gentle heat of such early varieties as Tom Thumb and Early Ohio. When large enough to handle, this batch should be pricked out into boxes and in due course transferred to a cold frame, from which they should be cut later on. Lettuces and Endive now in frames should be lightly dusted with soot if slugs threaten. Prick the soil between the plants and fully expose them on all favourable occasions.

The Hardy Fruit Garden.

General Work.—Pruning, nailing and tying should be completed as soon as possible. Planting may still be undertaken with every chance of success. Pruning and training finished, the soil should be forked over to a depth of 6ins. or 8ins. for 3ft. or 4ft. round the stem of each tree, and then a mulch of half-decayed farmyard manure applied. By this means the roots are induced to remain near the surface and there assume the fibrous form, a necessary condition of liberal fruit bearing. It is when bare tap roots penetrate into the subsoil and from thence pump up water, resulting in the formation of a superabundance of vigorous soft shoots devoid of fruit-buds that failures occur. See that there is a sufficient stock of supports in good order for supporting the nets for Strawberries when the season comes round. On wet or stormy days repair all fruit nets. Look over Strawberry runners in nursery lines and tread the soil firm if it has been loosened by frost. Overhaul the fruit remaining in the fruit-room and remove any decaying specimens and pick out and use any fruits which are inclined to shrivel. Ventilate the room freely when a really fine day occurs, but keep close during frost or fog.

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The Flower Garden.

Sweet Peas.—In order to be able to cut Sweet Peas at the end of June or the beginning of July the seeds should be sown within the next fortnight. The most convenient method is to sow in ordinary propagating boxes filled with a mixture of three-quarters loam and one quarter of clean sand. It is not advisable to use leaf-mould. Draw drills not more than 1in. deep and 2ins. apart, place the seeds about 1in. apart in the drills, and level the entire surface. Place the boxes in a vinery or peach-house, where the canes have been started into growth, until germination takes place, but transfer to a cold frame before the seedlings exceed 1in. in height.

Eremurus robustus.—This noble flower is a rival even to Lilium giganteum, attaining as it does a height of from 6ft. to 8ft., surmounted by a scape of pleasing pink blossoms. Planting may be carried out any time now if weather permits, and the plants should never be disturbed as long as they thrive and flower satisfactorily. This plant requires a deeply cultivated, rich, well drained soil for its perfect development.

Camassias.—These attractive North American bulbous plants are barely hardy, but will succeed out of doors in the milder districts in light, well drained soil. They should be given protection by covering them with ripened stems of herbaceous flowers or other dry, loose materials. The bulbs may be planted within the next fortnight from 4ins. to 6ins. deep in light soil. Protect for some weeks as indicated above. C. esculenta and its varieties alba and atro-cœrulea are all worthy of a place, so is C. Leichtlinii with its varieties alba and cœrulea.

CHARLES COMFORT
(Formerly Head-Gardener to Mrs. Haig, Broomfield, Davidson's Mains, Midlothian).

GREENHOUSE AND CONSERVATORY.

Seed-Sowing.—The propagation of plants from seed plays such an important part in most gardens that a few hints on the essentials of successful seed-raising may not be out of place at this, the beginning of the season. The three essentials for successful germination are heat, air and moisture. Most cultivators are fully aware of the importance of heat and moisture, but many, I feel sure, fail to recognise the importance of soil aeration, not only as regards seeds, but also to the rooting of cuttings. For this reason composts for seed-sowing should be light and open in composition. In sowing seeds indoors this condition is generally best obtained by mixing leaf-soil and clean sharp sand with loam; ample drainage in the seed pots or pans is also important. When filling the pots or pans the soil should be in good working condition, because if too wet there is a danger of the soil being made too close and firm. On the other hand, if too dry it is impossible to make it firm enough, and a moderately firm seed-bed is essential for successful germination. The fineness of the soil will depend on the size of the seeds to be sown. Very fine seeds, like those of Begonias, Calceolarias and Rhododendrons, should be sown on the surface and should not be covered at all. The seed-pans for fine seeds should be prepared and thoroughly watered several hours before sowing. After sowing, they should be covered with pieces of glass and shaded; thus in most cases little or no watering should be required until germination takes place. If water is required in the case of fine seeds, the pots should not be rosed, but stood in a vessel of water, thus watering them by sub-irrigation. Darkness is generally supposed to assist germination, but it has been proved that darkness in itself has no effect; but what is important, is the fact that when we shade or cover seed-pans it prevents evaporation and thus to a great extent does away with the need of frequent watering until germination takes place. I have for long suspected that many failures with seed germination are due to too deep covering, and have recently proved that such is the case, as fairly large seeds just covered germinated better and quicker than when covered the regulation depth; this, of course, proves the importance of aeration.

Annuals for the Greenhouse.—Either hardy or half-hardy annuals at the present day play an important part in the furnishing of the conservatory and greenhouse. They are best sown during September, but where for any reason this was not done they may be sown at this time and quite useful plants produced, Schizanthuses, Clarkias, Godetias, Mignonette, Collinsia bicolor, Lobelia tenuior, etc., all being very suitable. The seed should be sown thinly, the young plants pricked off early before being crowded in the seed-pots. Annuals of this description should never suffer from any check, and should at all times be grown under cool, airy conditions, and watering should be carefully done. Annuals sown during September will now require a shift into larger-sized pots. In most cases they are best flowered in 6in. or 7in. pots. The plants should be kept neatly staked and tied as occasion requires

Gloxinias are very useful for furnishing the greenhouse during the summer months, the first display being obtained from dry tubers raised from seed last year. Where an early display is required, a quantity of tubers should be started some time this month. They should be laid out in boxes of leaf-soil and sand in a warm house until they start into growth, afterwards putting them into suitable-sized pots, using a light rich compost for potting. Seed should also be sown some time this month. The resulting plants if grown steadily on, will flower towards the end of summer, and should make good tubers for next year.

Streptocarpuses are equally useful for the greenhouse. Young plants raised from seed last year that have come safely through the winter should now be shaken out of their pots and be repotted into a light rich compost, growing them in a house with a temperature of 55° to 60°. They should be potted on as they require it, their final shift being into 6in. pots. As the season advances and they approach the flowering stage they should gradually be given cooler cultural conditions. Seed should also be sown some time this month. The young plants if well grown during the summer will give a good display towards the end of summer.

Forcing Plants.—Continue to introduce bulbs and other plants used for this purpose into a warm house according to requirements.

Royal Botanic Gardens, Kew. J. COUTTS.

Muehlenbeckia axillaris.—Often listed as M. nana, this is one of the dwarfest of rock garden shrubs, making a mat of thin, wiry stems no more than 1in. or 2ins. in height. It is a deciduous species from the mountains of New Zealand, and quite hardy, delighting in a ledge of light soil either in full sun or partial shade. The leaves are very minute—in proportion to the size of the plant—and the flowers, borne in summer, almost invisible. These are followed by tiny, glassy berries which might easily be mistaken for beads of dew. M. axillaris is an interesting little shrub for parts of the rock garden devoted to very dwarf plants, and it is of the easiest culture. It often berries far more freely than the much larger and better-known species.

Royal Horticultural Society's Journal.—The Secretary of the Royal Horticultural Society would be very grateful to any readers of this paper who would be kind enough to send him any surplus copies of Part 1 of Volume 48 of the Royal Horticultural Society's Journal dated January, 1923. The stock of this Journal has been entirely exhausted, and the Society is unable to send copies to Fellows who have lost their own and who have written asking if fresh ones could be spared.

Trials at Wisley, 1924.—The Royal Horticultural Society will carry out, during the coming year, trials of the following annual flowers and vegetables. Varieties for trial should reach The Director, R.H.S. Gardens, Wisley, Ripley, Surrey, on or before January 31, 1924. Parcels should be sent, addressed as above, to Horsley Station, Southern Railway. Forms of entry, one for each variety sent, may be obtained on application to the Director. Annual Scabious (one packet of each variety). Sweet Peas, *excluding* those of the following colourings: Blue, lavender, lilac, mauve, purple, rose, salmon, carmine, cerise, all pink shades, orange and scarlet. (The exclusion covers bicolors, picotees, flushed and flaked varieties as well as self-colours.) Fifty seeds of each variety. Dwarf Beans, quarter-pint of each variety. Endives, one packet of each variety. Cos Lettuces one packet of each variety. Potatoes early kinds only, forty-eight tubers of each variety.

ANSWERS TO CORRESPONDENTS

FRUIT GARDEN.

JEFFERSON PLUM ATTACKED (Mrs. R. H., Dorset).—The Plum is affected by gumming and attacked by the brown rot fungus. Both have probably originated from wounds. Plum pruning should be kept at a minimum. Spray the tree with Bordeaux mixture at the end of March and again after the petals fall. Avoid all tendency to coarse growth. There is nothing amiss with the Apples.

TREES AND SHRUBS.

SHRUBS FOR EAST BORDER AND WALL (E. H.).—Cotoneasters would be very suitable for the wall, the best being CC. microphylla, buxifolia, rotundifolia, salicifolia, horizontalis and frigida. The Berberis family should do well, especially the newer Chinese species, BB. Wilsonæ, aggregata, polyantha, yunnanensis and the Wisley hybrids. Berberis Aquifolium and BB. stenophylla Irwinii, verruculosa and buxifolia nana are good and suitable evergreen kinds. Other suitable plants would be Aucuba japonica nana rotundifolia, Buxus myrtifolia, Hypericum calycinum, Cornus alba Spathii, Genista hispanica, Philadelphus Lemoinei erectus and P. microphyllus and Tamarix pentandra (Pallasii rosea). Good climbers for the wall are Hydrangea scandens, Vitis Coignetiæ, V. inconstans (Ampelopsis Veitchii), Clematis Jackmanni, C. Flammula, Jasminum nudiflorum, Rose Gloire de Dijon and any of the strong-growing Ivies.

ROCK GARDEN.

STONE FOR THE MORAINE (E. C. T.-P.).—Either Kentish ragstone or Bethersden marble may be used for making a moraine. There may be a very slight advantage in using Kentish ragstone (especially if the upper layer, called in some quarries "toppings") is used, because the process of disintegration is a little more rapid than is the case with Bethersden marble. This imparts a grittiness to the soil that most alpine plants enjoy. Bethersden marble may be worn down by friction to a polished surface, but atmosphere and water scarcely affect it. No stone of this nature offers any attraction to vegetation. Neither of them contains lime in a condition to become soluble, and they are both perfectly safe for lime-hating plants. Nor will either contribute anything desirable for lime-loving vegetation. Therefore in using them it would be wise to add lime in some form for a colony of those plants that require it. Old mortar rubble is one good constituent, broken up Bath stone another, and this is sufficiently gritty to keep a fair proportion of lime. Chalk is unsightly, but is the most direct method of introducing lime into the soil. A mixture of these three added to about six or eight times the quantity of broken stone and light, rich soil is probably the ideal chemical compound for lime-loving moraine plants.

THE GREENHOUSE.

PRIMULAS AND CINERARIAS UNSATISFACTORY (F. E., near Worksop).—The plants have suffered from lack of water or from over-watering, or from too high a temperature for a time; the symptoms show only that the leaves have had insufficient water. Examination of the root may show this has suffered from being in a water-logged soil.

MISCELLANEOUS.

VARIOUS QUESTIONS (R. E., London).—Hardy perennials may be planted any time now; the sooner the better if the ground is in workable condition. It is certainly too late now to plant spring-flowering bulbs. Dahlia roots should be planted in May in the open. However, pot roots may be obtained now and placed in a greenhouse where frost can be excluded.

TO PRODUCE BLUE HYDRANGEA FLOWERS (Lady R.).—We presume our correspondent refers to Hydrangea hortensis. We have had no experience of the use of pounded slate in the soil. Iron filings, from a smithy or foundry, and alum mixed with the soil and, further, the applications of alum water in a weak state after the new growth is active, sometimes have the desired effect. All artificial means, however, give temporary results only, so that treatment should be annual. Of some scores of huge specimens, in a garden in the neighbourhood of the New Forest, ninety-five per cent bore deep blue flowers, and some were on low-lying and others on high ground. There was much peat and bog land in the district. The blue-flowered plants remained blue and the pink-flowered ones retained a good pink colouring.

NAME OF PLANT.—(C. M.).—Cyrtanthus lutescens.

CATALOGUES RECEIVED.

Messrs. Barr and Sons, 11–13, King Street, Covent Garden, London, W.C.2.—Seed Guide, listing seeds of Alpines and Hardy Perennials, as well as the usual flower and vegetable seeds.

Messrs. Thompson and Morgan, Ipswich.—General Seed List, including Seeds of Alpines, Herbaceous and Greenhouse Perennials.

Messrs. Little and Ballantyne, Limited, Carlisle.—Flower and Vegetable Seeds.

Messrs. J. R. Pearson and Sons, Limited, The Nurseries, Lowdham.—Flower and Vegetable Seeds, well illustrated.

Mr. Charles T. Spence, Dunbar, Scotland.—Seed Potatoes.

Messrs. Andrew and Hitchcock, Marks Tey, Essex.—Flower and Vegetable Seeds.

FOREIGN.

Mijnhr. John B. van der Schoot, Hillegom, Holland.—Bulbs, Roses and Herbaceous Plants.

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THE GARDEN

ORCHARD GARDEN WOODLAND

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THE GARDEN

No. 2723.—Vol. LXXXVIII.] [January 26, 1924.

LITHOSPERMUMS AND ONOSMAS

These two genera are closely allied and belong to the Borage family. Lithospermum is known by the common names of "Gromwell" and "Stone-seed," the latter in allusion to the hard, stone-like character of the seeds. The genus Lithospermum is an extensive one, consisting of some forty or more species of usually hardy annual or perennial herbs, sub-shrubs or rarely small shrubs, widely spread over Europe and Northern Asia, although most of the species belong to the Mediterranean region. In colour the flowers of the different species vary from white to yellow and blue, the colour of the latter rivalling in beauty and intensity the blue colour of some of the Gentians. Only about a dozen species of this genus are worthy of cultivation, and these are valuable for the rock-garden or border. They thrive best in sunny positions, in sandy loam, which should have thorough drainage. Some are excellent wall plants, while others, like L. purpureo-cæruleum, are valuable for covering half-shady banks and slopes. This species prefers half-shade, but it will also grow in sunny places, providing the soil is moist. The sub-shrubby kinds are increased by means of cuttings, while all may be raised from seeds. The seeds, however, have a very hard shell, and take a long time to germinate. Some of the best kinds are:

L. canescens.—This North American species is a herbaceous perennial growing about 9ins. high, with erect stems divided into two leafy cymes at the top. The yellow flowers are produced in June and July. Like the other North American kinds, this is not easy to manage in this country, but is well worth a little trouble, as the yellow flowers are very attractive.

L. fruticosum.—This species is closely allied to the well known L. prostratum, but is more erect in habit, forming a small shrub over 1ft. in height. On the twiggy stems the narrow dark green leaves are produced in tuft-like bunches at the end of the branches. The small flowers of a good blue colour are borne at the tips of the branches in loose inflorescences from May onwards. A lover of limestone, this plant is a native of the Eastern Pyrenees and Southern France.

L. Gastoni.—One of the herbaceous perennial species, this beautiful plant, which is found in the Central Pyrenees, is rare and seldom seen in gardens. It has frequently been introduced into this country, but has not been satisfactorily established in many places. It grows about 1ft. high, with erect stems and dark green, hairy leaves, while the large flowers, produced in April and May, are of a soft deep blue, with purple buds. L. Gastoni grows best in half-shady positions, planted in a mixture of loam, peat and leaf-mould.

L. graminifolium (syn. Moltkia graminifolia).—This is a native of Italy, where it is said to cover extensive slopes with a beautiful carpet of azure blue flowers. It forms a dwarf shrubby plant with long, narrow, grass-like leaves, from which arise the flower-stems, some 6ins. long, bearing drooping clusters of flowers in June and July. It prefers a dry and sunny situation in limestone, and is a gem for the rock-garden, increasing in size from year to year. It is somewhat variable in habit, some forms being more shrub-like than others. L. intermedium and L. Frœbeli are supposed to be hybrids of this species and Moltkia petræa.

L. hirtum is a perennial from the Southern United States. It is of dwarf habit, and produces its rich orange yellow flowers in May. It is known as the "Hairy Puccoon," and is a handsome plant when well grown.

L. oleæfolium.—One of the dwarfest members of the genus, this is a native of the Eastern Pyrenees, growing in the crevices of rocks and stony places where its long stoloniferous growths soon cover wide spaces. The light blue flowers with pink buds are produced in small clusters in April and May. It may be treated as a wall plant and is easy to grow in a warm sunny position.

L. prostratum.—Few of the low-growing plants that we class as alpines are so beautiful or important in the rock-garden as this brilliant species. It spreads into wide sheets, even in the poorest soil, and is seen to perfection when crowning some rocky mound or ledge in full sunshine. The foliage is of a very dark green, often approaching bronze, while the rich gentian-blue flowers are very freely produced during the greater part of the summer months. For wall-gardening there is nothing better than this attractive dwarf shrub, its trailing habit with close carpet of evergreen leaves making it eminently suitable for furnishing such places. While L. fruticosum belongs to the Eastern Pyrenees, this species is confined to the western end of the same range. "Heavenly Blue," with

THE BEAUTIFUL LITHOSPERMUM PROSTRATUM AS A WALL PLANT.

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THE GOLDEN DROP, ONOSMA TAURICUM, IN A TERRACE WALL.

THE SOMEWHAT RARE LITHOSPERMUM PROSTRATUM ALBUM.

ONOSMA ALBO-ROSEUM HAS SILVER-GREY FOLIAGE.

soft but bright blue flowers, is a charming variety.

L. PURPUREO-CŒRULEUM.—This is a pretty perennial species of spreading habit, the trailing stems of which soon cover large areas, making it valuable for planting in places that need to be quickly furnished. The erect flower-stems reach a height of a foot and bear clusters of purplish blue flowers in early summer. This species is a native of Europe, and is also found in parts of this country. Closely allied to this is L. Zollingeri, a native of China and Japan. It has the same trailing habit, with broader leaves, and also bears purplish blue flowers.

L. ROSMARINIFOLIUM.—A small shrub about 6ins. high, from South Italy, this species requires a warm and well sheltered position, owing to its winter-flowering character. It bears, with great freedom in suitable places, deep blue flowers, which open from pink buds. It should do well in the gardens of the South, but is a failure in the Thames Valley.

There are many other members of this genus, including the yellow-flowered LL. angustifolium, and multiflorum, from North America; while closely allied is Moltkia petræa, a handsome, shrubby plant some 2ft. high, with twiggy branches, short green leaves and numerous rich violet blue flowers during the summer.

THE ONOSMAS.

The Golden Drops have their headquarters in South-eastern Europe and Asia Minor, but the species which is, perhaps, the most distinct of all, O. pyramidale, with scarlet or crimson flowers, is a native of the Himalayas. It is doubtful if this species is now in cultivation. Fifteen species are found in Europe, but probably not more than ten in all are grown in gardens. The Onosmas are all essentially plants for sunny places, and should be planted in poor stony soil with plenty of drainage. In rich ground they make luxuriant growth in summer, but are very liable to damp off during the winter. Most of them are easily cultivated and are readily raised from seed, but, as a rule, they dislike moving when they have attained a moderate size. It is, therefore, advisable to grow the seedlings on in small pots and plant them out when well rooted. One of the exceptions is the beautiful O. albo-roseum, which makes plenty of fibrous roots and may be transplanted with success if the work is carefully done. Of those in cultivation the following are the most distinct and well worth growing:

O. ALBO-ROSEUM.—This species, a native of the mountains of Asia Minor, is of spreading, sub-shrubby habit, and forms, in cultivation, a cushion-like plant under 6ins. high. The evergreen silver-grey leaves are covered entirely with stiff bristly hairs. The handsome flowers, which are freely produced in drooping clusters, are somewhat pear-shaped in outline, white, tinged with rose at first, but eventually changing to pink. During the month of June it is a most attractive plant, the white and pink flowers harmonising well with the hoary foliage. Seeds are produced freely and germinate readily if sown in a little heat in spring. O. album is a white-flowered form of it.

O. ARENARIUM.—This plant is a native of Eastern Europe and the Caucasus, usually growing in arid stony places. It is of somewhat bushy habit, with branching stems 1ft. high. The lower leaves are about 8ins. long and less than ½in broad, covered with stiff bristly hairs. The stem leaves are broader and sessile, while at the top are borne clusters of pendent pale yellow or nearly white flowers.

O. BOURGÆI.—A native of Armenia, this is a handsome species, with large, white, bell-shaped flowers in June. Like the above, this is a strong-growing plant and possesses hairy foliage. Being

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a biennial, this species should be raised annually from seed, which is produced freely.

O. ECHIOIDES.—Some confusion exists as to the proper name of the common "Golden Drop" of our gardens. Both the names of O. echioides and O. tauricum have been applied to it, but the latter is evidently the correct name. The fine O. echioides is a native of Central Europe from the Pyrenees to the Balkans, and is a strong-growing, bristly plant of biennial habit. Its flowers, which on large plants are freely produced, are of a rather pale yellow.

O. SERICEUM.—This species is a native of Asia Minor. It has a rather woody stem, with many branches, bearing rosettes of silky grey leaves from 3ins. to 4ins. long. The leafy flowering-stems are from 6ins. to 9ins. long, while the flowers vary in colour from pale yellow to white tipped with pink. O. sericeum is a free-growing plant, doing well on sunny ledges or in rocky crevices.

O. STELLULATUM.—This is a most variable plant and has many synonyms, of which O. helveticum is one. The habit of this species is like that of the above, but taller. The pale yellow or citron-coloured flowers appear in May and June on stems up to 1ft. high. It is mostly biennial in habit in this country, the plants damping off in the winter after heavy flowering. As seeds are freely produced it is readily increased in this manner, and it succeeds well in poor soil in sunny situations. It is a native of the mountains of Central and Eastern Europe.

O. TAURICUM ("Golden Drop").—A name now proposed for this well known garden plant is O. viride, but it will probably always retain the older name. It is a good perennial, lasting and flowering freely for several seasons in a sunny, well drained situation. Sometimes, however, it will flower so freely that no barren rosettes are formed for the following year and the plant succumbs in the winter. Of sub-shrubby habit, the branched stems are furnished with tufts of narrow leaves about 4ins. long, covered with stiff hairs. The handsome bright yellow flowers are tubular, disposed in pendulous clusters with a few erect ones as they open. It usually blooms during the whole of the summer months, and even during mild winters is seldom without a few flowers. It is an ideal rock plant, providing an attractive display for a long period, with its drooping fragrant blossoms. This plant may be increased by means of cuttings stripped off with a heel any time during May and June, and inserted in sandy soil under a bell glass, or in a close frame. It is a native of Eastern Europe and Asia Minor.

Several other species of Onosma have been in cultivation from time to time, but they have been lost again—their want of persistency being probably due to their biennial character. W. I.

LOW-GROWING SHRUBS.—II

POLYGALA CHAMÆBUXUS is a dwarf Milkwort from 6ins. to 10ins. or 12ins. high with box-like foliage, and dainty yellow blossoms freely produced during April and May. The variety purpurea has purple flowers. They favour a moist soil and are readily increased by division.

The introduction of many dwarf species of Rhododendron offers great possibilities in the near future. The formal garden of dwarf Rhododendrons should be at least as interesting and beautiful as the heath garden of to-day. The belief that peat is essential for the culture of Rhododendrons no longer holds good. They will thrive on any lime-free soil. The European alpine Rhododendrons, R. ferrugineum and vars. album and major, R. hirsutum, which does not dislike lime, RR. intermedium, halense and myrtifolium, are old favourites, but they are such dainty dwarf shrubs they should be far more largely grown in our gardens. They rather favour a moist soil.

R. impeditum, or R. fastigiatum the name by which it was first distributed, is the most amenable of the dwarf Chinese species to culture in large quantities, being readily raised from seeds and increased by cuttings and layering. It is a dwarf tufted species with flowers in several shades of purple producing the first blooms when only eighteen months to two years old from seeds. Mr. George Forrest first introduced R. impeditum in 1911 and described it then and in subsequent sendings as a common shrub on open pasture-land. The flowering season is towards the end of April and during May. R. intricatum, introduced by Mr. E. H. Wilson in 1904, is lavender or lilac in colour and flowers two or three weeks earlier. This has not produced seeds with us, but is increased by cuttings and if the plants are given a good mulching of decayed leaf-mould they root freely all up the stems, soon giving plenty of young plants. R. flavidum (syn. primulinum) is a dainty evergreen shrub with small foliage, of rounded bushy habit, 1ft. or more in height, producing dainty pale yellow blossoms during April and usually a second display in autumn. R. Williamsianum is of quite a different type. It has the familiar dark glossy leathery green leaves and a low-growing spreading habit, rooting as it spreads into leafy compost, and delighting one in April with glistening pale rose bell-shaped flowers. It is an ideal rock-garden plant.

Rosa Wichuraiana is a prostrate shrub quickly clothing old tree butts, rocky boulders and sloping banks with trailing shoots, which sometimes reach 6ft. to 8ft. or more long in a season. Among the dark shining green leaves the panicles of pure white blossoms during July and August are very showy. Where it does well the prostrate form of the Common Rosemary, Rosmarinus officinalis prostrata is a charming plant. Coming from the Isle of Capri it is not so hardy as the type. I still retain vivid recollections of quantities of this plant flowering profusely in a Lymington (Hampshire) garden I visited in April, 1922.

Vaccinium Vitis-Idæa, the Cowberry, is a dwarf trailing evergreen with dark shining green leaves and pink-tinted white blossoms in May and June which are followed by dark red fruits. A British plant, it should find a place in the rock garden where the conditions are on the moist side, and in narrow borders devoted to the culture of interesting and uncommon plants.

Though they are on the borderline of hardiness, so that frost may sometimes take its toll of the plants, a list of low-growing evergreen shrubs should include a number of Veronicas. They are mostly natives of New Zealand, the following six being particularly desirable dwarf neat-foliaged shrubs. V. buxifolia, with white flowers in late summer, is a good plant for edging a shrubbery border; V. cupressoides has a distinct cypress-like habit and lilac blossoms; V. decumbens, white flowers; V. edinensis, tinted golden foliage; V. epacridea, a dwarf bushy habit and heath-like foliage and V. pinguifolia, small greyish-green foliage.

For a shady border among hardy Ferns and for the least favourable positions in the rock garden the Periwinkles are very useful dwarf evergreens. Vinca difformis, lilac blue, and V. major, large blue, are the strongest growing. Of V. minor there are some six or more varieties, making quite an interesting and showy group. V. minor, blue, and vars. flore pleno, flore albo, flore puniceo, foliis argenteis and foliis aureis are more or less descriptive names of the variation in the colour of the flowers and leaves.

For waterside planting and moist shady positions three dwarf Bamboos are worthy of attention, namely Arundinaria vagans (pygmæa), Bambusa disticha and Phyllostachys ruscifolia.

DWARF DECIDUOUS SHRUBS.

A favourite miniature shrub for the rock garden, Berberis Thunbergii var minor, usually attracts most attention in autumn when the leaves turn orange and scarlet. Sometimes a shoot or two may shew signs of reverting to the normal growth. These should be cut out to the base.

Two dwarf Birches are interesting, Betula humilis and B. pumila. They favour moist conditions, so should be planted in the lower parts of the rock garden or in the bog garden.

Cotoneaster adpressa is a distinct low-growing shrub introduced from China by one of the French missionaries about thirty years ago. It clings closely to the slopes of a rock garden and is distinct in habit and showy in fruit. The larger-growing C. horizontalis is one of the most distinct of all the Cotoneasters. In the open it spreads freely over the ground and is then seldom more than 2ft. high. Against a wall, however, we had a plant at Kew 10ft. high, suggesting that it is a good shrub for a low terrace wall. The formal flat branching of the stems has caused the shrub to be aptly described as the Fish-bone Cotoneaster.

Among the Cytisus section of the Broom family are several of our most valuable dwarf shrubs for the front of the shrubbery border and the rockery. C. Ardoini is a low decumbent shrub, a mass of rich yellow blossoms in April and May. C. Beani is a hybrid between the last named and C. purgans and produces its yellow blossoms in May. Cytisus decumbens is, as the name suggests, a spreading tufted Broom; it has small downy leaves and yellow flowers from May to July. One of the best rock-garden Brooms is C. kewensis, a chance hybrid found at Kew among a batch of seedlings of C. Ardoini, the other parent being, presumably, C. albus. The creamy-white flowers are abundantly produced during May. The Purple Broom, C. purpureus is a low, spreading bush bearing rosy-purple blossoms freely in May. If a few old growths are cut out each year after flowering, this induces vigorous young shoots. For shelving pockets in the rock garden or the front of the shrubbery border in full sun, there are few more beautiful dwarf flowering shrubs. The Hedgehog Broom, Erinacea pungens, which hails from Spain, is a dwarf, dense, tufted shrub of spiny habit, requiring a hot sunny nook to grow and produce the purplish blue flowers.

Among dwarf shrubs with yellow flowers the species of Genista are only rivalled by those of Cytisus from which they are not easily distinguished. For hot sunny slopes of well drained light soils (which should not be manured), the Brooms have few rivals when in flower, while their green stems are ornamental throughout the year. The best half dozen are G. anglica (Needle Furze), G. dalmatica, of dense tufted habit, G. hispanica (Spanish Gorse), G. pilosa, G. tinctoria var. flore pleno, valuable because it lasts so long in flower, and G. sagittalis, a showy dwarf Broom with winged stems which may be effectively planted as an edging to a shrubbery border.

Potentilla fruticosa, the Shrubby Cinquefoil, is one of the most cosmopolitan of all hardy shrubs. It inhabits both the Old and New Worlds, including Britain. It is not surprising that such a shrub is very variable in habit. The var. pyrenaica is an

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alpine form of tufted habit. Among the newer Chinese introductions Farrer's 188 is a dwarf free-flowering form, and one of Purdom's introductions with rich yellow blossoms is named var. parviflora. An important feature is that these dwarf shrubs flower from early July until October.

The most interesting and distinct of all the dwarf deciduous Rhododendrons is R. kamtschaticum. Select a moist position with a western exposure. At Kew we give the plant a mulch of sphagnum moss. The plants average 3ins. or 4ins. high, above which push the rosy-crimson flowers usually solitary or in pairs.

Ribes alpinum var. pumilum, the dwarf Alpine Currant forms a neat compact bush. It is a slow-growing alpine shrub of which there is also a form with yellow foliage (var. pumilum aureum).

Spiræa bullata is a dwarf Japanese shrub for the narrow border of choice shrubs. The rosy-red flowers are borne in July or early August, the plants being usually under 1ft. high. Even smaller is S. decumbens with dainty white flowers; this is a gem among shrubs for the rock garden and comes from the Tyrol.

A number of dwarf Willows give variety and interest in the bog garden or planted along the sides of a stream in the rock garden. Chief of these are Salix Arbuscula and S. Bockii, male and female forms, which are showy in flower during late summer and autumn, S. Grahamii, S. herbacea, a small British shrub, and SS. lanata, myrtilloides, repens, reticulata and retusa. A. O.

THE CULTURE OF THE BEGONIA.—IV

THE following is, I think, a good selection of varieties in the different sections, but there are so many first-rate sorts in commerce, especially among the doubles, that several further selections of first-rate merit could be made.

Eighteen Double Varieties for Exhibition.

AMY, salmon rose in colour with large well formed flowers, the wavy petals being of good substance.

BLACK KNIGHT, the darkest-coloured crimson, flower of perfect camellia form. The habit is all that could be desired, combining great freedom with a dwarf, compact growth.

CANARYBIRD, a grand pale yellow that is very telling. Compact, yet free-flowering; the petals are cupped in form, giving the flower a splendid effect.

GENERAL JOFFRE, a brilliant shade of scarlet, very large and excellent habit.

GRAND MONARCH, in the forefront of the crimsons with flowers of immense size and great depth, the outer petals reflexing like a rose.

IRENE TAMBLING, in deep fiery orange, is an enormous flower and very free.

J. W. PYMAN, a giant glowing scarlet with shell-like petals of good substance; a vigorous grower and free bloomer.

LADY CROMER is world-famous for its enormous size, lovely pink colour and perfection of its form. The ground colour is pearl pink overlaid by a brighter hue, the edges of each petal paling off to a lighter shade and beautifully frilled. Another good point is its erect habit.

LADY TWEEDMOUTH, a gigantic rose pink of good habit and very vigorous, the edges of the petals being prettily frilled.

LORNA DOONE, light rose pink with reflexing outer petals and rosebud centre.

MRS. J. S. BRUNTON, lilac rose, very large and of perfect habit: a gem.

MRS. PETER BLAIR, famous in the show tents, white with a faint tinge of blush on the outer petals, of extra size and great substance.

MRS. A. J. KERRY should please lovers of "picotee" flowers, for it is one of the very best among the doubles with a broad band of rich rose to every petal. Compact yet free.

NURSE CAVELL, pure unblemished white, of compact habit and absolutely circular flowers.

PEACE is another famous exhibition variety, with blooms 5ins. to 6ins. across, thrown well above the foliage. The colour is cream, shading to yellow in the centre, deep and full.

PRINCESS MARY, another picotee-edged flower of a clear yellow with scarlet edge.

SNOWDRIFT, of good form and size and the purest and cleanest white.

WINSOME PARTNER, reddish salmon and quite distinct. Flowers of large size and very free-flowering.

Good Single Begonias.

ACQUISITION, pure white, large and of fine form.

AEROPLANE, orange suffused with copper, large and very erect.

ALEXANDER MCMILLAN, apricot, very large, with fringed petals.

CONQUERANT, a large cerise scarlet.

COUNTESS OF HARROWBY, lemon yellow, of excellent habit.

FAVOURITE, golden bronze, and a very telling exhibition flower.

GERMANIA, deep golden yellow, of erect habit.

LADY STUCKLEY, white, edged with pink and beautifully crested.

MISS LELLA, beautiful pink of superb form.

A TYPICAL WINTER-FLOWERING BEGONIA.

NORMA, velvety crimson, and one of the best.

SNOWDON, pure white and very fine.

Tuberous Begonias for Hanging Baskets.

ALICE MANNING, a lovely yellow variety with pendent flowers.

CORALLINA, a superb salmon pink with long pointed petals, giving a light and dainty appearance.

FLEUR DE CHRYSANTHEME, again salmon pink, very profuse in its flowering and most attractive.

GOLDEN SHOWER stands quite by itself, and is most beautiful, being prettiest of all in the half-opened stage, when it is the exact shade of Rose W. A. Richardson.

MARIE BOUCHET, a lovely variety with a great profusion of deep reddish flowers.

MRS. BILKEY, orange scarlet and will cross freely with other varieties.

ROSE CACTUS, rose pink with sharply pointed petals and smothered with flowers over a long period.

STARFISH, very free and striking, with flowers of a vivid rose crimson.

STELLA, a pleasing shade of red, the petals being long and prettily twisted.

Winter-Flowering Begonias.

SCARLET BEAUTY, vivid scarlet, double and semi-double blooms in handsome sprays, individual flowers 2ins. across. Dark green foliage.

ECLIPSE, salmon scarlet, semi-double, profuse and free, with glossy green leaves.

MR. T. H. COOK, rosy pink, one of the largest and a very perfect flower, 3ins. to 3½ins. across. Needs stopping or it will grow rather tall.

APRICOT, orange apricot in delightful sprays, very freely produced, foliage bronzy green.

DUCHESS OF WESTMINSTER, double pink, very free in growth and flower. Handsome deep green foliage.

CLIBRAN'S PINK, bright pink double, individual flowers 3ins. across, often as many as ten blooms to a spray, thus forming large trusses.

Crested Begonias.

Crested and frilled singles are not named, but sold either as seeds or tubers in mixture.

The blossoms are not so large as those of the best exhibition singles, but are very substantial and attractive.

Rex Begonias.

ARTHUR MALET, bright rose with a silvery gloss and green veins.

BRIAN BORU, bright green and purple with a silver band.

ERWIN, silver ground, margined with green and spotted with silver.

GLOIRE DES ARDENNES, silvery carmine margined with green.

HIS MAJESTY, rosy lilac with olive green.

M. HENRI MARTINET, bronze leaves, green zone sprinkled with red.

MRS. H. G. MOON, olive edged with a broad slate-coloured stripe blotched pink and red.

PRINCE CHARLES OF DENMARK, bronzy white with carmine pink.

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Begonia semperflorens (for Bedding).

BONFIRE, carmine scarlet

LUMINOSA, fiery red with bronze foliage.

PINK PROFUSION, deep rose pink, profusely branched and very free.

TRIUMPH, snow white.

Narcissus-flowered Begonias.

A new race in a wide variety of colours in which the inner petals are joined into a large double "trumpet" with its edges waved and frilled.

Miscellaneous Kinds.

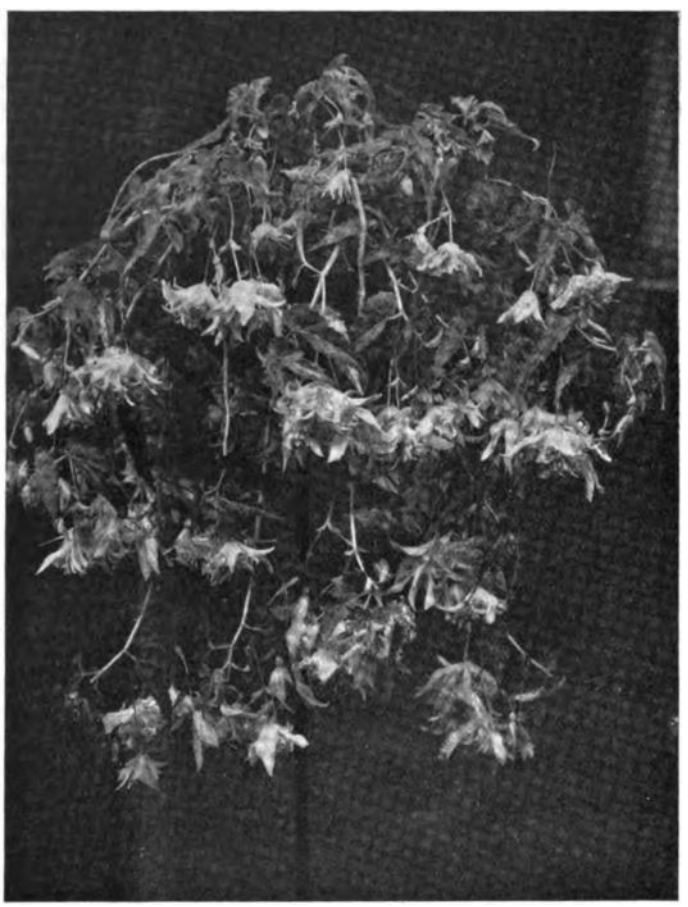
BEGONIA FULGENS, small typical leaves, green in colour overlaid with brown and a large number of red stems carrying medium-sized single five-petalled cherry crimson flowers.

COUNT ZEPPELIN, a variety largely used at Hampton Court for bedding, fully double starry flowers on erect stems, produced from early summer until late autumn. Very dwarf and bushy.

WORTHIANA, bright orange flowers, very freely produced on loosely habited plants. Showy and graceful.

HAAGEANA, tall grower, capable of attaining a great height, with reddish stems and bronzy green leaves thickly covered with hairs and bright crimson red on the reverse. In addition to this there are long pendent flower-stems bearing medium-sized flowers in trusses, these being pale rose pink with reddish hairs outside.

METALLICA, with handsome silvery green metallic-looking leaves and flowers, somewhat similar to the foregoing only rather deeper in colour and slightly smaller. A noble greenhouse plant when well grown.



THE REDDISH-COLOURED "BASKET" BEGONIA STELLA.

FUCHSIOIDES, a tall-growing plant with brown stems and masses of small deep green leaves, from between the axils of which appear pendulous trusses of vivid scarlet flowers, especially during winter and spring.

WELTONIENSIS, a tuberous-rooted form, of the easiest propagation by cuttings. The tubers push up annually a large number of thin dark red stems with light pea green leaves. Towards the end of summer the upper part of the plant becomes literally a mass of small pink flowers, somewhat like those of Gloire de Lorraine, but lighter in colour.

A Scented Begonia.

Among the novelties it should be remembered that there is now a variety which has added perfume to its other charms.

JOHN G. WHITE.—This is of good form, a pale rose pink deepening towards the centre, with the flowers emitting a delicious fragrance that is especially noticeable in hot weather.

Begonia fimbriata plena.

Another interesting range of flowers is B. fimbriata plena. The blooms are very double and exist in the usual range of colours, differing only in that the edges of every petal are beautifully cut, frilled and laciniated, giving to the flowers a most curious and striking effect.

Lorraine Type.

GLOIRE DE LORRAINE, noted for its masses of rich pink flower at midwinter. One of the most popular Christmas flowers and splendid in baskets.

AMABILIS, similar to above and very free, but flowering rather later.

ROCHFORDI closely resembles "Lorraine" in habit and freedom, but is nearer to red, especially in the bud state.

PATRIE, valued for its salmon red flowers, which have the great merit of not shedding.

GLORY OF CINCINNATTI, with strong branching spikes and individual flowers nearly 2ins. across.

GLOIRE DE SCEAUX, notable for its vigorous growth and the rich bronze colour of its foliage. The leaves are red on the underside, so that it forms a very striking winter basket-plant.

TURNFORD HALL, remarkable for its wonderful profusion of flowers, which are white, just tinged with apple pink.

Diseases of the Begonia.

Happily, the Begonia grower—in whatever direction his fancy may lead him—is not seriously troubled by plant pests; but although this is so, there are troubles that occur and "forewarned is forearmed."

Where eelworms are prevalent, all difficulty may be swept away by using only steam-sterilised soil. Green fly, again, occasionally proves troublesome, especially with winter-flowering forms. This can always be defeated by employing a nicotine fumigant, taking care not to use it too strong. Two or three repeated light fumigations are better than one heavy one. Thrip can be recognised by the dark streaks which it makes on the underside of the leaves. The great point with this pest is to deal promptly with it by free syringing, although it should never be forgotten that thrips do not appear where the atmosphere is kept sufficiently damp.

Mites are disastrous and, in spite of their minute size, capable of spoiling the plants. Their attack is directed to the growing tips of the shoots and the undersides of the young leaves, which become a rusty brown. Infected plants should immediately be isolated and dipped in a sulphur solution; 1½ gallons of water will dissolve 1oz. of flowers of sulphur mixed with 4oz. of soft soap. This should be repeated at least three times at intervals of five days, until it is seen that clean foliage is again developing. Keep everything about the plants as clean as possible and, whenever any trouble does occur, do not fail to fumigate the healthy plants as well as to deal with the diseased ones.

H. W. CANNING-WRIGHT.

NOTES ON SOME FRENCH ORCHIDS

ALL the hardy Orchids greatly appeal to plant-lovers, whether they are botanists or gardeners, not only on account of their infinite variety of form and colour, but because they possess an indefinable air of character which is lacking in many other even more showy plants. Only a very few of our native Orchids are generally common plants; most of them are so strictly limited in their distribution that in order to see all our indigenous species at home one must be prepared to travel from the South of England (and the Channel Isles) to the far North of Scotland, with the addition of a trip to the West of Ireland for two more species.

I suppose most keen gardeners have tried to grow a few of the native Orchids at one time or another, though they are plants which cannot be grown without a fair amount of attention. The publication of a new edition of M. Correvon's excellent work, "Album des Orchidées d'Europe," should do much to stimulate greater interest in hardy Orchids, and his cultural hints are very valuable. Although they object to being pulled up from their native soil in a rough and ready manner, if reasonable care is taken not to injure the tubers, Orchids may be quite safely transplanted while still in flower.

Many of the species which are extremely rare and local in our isles are quite common across the Channel. One of my happiest memories of a motor tour across France last summer is the recollection of a number of Orchids which were hitherto known to me only by name. Most remarkable of all is the Lizard Orchis (Orchis hircina) of which the popular name refers to the lizard-like appearance of the flowers; the specific name is derived from their very pronounced odour of billy-goat. In England the Lizard Orchis is regarded as one of the rarest of all native plants (though it is far more widely distributed than is generally known), so that it came as a surprise to find it growing by the dozen (sometimes by the hundred) along the roadsides in Tourraine and in parts of Central France. It is a tall, handsome plant, a well developed stem reaching a height of 3ft. or 4ft. and bearing a large number of its extraordinary green flowers. Before the flowers appear the plant bears some resemblance to a Mullein, and I allowed the car to run past several before I realised what they really were.

The Jersey Orchis (Orchis laxiflora) is a handsome, tall purple species, at one time established on ballast

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heaps at Hartlepool, but nowhere indigenous in England. In parts of France (and in the Channel Isles) it occurs in abundance in marshy meadows, and is a much more attractive plant than any of our more common purple Orchids in which the flowers are borne in too compact a spike to display their full beauty. The graceful poise of the flowers of O. laxiflora is reminiscent of that of a Belladonna Delphinium. The little Burnt Orchis (Orchis ustulata) is very local in England, and I saw only one plant of it in France, on a steep limestone hillside above Abriès in the Queyras valley, at a height of about 5,oooft. The scattered red spots on the white lip of the flower have a very pleasing effect, and the result is a much prettier bloom than the text-books lead one to expect—a not infrequent occurrence with Orchids, by the way. Since dried Orchids almost always turn black, herbarium specimens give us little idea of the beauty of the living plants. The somewhat rare Fritillaria delphinensis was growing not far from the Burnt Orchis; it is apparently an alpine form of the Snakeshead of the Thames Valley meadows.

Orchis globosa is fairly plentiful in the alpine region, its very glaucous foliage rendering it distinct even before the flowers open. It sends up a stem about a foot high, bearing at its summit a crowded, compact head of pale pinkish mauve flowers rather suggestive of a pale variety of the Pyramid Orchis of our limestone copses. Orchis sambucina is a much more beautiful species, and its sturdy spike of yellow flowers makes a pleasant contrast to the many purple species. But O. sambucina is not always yellow by any means; it has a most beautiful deep rosy purple form as well, which is rather puzzling for the tyro to identify. In the neighbourhood of the Boréon cascade in the Maritime Alps (noted for the number of rare plants which grow there) both yellow and purple forms of this Orchid grow side by side. It would be interesting to know if intermediate forms occur and if each colour form breeds true. It should offer no great difficulties in cultivation, and a group of the two colour forms in the rock garden would be a charming sight. A few plants which I collected at the Boréon are coming up quite happily so far, on a level part of the rock garden, associated with small Gentians and other turf-forming plants.

Quite the most beautiful of all the Orchids which I had the pleasure of finding last year was Cephalanthera rubra, a rarity of one or two Gloucestershire woods. It was growing fairly plentifully in a thin limestone wood in the Department of Lot and again on the thickly wooded roadside bank near Molaretto, between Susa and the Col du Mont Cenis. I have never seen any illustration which did justice to the wonderful rosy blooms that look more like the product of a hothouse than of subalpine woodlands. Waving above the heads of the Orchids were noble plumes of Spiræa Aruncus, while Hepaticas (long since out of flower) nestled in the moss beside them. The Molaretto woods would well repay a visit from the plant-loving tourist; unfortunately, they are not very easy of access, as one cannot stay nearer than Mont Cenis.

From the Album des Orchidees d'Europe.

THE LIZARD ORCHID, ORCHIS (HIMANTOGLOSSUM) HIRCINA.

Epipactis latifolia is a familiar English plant and one of our least attractive Orchids. I was glad to make the acquaintance of E. atrorubens near Guillaumes in the Upper Var Valley, for it is a much more striking plant. The flowers and stem are suffused with rosy purple instead of being dingy mauve and green as in latifolia.

The Marsh Epipactis (E. palustris) was growing in boggy ground near Le Lautaret (the botanist's Mecca) in company with Gentiana asclepiadea, but the plants struck me as poorer than those which grow in such abundance on the wonderful Braunton Burrows in North Devon—a lovely white variety occurs there also. Limodorum abortivum is a curious rather than a handsome Orchid; it is a parasite on the roots of various trees. I saw it only once, in the neighbourhood of Rocamadour, and was considerably puzzled as to its identity. It is not a British plant, but, according to Bonnier and Layea, occurs "here and there" in France.

The Lady's Slipper (Cypripedium Calceolus) is, of course, one of the rarest of the rare among British natives, but in some of the more remote woods in the French subalpine region it must still be fairly common: I have never had the delight of seeing the Lady's Slipper at home; the nearest I saw last year was a large bowlful of freshly gathered flowers in a dairy window in a back street in Grenoble. Long may it continue to flourish undisturbed by collectors in its native haunts!

I did not see many Bee Orchids (Ophrys apifera) anywhere in France, except in the wood in Lot where Cephalanthera rubra grew. Here they were very fine and numerous, and among them I found two plants with white "wings" instead of the usual pink ones. The Bee Orchis is, of course, a typical limestone plant, yet it is curious to notice that an odd plant does occasionally turn up in a district where there is very little lime, and it is usually an exceptionally well developed and richly coloured specimen. When we see how erratic its appearance is in any one spot (even in a locality where it is common) it is not surprising that it proves itself troublesome to establish in our gardens.

To see the fragrant Nigritella at home one must leave the woodlands below and ascend to the haunts of the true alpine flora. Here, scattered in ones and twos, but in great numbers, it springs from a turf of Gentians, Milkwort, Campanulas and Alpine Clover—of which the incomparable fragrance seems to epitomise the spirit of the mountains. Sometimes the flowers of Nigritella are so dark as to be almost black, or they may vary from bright red to crimson. Whatever the colour, the delicious vanilla scent is the same, and one can seldom resist the temptation of gathering a bunch of the flowers for the sake of their fragrance.

Another truly alpine Orchis is the dainty little green-flowered Chamæorchis alpina, which can be recognised at once by its long narrow leaves. It is much rarer than Nigritella, and I only saw it in the neighbourhood of Mont Cenis. Another green-flowered species is the Frog Orchis, Habenaria (or Cœloglossum) viridis, which may be found at a considerable height in alpine meadows, though it also grows not uncommonly in English hayfields.

The Scented or Gnat Orchis (Gymnadenia conopsea) is the fragrant long-spurred purple species common in subalpine pastures and on turfy moors in Britain. I did not happen to see the white Butterfly Orchis, Habenaria (or Platanthera) bifolia plentifully anywhere in France, though no doubt it is as common in some districts as it is on the Welsh mountains.

The Tway-blade (Listera ovata) is as widespread in France as it is in England. It grows plentifully near St. Martin Vésubie at the side of the Venanson road, within a stone's throw of such local treasures as Campanula macrorrhiza, Hypericum Coris and Linum salsoloides.

N. G. HADDEN.

[The accompanying picture of the Lizard Orchid is reproduced from the excellent colour plate in M. Correvon's "Album des Orchidées d'Europe." M. Correvon's nomenclature follows, of course, Continental practice, but he gives a fairly complete synonymy for each species, so that it is easy to trace them.

The culture of most hardy Orchids presents no insuperable difficulty and those amateurs—and they are many—who want to grow "something different" might well take them up.—ED.]

FORTHCOMING EVENTS.

January 29.—Royal Horticultural Society's Fortnightly Meeting.

February 2.—Blackburn Horticultural Society's Meeting.

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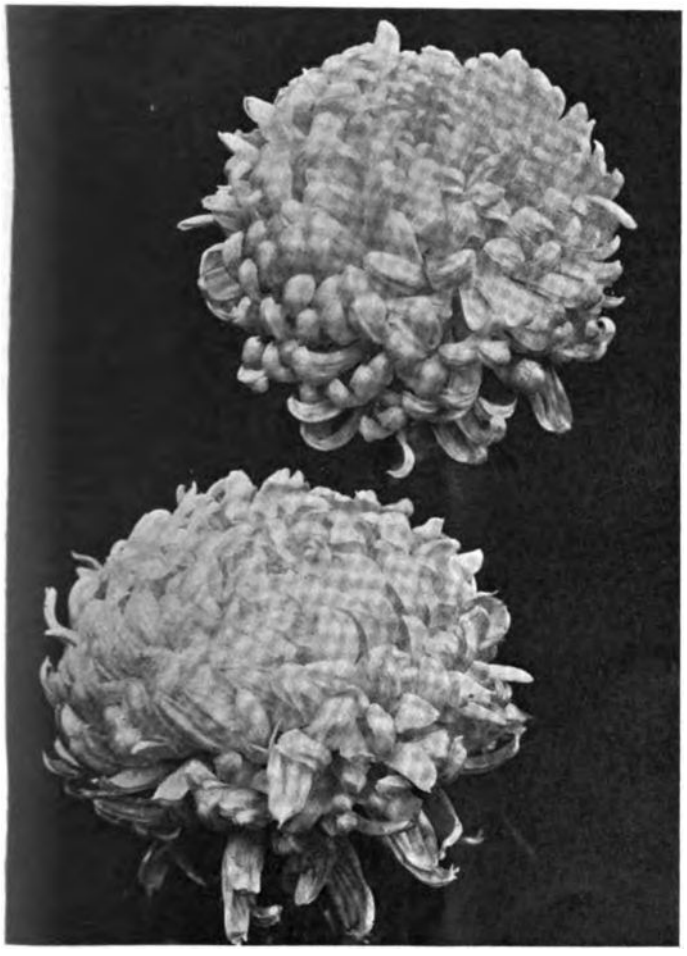
THE FIRST SHOW OF THE YEAR

THE exhibits and attendance at the initial Show of the year of the Royal Horticultural Society at Vincent Square, Westminster, on January 15, augur well for the future. As a rule the January displays are small and the attendance is meagre, but on the present occasion there was quite a large attendance and the hall was comfortably filled with an interesting variety of exhibits.



THE RICH YELLOW CHRYSANTHEMUM R. W. REIMAN.

Immediately inside the entrance there was a vivid group of greenhouse Cyclamens set up by Messrs. Blackmore and Langdon. For the most part the Cyclamens were grouped in shallow baskets containing a dozen or so of profusely flowered plants. These patches of glowing salmon, rose pink and crimson colours were very effective, especially when, as was the case with several varieties, the ample leaves were freely mottled. A basket of the frilled Mrs. Buckston attracted a deal of attention, but it was generally agreed that while the flowers were interesting, their form was poor and that the novelty did not compensate for the loss of the graceful shape and purity of colour. In marked contrast with these splendid greenhouse Cyclamens were the tiny blooms of the hardy varieties which Messrs. Carter, Page and Co. so well arranged in their charming little alpine exhibit. These tiny flowers always fascinate with their uncommon shape and rich colouring. The white variety is somewhat washy, but the substantial crimson of Cyclamen Atkinsii and the roseum form were very satisfying. This exhibit also contained pretty patches of Primula Juliæ of unusually dark colouring.

A pleasant little rock-garden was made by Messrs. Skelton and Kirby, and they planted it with various Ericas, Saxifrages and Iris unguicularis. The Misses Hopkins also had a seasonal rock-garden, and the more ambitious structure of Messrs. Wm. Cutbush and Sons was very successful. On the low levels they had some very floriferous groups of Christmas Roses, Iris alata and the old favourite Anemone Hepatica rosea. A step or so higher there were well berried little bushes of Pernettya mucronata and Hamamelis. A selection of alpine plants was displayed by Mr. G. Reuthe, who also had sturdy plants of Rhododendrons and various conifers. Daphne Mezereum and the double mauve Primrose were of interest in the exhibit of Mr. F. C. Wood.

Fresh and fragrant Violets were arranged by Mr. B. Pinney, and Messrs. Wm. Paul and Son brought a number of well grown Camellias. These were mostly bushes about 3ft. high, and they were well flowered. The single varieties included C. alba simplex, The Swan, Jupiter and Waltham Glory, while among the double-flowered varieties the red and white blooms of C. Gilesii and C. conspicua were very interesting.

In addition to the Cyclamens, greenhouse plants included vivid scarlet heads of Poinsettia pulcherrima with the rose and white forms shewn by the Hon. Vicary Gibbs; Hyacinths and Freesia refracta Excelsior, by Messrs. R. and G. Cuthbert; the quaint Tillandsia Lindeni, the blue Pycnostachys Dawei and Lapageria rosea, by Messrs. L. R. Russell, Limited; profusely flowered Acacia platyptera, Eranthemum pulchellum, Daphne indica rubra and Azaleas, by Messrs. Stuart Low and Co.; and the customary exhibits of carnations.

In addition to such excellent perpetual-flowering varieties as Edward Allwood, Wivelsfield Claret, George Allwood, Laddie and Topsy, Messrs. Allwood Brothers shewed blooms of their perpetual border varieties which had been wintered under glass. This newer type has considerable merits and a very long flowering season is claimed for the many varieties. The Fancy Carnations were prominent in an exhibit by Messrs. Stuart Low and Co., and these included Duchess of York, Ivanhoe, Mrs. Cheeney and Sheila Greer. Among the Carnations of Mr. C. Engelmann were Nigger, Topsy, Aviator, Laddie and Enchantress Supreme.

The Orchids were one of the features of the Show and Messrs. J. and A. McBean's gold medal group, in particular, attracted much attention. It was especially noteworthy for the many fine Cymbidiums and Odontoglossums it contained. Other firms with interesting groups were Messrs. H. T. Pitt, Cowan and Co., Saunders (who included the rare Saccolabium bellinum), J. Cypher and Sons, and Stuart Low and Co.

Sir Jeremiah Colman exhibited a very interesting group, largely consisting of variously coloured forms of Cymbidium Queen of Gatton. Some handsome forms of Lycaste Skinneri were also noted in this group.

A really magnificent collection of vegetables was set up in the best exhibition manner by Messrs. Sutton and Sons. Practically all seasonable vegetables were included and each displayed first-class cultivation as well as splendid type. Messrs. Geo. Bunyard and Co. had a small but brilliantly coloured collection of such Apples as Baumann's Red Reinette, Newton Wonder, Allington Pippin and Mére de Ménage.

A good many garden sundries were to be seen and the chief were Mr. Pinches' excellent labels, Messrs. Hawes' patent watering cans, the Wilmott plant stakes, Messrs. Allwood's Carnation supports, the Everyman's Seed Sower, garden gloves, Radium fertiliser, the Letchworth wall frames, garden statuary by Messrs. Sander and Co., and various jams and preserves.

Among the many exhibits of paintings of flowers and garden scenes the most interesting were those of Lilies, Rhododendrons, Eucryphia, Clianthus, Geraniums, etc., by Sir Herbert Maxwell. Mrs. Miller's studies of Indian flowers were also of considerable merit. Miss G. Dorrien-Smith again shewed pictures of subtropical plants, and others were contributed by Miss Alice Wilkinson and Miss E. Kirkpatrick. Mr. Percy Cane shewed excellent photographs of gardens made to his designs.

NEW AND RARE PLANTS.

Chrysanthemum R. W. Reiman.—This is an excellent late-flowering incurved Japanese variety, larger than is usual at this season and of rich yellow colouring. Award of merit. Shewn by Messrs. W. Wells and Co.

Primula obconica Bush Hill Blue.—The shade of colour is rather uncommon in the type of greenhouse Primula, but it is too variable and tends to become too washy to be generally popular. No doubt, after a few years' further selection, a good strain would be secured. Shewn by Messrs. Stuart Low and Co.

Cymbidium Queen of Gatton.—One of many splendid forms raised at Gatton, this has bold rosy-lilac blossoms with purplish lines and purple markings on the lip Award of merit. Shewn by Sir Jeremiah Colman.

Cypripedium Charlotte Dillon, Chardwar Var.—A fine variety with a bold white dorsal sepal with an emerald green base and heavily blotched dark claret; the lip and petals have a bronzy tint. Award of merit. Shewn by Mr. G. F. Moore.

Cypripedium Memoria F. M. Ogilvie, var. The King.—An especially fine form, large in size and excellent in shape, the large dorsal sepal practically half white, with a pale green base heavily blotched claret, the broad petals tinged brownish red. First-class certificate. Shewn by Mr. G. F. Moore.

Odontioda Columbia.—A splendid cinnabar red variety with large flowers of excellent form. First-class certificate. Shewn by Messrs. Charlesworth and Co.

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WIREWORMS, LEATHER JACKETS AND CUTWORMS

WIREWORMS are simply the larvæ of the click beetle, and among the most destructive pests which attack vegetables. Though only about an inch in length, they are numerous and restless in their habits, and destroy far more than they actually need. They belong to the Elaters, and are thus related to the fireflies. They are of a wiry appearance, brown, with skin hard and polished, have six legs near the head and something like a foot under the tail segment. The eggs are laid in the earth, or on a food plant just above it, and hatch in about a month. They spend four years and sometimes five in the larval state, burying themselves more deeply in cold weather and eating any root they come across. When grown they build an oval cocoon like a lump of earth, pupate and, some in about three weeks, others in spring, emerge as click beetles about half an inch long and rather narrow in shape.

The remedies generally advised are dressings in the autumn, before spring-planting, of salt, lime, gas lime or a mixture of lime and salt. Alkali waste, kainit, Vaporite or napthaline may also be used. For traps, divided Carrots or Mangolds are useful, also small weed-heaps covered with boards or tiles. These traps should be carefully examined each morning. Of all remedies, however, birds are the most effectual.

Scarcely inferior to the wireworm in its destructive capacity are members of the cutworm tribe, which derives its expressive name not from any scientific relationship between its members but from their custom of biting (or cutting) through the stems of young plants near the earth. Most of these insects represent the larval stages of moths, but the "leather-jacket" is sometimes counted among them. This is the larva of the crane-fly (daddy-long-legs) and is very destructive to lawns and also to other plant growth of many kinds. It is well known in North America, and is sometimes called there the meadow maggot.

The perfect insect, a large gnat with long legs which break off easily, is well known, and in this form harmless. In both early and late summer, however, the females lay numerous long, black, shiny eggs, which hatch in two or three weeks into fleshy grubs with tough wrinkled skin of an unattractive brown. They have a small head and blunt tail. They remain in the larval condition but a few months, feeding near the surface of the soil in fine weather but burrowing deeper in frost. In the early summer the first brood pupates and, when ready to hatch, forces its way through the earth by means of bristles and two curved horns near the head until the pupa has the head and half its length in the air. The males hatch out with ease, and then, it is said, hunt about in order to find and help out some female, the latter often needing assistance in freeing herself fully.

It is at the time of emerging from the chrysalis, generally in the twilight, that the perfect insect is easiest to pick up and destroy, and the death of each female means the prevention of the deposit of at least a hundred eggs.

Remedies.—As damp is necessary to the health of the leather-jacket, it is important that ground should be well drained. Salt, lime, gas lime or alkali waste may be applied in the autumn previous to planting up ground or to the formation of a new lawn. If the ground is in suitable condition, neither too dry nor too wet, one of the napthaline preparations, such as Vaporite or Apterite, may be applied with excellent results. Burying the larvæ deeply will destroy some, also turning over the soil to expose them to light, heat and birds. Slates or boards may be laid on the ground and the grubs collected every morning and destroyed.

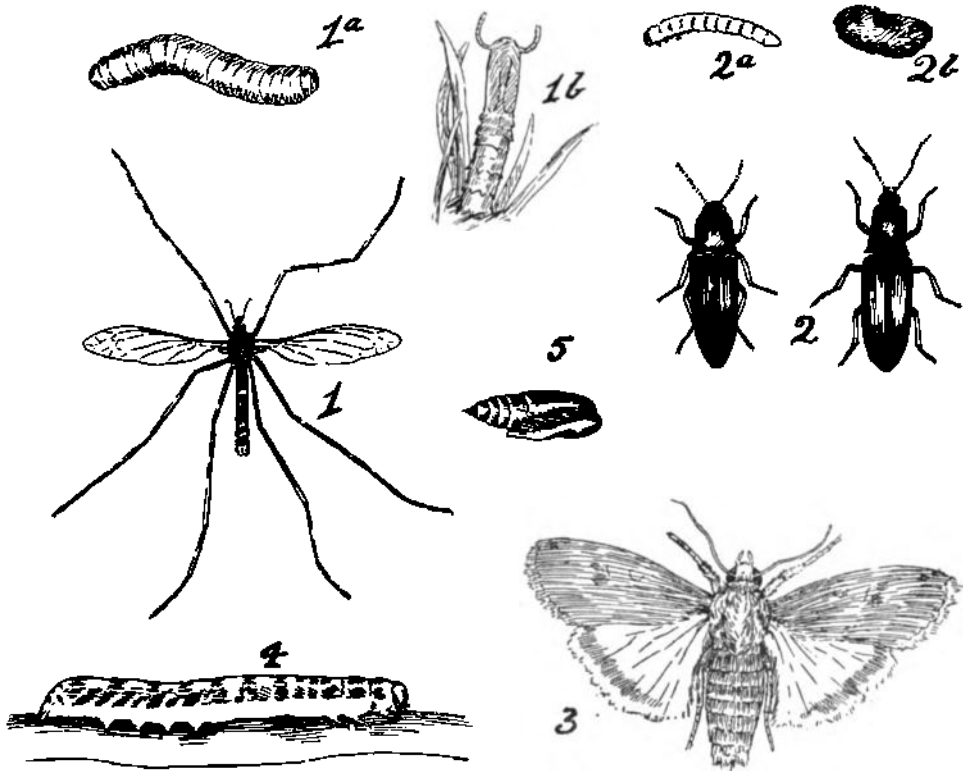
The more generally recognised English cutworms, three or four in number, are the larvæ of insects which sleep during the day and become active as the twilight deepens into night. The Americans call them owlet moths, and they are of the family Noctuidea.

Differing from each other in some details the general shape of the cutworm is that of a stoutly built caterpillar of medium size. Its habit in daylight is to remain curled just below the surface of the soil, waking at dusk to taste and destroy far more young vegetables than would suffice for their night's food.

In advanced summer or early autumn the later hatched insects lay their eggs, the larvæ from which feed and grow or hibernate, according to weather conditions, completing their growth in the spring, when many build earthen cocoons, pupate and after a few weeks emerge in their perfect form.

Prevention is most difficult. The ground should be carefully watched as digging progresses; while, after planting, soot or soot and lime, should be strewn freely between the plants, which may be dusted copiously with pyrethrum or other insect powder.

If their presence is made manifest, the ground should be examined at once and also after dark with a lantern, while slates and cut Mangolds, Carrots, etc., may be laid as traps to be looked over each morning. Against these, as for most other pests, the birds are exceeding useful allies. M. L. B



1.—*Crane-fly: (a) larva, (b) pupa emerging.* 2.—*Click-beetles: (a) larva (wireworm), (b) cocoon.* 3.—*A cutworm moth (the yellow-underwing).* 4.—*A typical cutworm larva.* 5.—*Pupal stage of a cutworm.*

AN UNCOMMON BEDDING PLANT

SO far as my experience and observation go, Agathæa cœlestis is almost unknown, certainly not grown, in the vast majority of gardens, yet it is a charming and valuable plant for bedding out and for the cool greenhouse. It was a stranger here until I introduced it two or three years ago, since when it has given great pleasure. Of the two ways of using this Blue Daisy—under glass or in the open—it has always done best with me under the latter conditions, the plants growing bigger and flowering more freely. Its particular tone of colour may be described, I think, as a shade deeper than that of Plumbago cœrulea and the size of the flowers is about that of a shilling. Being of this quiet shade of colouring an odd plant put here and there does not do itself justice, but when the species is seen massed in a bed or in a large patch fronting the herbaceous border, it never fails to call forth the warmest praise.

Agathæa cœlestis is easily propagated from cuttings or seed, the former method being the easier and quicker way. Secure cuttings from early to mid-September and root them in pans or boxes in a cold frame. Here, if frost be entirely excluded, they may remain until potting time in spring. Where there is a doubt about the safety of the plants, remove them during cold spells to the shelf of a slightly heated greenhouse. The first touch of frost does not appear to hurt the old plants in the border, but the leaves gradually turn black after a few visitations, plainly shewing that risk should not be run. If desired the old plants may be taken up and boxed in the way usual with

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many other bedding plants. They should first be cut back somewhat in order that they may take up less room and also to encourage fresh growth to break forth. A well drained soil conduces to an abundance of flowers.

Those in search of something fresh, at once easy to manage and sure to give a pleasurable return, might well try this Blue Daisy; its colour is quite out of the ordinary run of bedding-plant shades.

Ampthill. C. TURNER.

CORRESPONDENCE

OLD APPLES.

IN reading Mr. Lovelock's notes (January 5, page 14) I was struck by the fact that his description of New Bess Pool really applies to Old Bess Pool and not the newer variety. New Bess Pool (not Besspool, by the way, as it was named after Elizabeth Pool) was introduced by our firm two or three generations ago, and, curiously enough, after almost dropping out of cultivation, is being planted quite largely as a market Apple. It colours a deep crimson almost all over when fully exposed, is much softer in the flesh than Old B.P. and will not keep nearly so long, and is a fairly regular but not heavy cropper. The Old Bess Pool makes a wonderful tree on soil which suits it. We had some at Chilwell which were almost timber trees; one especially, I remember, must have covered some quarter acre of ground, and, when felled, 200 hedge stakes were cut out of its top. I remember my father saying he once sold the crop off seven trees for £70, but that was in the days when the British grower had no foreign competition to face. At the present time it is very doubtful if it would pay to plant, and no one should plant for his own use unless his dental arrangements are better than the average in these degenerate days, as, though sweet and of good flavour, it is desperately hard.—CHARLES E. PEARSON, *Lowdham.*

P.S.—Anyone with a good nose can tell New B.P. with eyes shut, as it has a scent absolutely different from any other Apple.—C. E. P.

THE SNAKESHEAD.

I SUPPOSE it is not surprising that Fritillaria Meleagris—a meadow plant—likes a little shade to its roots, but I must confess that I was surprised how much better some of mine did after they became overgrown during the war years. The "cover" in their case was weeds, but I find that dwarf Heaths, such as Erica darleyensis, answer equally well. My soil is light; on stiffer loams, root-shade seems less essential. I should like to have other readers' views on this point.—N. H. P.

SNAKESHEADS (FRITILLARIA MELEAGRIS) AMONG DWARF HEATHS.

THE ARRANGEMENT OF FLOWERS.

IT is the slack time now for flower shows and so it seems to me the moment to protest against the stereotyped arrangement of *cut flowers* that one sees in summer. The best thing palls by constant repetition, and I shun the very sight of the unvarying vases or bowls of Roses set up by professional florists. One would think that there were no other Roses in the world than Irish Elegance, Madame Butterfly or Fireflame! Were I a judge, I think I would bar them for a summer, just as I would those two good, but "over-shewn" old Roses, Frau Karl Druschki and Caroline Testout, so that new Roses and new hands should have a chance of shewing something fresh. How would it be to inaugurate a flower column where amateurs and professionals could air their fancies or their prejudices? It is high time that something should be suggested to judges and exhibitors.—E. H. W.

THE LABURNUMS.

AN error, no doubt in the printing, occurs in "A. O.'s" valuable paper on "Laburnums" (pages 15–17), to which I venture to draw attention because I frequently meet with amateurs who have not learnt to distinguish between L. alpinum and L. vulgare. The error consists in assigning the second half of May to L. alpinum as its flowering season, and June to L. vulgare, whereby the respective dates have been transposed. L. alpinum begins to flower just as L. vulgare begins to fade. I have good cause to endorse "A. O.'s" warning against planting Laburnums where cattle can get at them. Intending to beautify a piece of high road outside the park, I had both sides thereof planted with Laburnums. They grew well and arched over a field which was let for grazing, with the result that a valuable Clydesdale mare partook of the seeds and died. I do not know whether experiment has been made upon the foliage to ascertain whether it contains the toxic properties which undoubtedly exist in the pods and seeds. Certain it is that it is vain to plant Laburnum without protection against rabbits, which not only devour young plants, but gnaw the bark of mature trees, unhappily with impunity.—HERBERT MAXWELL, *Monreith.*

WINTER FLOWERS AT LA MORTOLA.

FOLLOWING seven months' drought we had one month of rain and, in December, several nights of frost; but in spite of these adverse conditions, on New Year's Day no fewer than 329 kinds of plants were in flower in this garden. Add to these the effect of trees and shrubs in fruit, plants with silver-grey foliage, specimen Palms and rare trees, and one can form some idea of what our many visitors call Paradise. I enclose you a list, feeling sure that you will agree with Mr. and Mrs. Cecil Hanbury, who think that it would interest many of your readers to know what can be grown here without artificial heat.—S. W. MCLEOD BRAGGINS, *La Mortola, Ventimiglia, Italy.*

List of plants in flower on January 1st, 1924: Abelia chinensis, Abutilon hybridum, A. striatum, Acacia acinacea and AA. Baileyana, cultriformis dealbata, decurrens, hakeoides, Hanburiana, lineata, longifolia, neriifolia, platyptera, podalyriæfolia, pubescens, Sieberiana; Asclepias curassavica, Agathæa cœlestis and A. hispida, Agave Sartorii, Ageratum mexicanum and A. m. nanum, Albizzia lophantha, Aloe abyssinica and AA. affinis, arborescens Milleri, a. natalensis, a. ucriæ, cæsia, ciliaris, Johnstonii, longiflora, percrassa, pluridens, rubro-violacea, Salm-Dyckiana, speciosa, s. hybrida, supralævis, Straussii, succotrina, Alyssum maritimum, Anagyris fœtida, Anemone coronaria, Antirrhinum majus, Aponogeton distachyum, Arbutus Unedo, Arctotis stœchadifolia, Arum Arisarum, Asparagus aphyllus, Azalea indica, Begonia Rex and BB. miniata and semperflorens, Bellis sylvestris, Berberis glauca, Bergenia crassifolia, Bignonia australis, B. venusta, Billbergia speciosa, Borago officinalis, Bougainvillæa glabra and var. Sanderiana, Bougainvillæa spectabilis and var. lateritia, Bouvardia coccinea and B. leinantha, Brachycome iberidifolia, Buddleia asiatica and BB. auriculata, madagascariensis and officinalis, Calendula stellata, Camellia japonica, Campanula Trachelium, Canarina campanulata, Cassia artemisioides, Caltha edulis, Ceanothus azureus, Centranthus ruber, Cestrum aurantiacum and CC. lanceolatum and roseum, Cheiranthus Cheiri, Chimonanthus fragrans, Chlorophytum elatum, Chrysanthemum anethifolium and CC. frutescens and hybridum, Cineraria stellata and C. hybrida, Cirsium gnaphalodes, Citrus Aurantium and C. medica, Clarkia pulchella, Clematis cirrhosa, Clivia miniata, Coleus thyrsoideus, Colletia cruciata and C. spinosa, Correa Lawrenceana, Colquhounia vestita, Coriaria sinica, Cotoneaster divaricata, Cotyledon macrantha, Crassula lactea and C. portulacea, Crotolaria capensis, Cyclamen persicum, Cydonia japonica, Cyperus alternifolius, Dasylirion glaucophyllum, Datura chlorantha and D. sanguinea, Dermatobotrys Saundersiæ, Dimorphotheca auriantiaca and D. hybrida, Diplopappus filifolius, Echeveria gibbosa and E. multicaulis, Echium plantagineum, Elæagnus pungens reflexa, Ephedra

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altissima, Eriobotrya japonica, Erigeron Karvinskianus mucronatus, Eriocephalus africanus, Eucalyptus Globulus and EE. melliodora and sideroxylon, Eupatorium calaminthifolium and EE. grandiflorum and micranthum, Euphorbia triangularis, Euryops spathaceus, Felicia abyssinica, Fraxinus xanthoxyloides, Freylinia oppositifolia, Fuchsia triphylla and FF. hybrida, corymbiflora, splendens and arborescens, Fumaria officinalis, Gaillardia picta, Garuleum viscosum, Gasteria Lauchei, Gazania splendens, Genista monosperma and G. Moonlight, Gerbera hybrida and G. Jamesoni, Grevillea Priessei and G. Thelemanniana, Gynerium argenteum, Hakea cristata and HH. laurina and sauveolens, Hardenbergia Comptoniana and H. monophylla rosea, Heliotropium peruvianum, Helleborus hybridus, Hexacentris coccineus, Hebeclinium ianthinum, Hibiscus Rosa-sinensis, Hyacinthus romanus, Iberis semperflorens and I. sempervirens, Iochroma lanceolata, Iris germanica and I. unguicularis and var. alba, Jacobinia magnifica and JJ. pauciflora and penrhosiensis, Jasminum nudiflorum and JJ. primulinum and odoratissimum, Kleinia ficoides and KK. neriifolia, articulata, odora and repens, Lantana Camara, Lathyrus odoratus and L. sativus, Laurus nobilis, Lavandula abrotanoides and L. dentata, Leonotis Leonorus, Leptodermis lanceolata, Leptosyne gigantea, Linaria hybrida, Lobelia speciosa, Lœselia coccinea, Lopezia miniata, Lytanthus salicinus, Matthiola hybrida, Mahonia Bealei, Malvaviscus mollis, Megasea cordifolia, Mesembryanthemum atropurpureum and MM. æquilaterale, confertum, curviflorum, diversifolium, linguiforme, productum, reptans, roseum, rubricaule, Salmii, subincanum, uncinatum, sp. 10 Pretoria, sp. 21 Pretoria and sp. 6929 Pretoria, Mammillaria rhodantha, Monstera deliciosa, Montanoa bipinnatifida and M. tomentosa, Moricandia arvensis, Muehlenbeckia complexa and M. platyclada, Narcissus canariensis and N. Tazetta vars. aureus, pachybolbos and polyanthos, Nemesia strumosa hybrida, Nemophila insignis, Nerine Bowdeni, Nicotiana glauca and N. sylvestris, Odontospermum sericeum, Olearia Forsteri, Oreopanax capitatum and OO. dactylifolium and palmatum, Orobanche ramosa, Osmanthus Aquifolium and O. fragrans, Othonna crassifolia, and O. triplinervis, Oxalis cernua, Passiflora capsularis, Pelargonium lateripes and PP. peltatum and zonale, Photinia serrulata, Phylica rosmarinifolia, Pilocarpus pennatifolius, Piper excelsum, Pithecoctenium buccinatorium, Plumbago capensis, Poinsettia pulcherrima, Polygala myrtifolia, Polymnia silphioides, Primula kewensis and PP. malacoides, obconica and sinensis, Raphiolepis indica, Reinwardtia trigyna, Reseda Phyteuma and R. odorata, Rhamnus Alaternus, Rhipsalis Cassytha and R. paradoxa, Richardia africana, Rosa Banksiæ and RR. Bourbonia, Fortuneana, indica (and var. major), sinica Anemone, viridiflora and Thea, Rosmarinus officinalis and var. humilis, Ruscus Hypoglossum, Russelia juncea, Ruta graveolens, Salvia attenuata and SS. cacaliæfolia, chamædryoides, discolor, Grahami, Heerii, involucrata, leucantha, leonuroides, mexicana, pulchella, semiatrata and Sessei, Sarcococca pruniformis, Satureia viminea, Schinus Molle, Sempervivum arboreum and S. holochrysum, Senecio angulatus and SS. grandifolius, hadiensis, longifolius, mikanioides and Petasitis, Sida mollis, Solanum Hartwegi and SS. jasminoides, lycioides and nigrum, Sphæralcea umbellata, Statice brassicæfolia, Streptosolen Jamesoni, Tacsonia manicata, Tecoma capensis, Templetonia retusa, Tetrapanax papyriferum, Thunbergia coccinea, Tournefortia Messerschmidia, Tropæolum majus flore pleno, Ulex europæus, Verbena officinalis, Veronica salicifolia, Vinca major, Viola odorata, Visnea Mocanera, Westringia rosmariniformis, and Yucca elephantipes.

WHAT ARE ALPINE PLANTS?

I AM not surprised that Mr. James Parkinson (page 9), has given up trying to define alpine plants in a word or two that would be correct generally. The plants we grow on a rockery because they are dwarf and otherwise suitable cannot be put into one category and named accordingly. There are high alpines, such as Ranunculus glacialis, Saxifraga cernua and S. sedoides, that can be grown only with the greatest difficulty in lowland gardens. S. cernua grows on the top of Ben Lawers (3,984ft.), and nowhere else in Britain. The slightest coddling in a cold frame very soon kills it even in winter. Suppose we take S. oppositifolia as another type of alpine. On the southern shores of the Moray Firth this grows on dripping rocks within fifty feet or less of the salt water, and is easily killed in a cold frame. Sedum roseum, Silene maritima, Armeria maritima (Thrift), and Plantago maritima are plants which grow on the seashores or on the mountain tops. The Armeria has been found at an elevation of 3,800ft. No one would call these alpine plants; nor any others which grow at sea level and ascend mountains. In a general way there are high alpines which do not descend below a certain high altitude; and low alpines which do not descend below a certain lower altitude. Certain lowland plants ascend the mountains; and if we go far enough north we find alpine plants at sea level. In the eighties and nineties of last century when hardy plants were becoming popular, and prizes were offered at shows for alpine plants, the horticultural journalists criticised the plants that were exhibited as alpines. If we call them rock plants, however, even Saxifraga oppositifolia often grows among the turf in the Highlands and not on rocks at all!—J. F.

HELIOTROPES: THEIR VALUE FOR WINTER FLOWERING.

COMPARATIVELY few regard Heliotropes from a winter-flowering aspect. They associate them with summer and genial sunny conditions, propagating and growing them on and welcoming their fragrant blossoms as they appear from May onwards. It is not because of any particular difficulty experienced that our greenhouses are devoid of their perfume in winter, but rather through lack of forethought and arrangement. The cuttings which we are accustomed to propagate in spring and then pot on, will, if we so desire, bloom as well from September as in the summer months, provided they are prevented from spending themselves in flowering before the autumn, and are encouraged instead to make growth and ripen the wood preparatory to the plants being brought into the house, and maintained in a genial heat throughout the winter. It is largely a question of time-table: whether we shall permit them to have their own way from the start and flower, or whether we shall pinch out the buds until later in the year, when their delightful fragrance is doubly welcome. Fortunate are those gardeners who are able to plant Heliotropes out in a border inside a lean-to house and give them the run of the back wall. I have a distinct recollection of such a house where the strength of the three old plants was conserved for providing flowers in winter, and how early those trusses came on the branches which clambered over wires nailed to the chimney breast! White Lady and President Garfield were the varieties selected, and their output was great.—CLAREMONT.

ANDROSACE PRIMULOIDES.

I HAVE for several years now cherished a very beautiful plant as Androsace primuloides, only to be told by a friend who is something of a botanist—which I am not—that it is wrongly named. Can some reader, I wonder, enlighten me on the matter. The plant I have is like a smaller and more beautiful A. sarmentosa, about the size of the hybrid A. Chumbyi, in fact, but much silkier and more beautiful; the flowers, also, are more shapely.—R. W.

ANDROSACE "PRIMULOIDES" IN THE MORAINE.

[Botanically speaking, our correspondent's plant is not primuloides—the true plant being probably not in cultivation—but this form of sarmentosa which comes near Chumbyi is always given the name in gardens, and no one, so far, seems to have found it another! A. Chumbyi is *reputed* to be a hybrid between AA. sarmentosa and villosa, but this seems very doubtful. Until such parentage can be proved it is best considered as a form of A. sarmentosa.—ED.]

VARIATIONS OF VIOLA LUTEA.

IN Vol. LXXXVII, page 641, when Mr. T. Ashton Lofthouse was discussing "Alpines from the Pass of Mont Cenis," he introduced Viola lutea and some of its variations, and afterwards made an apology for doing so. There was no need for an apology concerning the most beautiful of the British Violas, which occurs not merely in the North of England, but on the Welsh and Scotch mountains and in the valleys of the latter. I have found it on the banks of the upper reaches of the

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River Tay, but more plentifully in the adjoining meadows, where the typical yellow and paler forms were in the minority and V. lutea amœna in a variety of shades was abundant. Higher up the valley, in Breadalbane, a small meadow or paddock was purple with a variety of V. l. amœna in which the upper petals were intense purple and the lower three paler purple. I also found a wholly blue form at an altitude of 2,000ft. The plants were not so gregarious at this elevation as in the valley, doubtless owing to the steepness of the declivity upon which they grew. Concerning this species of Viola, we may remember that James Grieve of Edinburgh commenced hybridising the common show Pansy with the yellow V. lutea gathered on the Pentland Hills in 1862. In the following year he used also V. l. amœna and V. cornuta. With the influence of these two species he imparted a more perennial character to the Pansy, and gave to the new race that tufted habit and power to produce suckers which enabled the plants to bloom all the summer. The new race was termed Viola and Tufted Pansy by different people. Both terms are correct, though there was a struggle for some years as to which name should be used.—HORTULANUS.

HYACINTHUS AMETHYSTINUS AND ITS WHITE VARIETY.

"THE charming little Spanish Hyacinth (not the more robust Scilla hispanica, but the slender thing whereon Linnæus bestowed the name of Hyacinthus amethystinus)," so writes Sir Herbert Maxwell in his new book, "Flowers: A Garden Note Book." He goes on to suggest that the great botanist must have named the plant from a discoloured herbarium specimen. It is anything but the colour of an amethyst, even of those pretty pale coloured crystals which I collected when I was in the *Ultima Thule* of Irish civilisation, Achill Island. The small pendulous flowers are a real pale blue, and their length and narrowness, together with the slenderness of the main stem from which they hang, give the whole plant a great air of refinement. This beautiful Hyacinth grows from 9ins. to 1ft. in height and is quite hardy. There is a white variety which is more expensive, but which I do not think can hold a candle to the better-known blue. Readers will gather I am reading Sir Herbert's book. In that book I came across a touching reference to the late Miss Frances Hope of Warden Lodge, Edinburgh. I had not looked at her book for an age, so down came "Flowers and Gardens." I mention this because on page 201, in writing about our wild Geraniums and Erodiums, she asks this question: "Is the white variety of a plant usually earlier than that which is of the normal colour?" She instances "Sisyrinchium grandiflorum and Ribes, Hawthorn and Horse-Chestnut," also Ajuga reptans. Is there anything in it? I have no records of the opening of the little blue and white Spanish Hyacinths; but does the white flower first?—J. J.

FREESIAS AND "DUDS."

MR. DALRYMPLE seems to be, in the first part of his note in THE GARDEN for January 12, under the impression that I am carrying out *his* cure, but in the second part he clearly points out that what I do is different from what he does? Which does he mean?—JOSEPH JACOB.

GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

The Kitchen Garden.

Spinach.—In many gardens this vegetable is highly prized about this time, so make a small sowing in the open ground, provided the weather is suitable. Occasionally, the crop is destroyed, but there are times when it is a success. In any case the seed is cheap, and it is not much trouble to make another sowing later. Select a sheltered border and sow the seeds in lines 1ft. apart.

Seakale.—As the plants are lifted for forcing it will be necessary to secure some of the roots for providing plants for next year. The "thongs," as they are termed, are cut into pieces 5ins. or 6ins. in length, the top being cut square, and the lower end obliquely. This will enable the planting to be carried out expeditiously later on. Tie the roots in bundles, then place them in an upright position in the open and cover to the depth of a few inches with ashes or soil.

Horseradish.—This crop is well worth more attention than it generally receives, and now is a good time to lift the crop and select the best roots for future use. Store them in ashes in a cool place. The small roots may be planted in lines 1ft. apart, with a space of 9ins. allowed between the plants. Deeply trenched soil is advised, but all manure should be placed at the bottom of the trench. The old bed should be cleared of all small pieces of roots or they will prove detrimental to future crops.

Digging and Trenching.—This work should be proceeded with, and manure wheeled on the vacant plots. If not already done, a dressing of manure may be afforded the Asparagus beds, or, where it is available, seaweed is an excellent substitute.

Endive.—The best way to blanch Endive is to tie the top of the plants with a piece of raffia, and then to cover each one with an empty flower-pot, taking care to exclude all light. A few plants should be dealt with at a time; a supply can then be kept up for several weeks. Look out for slugs or they will devour the whole plant.

The Flower Garden.

Bedding Plants.—Cuttings of Zonal and Ivy-leaved Pelargoniums will now require attention and should be potted off singly in 3in. and 3½in. pots. A few leaves placed in the bottom of each pot will suffice for drainage. Grow the plants in a warm greenhouse or pits and when re-established keep the roots well supplied with water. At this season it is advisable to ascertain the approximate number of plants that will be required for the beds, what kinds they will be filled with, and any alterations in the schemes that are likely to take place. With this information, the grower can get to work, and next May he will have no difficulty in filling the beds.

Cannas.—These are still used for bedding purposes and may be raised from seed, but a high temperature is necessary to secure germination. When this has taken place the seedlings should be potted singly, and grown on in a warm house, being removed to the beds or borders in June. They will need repotting as they fill their receptacles with roots, and should be provided with a rich rooting medium.

The Rock Garden.

General Work.—Any alterations decided upon should be finished at an early date, and the whole made clean and tidy. The immediate surroundings may need attention, shrubs and trees that were planted when the rock garden was made will probably require curtailment, and in some cases their removal will be necessary. The bogs will perhaps need overhauling and fresh soil and the strong-growing plants to be lifted, divided and re-planted. The whole of the garden should be carefully looked over. Plants not thriving may be given another station with a different aspect, others more robust may be reduced to prevent them from encroaching on their less active neighbours. As the work proceeds a top-dressing of soil should be afforded.

Fruit Under Glass.

The Orchard House.—This is usually an interesting structure, and as a rule very little fire heat is needed, excepting perhaps when the trees are in bloom and the fruit is setting. About this date the pot trees should be placed in position, and plunged to the rims of the pots to prevent rapid evaporation. In addition to Peaches and Nectarines, Figs and the best varieties of Cherries and Plums may be grown in the orchard house, also Apples and Pears, providing the temperature is not kept too high at the start. At present the house should be closed early in the day, and a little fire heat will only be required when there is any likelihood of frosts. Damp the floors to create a slightly moist atmosphere, and when the weather is bright, a daily syringing of the trees will be beneficial, but such work should be done sufficiently early to allow the trees to dry before sunset. Keep the roots moist and when the trees are in bloom a circulation of air is essential, but direct cold draughts should be avoided. Stop spraying the trees until the fruits have set and just prior to the blooms opening the house should be lightly vaporised to destroy any aphis that may be present. This is important, because many shoots and crops are ruined by black and green fly if these pests are allowed to make headway.

Melons.—Where accommodation is available, such as heated pits or low houses, a few seeds may be sown singly in small pots. A little bottom heat is needed to raise the seedlings. When they appear, place them near the glass. A temperature of 65° is required, with a rise of a few degrees during the day. Do not over-water the soil or the young plants may decay. T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

The Kitchen Garden.

Herbs.—Mint, when left long in one position, deteriorates in quality, and is often attacked by a species of rust. Fresh plantations may be made now in fairly rich soil. Take out shallow trenches about a foot apart and lay the roots along the trenches or drills as they might be called. Clumps of Pot Marjoram should also be broken up every few years and fresh plantations made. If Sage and Thyme were sown last season they should now be planted out.

Hoeing.—Whenever the soil is in working condition the Dutch hoe should be plied between the rows of Lettuces, Spinach, Spinach Beet or Seakale Beet, and autumn-sown Onions. This will aerate the soil and destroy to some extent the eggs or larvæ of various pests.

Potatoes.—An eye should be kept on seed Potatoes, and if early varieties are backward in sprouting they should have the benefit of a rather higher temperature. On the other hand, if later varieties are making too much growth they should have more light and cooler quarters.

The Hardy Fruit Garden.

Winter Spraying is a wise precaution and should not be omitted. Though past the usual time for carrying through the operation, it may still be done with safety. Those who cannot prepare their own mixtures should use a proprietary spray, such as Cooper's Winter Fluid, which is sold with full directions for use.

Bush Fruits.—The soil should be lightly forked over and, if necessary, manure in some form should first be applied. On heavy soils a light dressing of lime will prove beneficial. Planting may now be taken in hand, as the bushes will have time to make some fresh roots before the drying March winds set in.

The Flower Garden.

Bedding Plants.—Various bedding plants may now be propagated by cuttings. These include Lobelia, Salvia patens, Heliotrope, Ageratum, Cupheas platycentra and strigillosa. Seeds of Lobelia, Ricinus communis (Castor Oil Plant) and the Blue Gum (Eucalyptus Globulus) should now be sown in the forcing house or the early vinery. Autumn-struck cuttings of Geraniums should be potted up into 3in. or 3½in. pots and accommodated on a temporary staging in the early vinery. Specimen Fuchsias (for dot plants) which have been resting should now be placed in gentle heat to start them into growth.

Dahlias.—The tubers should now be taken from their winter quarters and placed in gentle heat so that they may furnish cuttings a few weeks hence. If forced into growth too rapidly the cuttings will lack stamina and cannot produce plants of the best quality.

Jasminum nudiflorum.—As soon as this winter Jasmine has finished flowering it should be pruned. It flowers on the young wood, so the shoots which have just borne the flowers should be severely thinned out to make way for young wood to bear next season's crop of bloom.

Wall Plants.—There is a wealth of plants suitable for covering walls. During the next few weeks planting may be carried out. The following plants are well tried favourites: Buddleia globosa

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(orange), B. variabilis magnifica (violet), Ceanothus dentata, C. Gloire de Versailles, Clematises in variety, Cotoneaster frigida, C. microphylla, C. Simonsii, Cydonia japonica, Escallonia macrantha, Forsythia suspensa, Kerria japonica, Polygonum baldschuanicum, Wistaria chinensis, Vitis Coignetiæ and Ampelopsis Veitchii. This selection covers the four seasons and includes flower, foliage and fruit, and all will succeed in a medium loam.

The Pleasure Grounds.

Restoration.—On wet or stormy days, tennis nets should be overhauled and repaired if necessary, garden seats may be painted, finishing with a coat of varnish which gives the paint a richer appearance and also acts as a preservative. Lawn mowers, too, may in such weather be taken to pieces and the bearings and pinions thoroughly cleaned. CHAS. COMFORT.

(Formerly Head-Gardener to Mrs. Haig, Broomfield, Davidson's Mains, Midlothian).

GREENHOUSE AND CONSERVATORY.

Chrysanthemums.—Cuttings of the decorative varieties should be secured this month, selecting stout, sturdy shoots from the base of the plant, as cuttings taken from the hard stems seldom make good plants. The cuttings should be about 3ins. to 4ins. in length, and they may either be inserted closely together in 48-sized pots or put in shallow seed boxes. Although it is usual to insert the cuttings singly in small pots when growing plants for exhibition blooms, this is not necessary in the case of the ordinary decorative varieties. If a slightly heated case is available, the cuttings will root more quickly, but this is not really necessary as they will root in unheated cases or cold frames. Where no other accommodation is available, the pots may be stood in shallow boxes and covered with sheets of glass. Whatever means of propagation is employed, damping should be guarded against; thus a little air should be left on the cases during the night, while the lights or covering glass should be wiped dry every morning.

Cannas are very useful for conservatory decoration during the summer and autumn months, and, where it is desired to grow them in small pots for furnishing the stages, a quantity of strong rhizomes should now be started in a temperature of about 60°. They may either be laid out in a bed until they start into growth, or strong rhizomes may be placed directly into 48-sized pots, using a rich compost, as these plants are gross feeders. As the rhizomes are very apt to damp off at this stage, water should be very carefully applied until they have started into growth and made a quantity of roots. Their next shift should be into 6in. pots, in which they will flower. Under this method of cultivation the growth should be restricted to one strong shoot. When in full growth they enjoy ample feeding, using diluted liquid manure or soot water alternated with guano or some approved fertiliser.

Hippeastrums.—A batch of bulbs should now be introduced to a warm forcing-house, where a temperature of 60° can be maintained. It is an advantage if plants can be selected that do not require repotting. Those that were started early last year are the best because they have finished their growth correspondingly early. Such bulbs will start more readily than those that have more recently matured. The plants should be thoroughly soaked at the roots, afterwards removing some of the old top soil, which should be replaced with a rich compost to which some fine bone-meal has been added. At the same time examine the bulbs for mealy bug, which, if neglected, will soon ruin a collection. The pots should then be plunged in a bed with bottom heat at command. This is not really essential, but without bottom heat they will not grow so quickly. If the plants are in bad condition at the root, they should be shaken out and repotted in fresh compost, which should consist of a good mellow loam with a little flaky leaf-soil and enough sand to keep the whole open and porous; a 6in. potful of fine bone-meal may be added to every bushel of compost. Before repotting, all dead roots and decaying matter should be carefully cleaned off. Large pots are not necessary, 6in. or at most 7in. being suitable for the largest-sized bulbs. At this time newly potted plants should be plunged in a bed with bottom heat at command. Water should be very sparingly given at the root until a quantity of new roots are produced and top growth commences. When in full growth they, of course, take ample supplies of water at the root. Hippeastrum seed is best sown as soon as it is ripe, but anyone who wishes to raise the plant from seed can do so at this time. Sow the seed in a light compost, cover lightly, and plunge the seed-pans in a warm bed, where the seeds soon germinate. The seedlings should be pricked off into pans or boxes, and, when large enough, may be potted off singly into small pots, or they may be planted out in a raised bed in a warm house, where they require less attention than when grown in pots. Whatever method is adopted, the young plants should be grown straight on without drying off until they attain flowering size.

Rhodochiton volubile.—This charming climber is a beautiful plant for the greenhouse. Although it is really at its best in its second year when planted out, yet it may be treated as an annual, growing it in pots to train to wires or pillars in the conservatory. For this purpose seed should be sown some time this month. The thin seeds should be covered very lightly or else they are apt to decay.

Grevillea robusta.—Seeds of this elegant plant should be sown now. The seeds are very apt to decay if covered too deeply, so should therefore be set on edge or very lightly covered.

Royal Botanic Gardens, Kew. J. COUTTS.

ANTIRRHINUMS

THE splendour of July's display depends greatly upon the care bestowed upon the raising of seedlings now. Close observation over a period of several years has convinced me that a week's difference in the dates of sowing seed does not make an appreciable difference to the date on which the first flowers will open, but it does make a very considerable difference to the vigour and profusion of secondary growths as well as to the length and development of the first spike, supposing the plant is grown on without pinching the leading growth. It is therefore a great advantage to sow seeds before the end of January, if possible, and certainly not later than the first week or ten days in February. Seeds sown later than that will produce plants that flower, but the substance and quantity of bloom will fall far short of the earlier plants.

At the same time it may be acknowledged that where Antirrhinums pass safely through the winter, the later plants which produce less flowers during their first season generally do much better the second season than those sown early. Indeed, open air sowing in March is my preference for plants that are to be depended upon for a second season. These latter make sturdy growth, produce a fair amount of bloom in August and September, and often right through October. They will commence blooming again with much profusion the following spring, maintaining a wonderful show of colour from May to the end of July. Of course, the individual spikes and pips on a second year plant compare unfavourably with a well grown first year seedling.

The cooler the atmosphere, above freezing point, the better for early Antirrhinums. The aim should not be to encourage a large amount of soft top-growth. It is the early development of a good root system and the production of a stiff, stout, short-jointed trunk or main-stem that makes for success in summer.

The recommendation is so commonly made that seedlings should be grown on shelves near the glass that it is generally accepted as the only proper way. I have practised it myself, and have no wish to condemn it, but, having about a quarter million plants to raise, and fearing some of that large quantity might suffer through unavoidably delayed attention, I had a bed of soil 6ins. deep made up on a greenhouse stage with corrugated iron bottom, and the seeds were sown on this bed, with bamboo canes laid across to mark divisions between the varieties. The health and uniformity of that batch was the greatest I had ever had, and that is now my method of raising. The greater body of soil made watering far less necessary, and the changes of temperature were less violent. Continuous use of the watering can is not beneficial to seedlings although it is very essential where shallow trays are hoisted on shelves near the glass, surrounded by the hottest air in the house and exposed to the full power of the sun, which even in winter can have considerable effect through glass.

An extensive bed of soil even on a greenhouse stage is very different from boxes filled with soil, but where the quantity of seed to be sown is small, or where a bed cannot conveniently be made I would certainly declare preference for a box 6ins. deep, half filled with drainage and rough soil siftings, and a couple of inches of prepared soil on top rather than a 2in. tray filled with the prepared soil. This is for the seed sowing, not for the seedlings when pricking out time comes.

As to pricking out, if this can be done as soon as four leaves are well formed, care being taken not to kink the tender stems while handling losses will be reduced to a minimum. It is when seedlings are left to become crowded above, with roots tangled and matted below, that failures in transplanting assume large proportions.

If the plants are to be grown in boxes until bedded out the depth of the boxes should not be less than 3ins. with about an inch of soil siftings in the bottom. If it is intended to pot the plants as soon as large enough boxes 2ins. deep are quite deep enough. It does, undoubtedly, pay to pot young Antirrhinums if the best possible results are desired.

After either pricking out or potting, it is wise to keep the soil rather on the dry side for a week or ten days. Obviously the plants must be watered in, for flagging cannot be tolerated, but after the one watering the roots will make better progress in tolerably dry soil until growth becomes active again, when the ordinary system of watering must, of course, be resumed.

The ultimate object in view must decide the question of "stopping" the seedlings. If the aim is to produce specimen spikes of bloom for exhibition the plants should not be stopped at all, but must be grown on as single stem plants, pinching out side growths as they appear. It is quite essential that such plants should be potted, and small sticks should be provided to support them. For bedding purposes it is necessary to pinch out the point of the main stem, and this should be done early, say when the tall growers are 2ins. high and the intermediates 1½ins.

Never coddle Antirrhinums; let them have plenty of ventilation even in the small stage. Always bear in mind that the real object of early sowing is not to procure big plants at bedding time. Plenty of roots and small tops should be the aim.

I have come across amateurs, anxious to grow specially fine Antirrhinums, who have actually commenced feeding the plants while in the boxes. That is as futile as it is dangerous. If the young roots are not damaged by an overdose of fertiliser, the stems and foliage will be urged into soft, rank growth that will be the reverse of helpful to the production of good flowers. Even in the preparation of the beds for Antirrhinums it is unwise to be liberal with rank manure. Nothing that tends to make the soil loose and spongy will be of service, a sharp, porous soil that can be made firm without caking or setting is the ideal. Bone meal, hoof parings and horn shavings, chalk (where soil is deficient in lime), and soot are the best substances to dig into the ground before planting, but the greatest benefit will accrue from liquid manure applied at frequent intervals from the time the flower spikes begin to show themselves, and if either fowl manure or pigeon manure is available, nothing better could be for making the liquid manure. Be cautious in regard to the strength at which it is applied.

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PEACE is delightful as a delicate flesh pink on fairly dwarf, compact plants.

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A. J. MACSELF.

GOLDEN PIPPIN APPLES

IT may surprise many readers to see that there are eleven varieties called "Golden Pippin," though the name has a very attractive sound. If one reads up the authorities, one finds, for instance, Franklin's, Hughes', Pine, Pitmaston and Frogmore, each with the appendix "Golden Pippin"—though, as portrayed, they all appear dissimilar.

The true Golden Pippin, known under eight synonyms, is of great antiquity, the variety having been known in Evelyn's day, who stated that the Lord Clarendon cultivated it, but only as a cider Apple, for in his statement he says: "at Lord Clarendon's seat at Swallowfield, Berks, there is an orchard of 1,000 Golden and other cider 'Pippins.'" Evidently, in those days, Berkshire made cider cup, as well as Somerset, Hereford and Glorious Devon.

Evelyn also comments as follows: "About London and the southern tracks, the Golden Pippin is esteemed for the making of the most delicious cider, most wholesome and most restorative, but amongst apple Growers, the Golden Pippin is noted also for its crisp, juicy sugary and refreshing properties as a Dessert fruit" etc.

It makes a compact bush, although the only trees I have seen are compact orchard trees. I have been told, however, that it fruits itself out of existence on the dwarfing stock.

The fruit is small, roundish, inclining to oblong, the skin deep yellow, assuming a deep golden tinge when perfectly ripe, and strewn with russet dots. The origin of the variety is unknown, but it is stated by old writers to have been raised at Padham Park, near Arundel, Sussex.

SCARLET GOLDEN PIPPIN is a delicious Apple, and to my mind equal in its season to Cox's Orange Pippin. It may be used from January to May. The skin is bright crimson, shaded deep yellow, strewn with small russet dots and light-coloured specks; the flesh deep yellow, crisp, sugary, juicy and sweet, with a pleasant aroma. This is a really fine late dessert Apple and ought to be extensively cultivated. It should succeed either as an espalier, cordon, bush or half-standard tree.

FRANKLIN'S GOLDEN PIPPIN is an excellent mid-season variety which was well known over a century ago, and although it will not keep long after Christmas, it is, nevertheless, a dessert Apple of real excellence. A dwarfing stock suits it best The skin is deep yellow with rich russet shadings, the flesh yellow, tender, juicy, sugary and crisp, with a pleasant aroma.

HUGHES' GOLDEN PIPPIN is a rich yellow coloured Apple with green and russety dots, and about right in size for dessert. It is a fruit of first-rate quality, with yellowish white, firm, juicy flesh, sugary and aromatic. It is in season in January and February.

PINE GOLDEN PIPPIN is a dessert Apple which keeps its flavour until November. It is a small fruit with yellowish flesh, which is tender, juicy and sugary, and possesses a distinct pineapple flavour. The skin is covered with a coat of brown russet and marked with light grey specks; the fruit roundish and somewhat flattened, with blunt ribs, making it uneven and irregular in outline.

PITMASTON GOLDEN PIPPIN was raised by a Mr. Williams of Pitmaston in Worcester. Although a first-rate dessert Apple, it has never been much in demand, probably owing to its rather rough covering of brown russet and the somewhat squat form of the fruits. The flesh is deep yellow, crisp and tender, juicy, sweet and of rich flavour. The variety does well on the dwarfing stock.

FROGMORE GOLDEN PIPPIN was raised by a Mr. Ingram at the Royal Gardens, Windsor, and is at its best during November and December. The fruit is small, with a knob at the stalk, such as one sees in Newton Wonder or Lemon Pippin. The skin is yellow with a pale red cheek, streaked with crimson, the flesh yellowish, crisp, sugary and briskly flavoured. This is a pretty Apple, but one not generally known or grown.

TAUNTON GOLDEN PIPPIN is a medium sized dessert Apple coming into season from January to March. The skin is deep rich yellow, dotted with russet on the shaded side, patched with red and streaked deeper red on the side next the sun, eye open, stalk short, flesh yellow, firm, crisp, sugary, with a rich vinous flavour.

SUMMER GOLDEN PIPPIN is an early delicious Apple becoming fit for use about the middle of August and succeeding remarkably well on the dwarfing stock. The skin is yellow, orange and brownish red, spangled with russety dots, the eye open, stalk thick, flesh yellowish, firm, juicy and sugary; altogether a desirable summer Apple.

SCREVETON GOLDEN PIPPIN is a variety well known in Nottinghamshire, where it was raised in the gardens of Sir John Thoroton about the year 1808. Fruit small and of first-rate quality, skin greenish yellow with russet patches and dots, eye open, stalk ¼in. long, flesh yellow, crisp and sugary.

CLUSTER GOLDEN PIPPIN—known also as Thick-set and Twin Cluster Pippin. This variety is more ornamental than useful. It certainly makes a pretty feature in the shrubbery. The fruit is small, the skin yellow and orange with a network of thin grey russet.

The outstanding variety of those mentioned is Scarlet Golden Pippin, which is worthy of extended cultivation. GEORGE LOVELOCK.

Iris lacustris.—This miniature North American Iris is so hardy and so delightful in the rock-garden, especially in the moister places, that it ought to be much more frequently seen. One more often meets with the bigger but very beautiful I. cristata, but most of us have room in our gardens, as well as in our hearts, for the exquisite little I. lacustris. It may be described as a miniature I. cristata, with all its beauties, but of a deeper blue. A well known writer speaks of it as of powder blue and gold, and the description is not far astray. It is a truly charming little plant only two or three inches high, creeping over the ground with its small rhizomes and flowering freely in summer. In cultivation it is quite easy, but it is sometimes lost when the plants are but small by reason that slugs, which have a penchant for novelties, may crop it to the ground when it is making growth in spring. They do not appear to trouble it much, however, when there is a little clump, for then the novelty has worn off and they leave it alone. In nature it grows near the margins of some of the North American lakes, where it favours gravelly soil, but it is not exacting in this respect and will flourish in loam and sand or grit. It likes a fair amount of moisture, and in drier places may be treated to partial shade by way of compensation. Plants may be procured in spring from hardy plant nurseries in this country.

Viburnum rhytidophyllum.—Among the swarm of Viburnums now in cultivation from China and elsewhere, none stands out more distinctly than this. Its individuality is due to the remarkable wrinkling of the leaves. A native of Central and Western China, it was introduced in 1900, and has hitherto proved quite hardy in the open ground, although in bleak, exposed situations it has a rather woe-begone aspect during a cold spell. Under the showers and warmth of spring, however, it quite recovers. The flowers are dullish white and not particularly attractive, but its fruits are extremely handsome, being oval and about one-third of an inch long, changing at first to coral red, finally to black. They are at their brightest in September, when, in association with the large wrinkled leaves, they impart great distinction to this shrub. The largest leaves are 7 inches or 8 inches long and up to 3 inches wide, dark glossy green above, covered with a soft grey wool beneath. It has the curious habit of forming its inflorescences in autumn; the flower-buds remain exposed all through the winter, expanding normally in spring. The shrub is vigorous in growth, and assumes a shapely form. It is increased by cuttings placed in gentle heat.

Viburnum Davidii.—This also is a very distinct Viburnum, as well distinguished, in fact, from the older species in gardens as is the preceding one. Both are evergreen, but otherwise have little resemblance, V. Davidii forming a close, rounded or hemispherical bush, apparently not more than 2 feet, or perhaps 3 feet high. The most striking features of the foliage are the three conspicuous veins that start at the base of the leaf and run lengthwise to the point, the leaves being leathery, 2 inches to 6 inches long, about half as wide and very dark green. The flowers are dullish white, one-eighth of an inch in diameter, and thickly packed in an inflorescence 2 inches to 3 inches across. The fruits are slenderly egg-shaped, a quarter of an inch long and blue. That well known collector, Mr. E. H. Wilson, introduced it to the Coombe Wood Nursery in 1904. There is a demand for neat, dwarf evergreens of slow growth, such as this Viburnum, for rock gardens; they relieve the bareness in winter and furnish a setting for the flowers in spring and summer.

Answers to Correspondents

THE GREENHOUSE.

CYCLAMENS AND BEGONIAS ATTACKED.—(W. O. B.).—The grubs are those of the weevil Otiorrhynchus picipes. They devour the roots of many plants, especially of those with fleshy roots. The best treatment is to turn the plants out of their pots and pick out the grubs. Later on, about April, the grubs turn to beetles, which eat the foliage of ferns and other plants and the shoots of vines. These may be captured by shaking the plants, *after dark*, over a piece of paper, or by putting down old sacking for them to hide in during the day.

NAME OF PLANT.—(T. N., Bucks).—Callicarpa purpurea.

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THE GARDEN

No. 2724.—Vol. LXXXVIII.] [February 2, 1924.

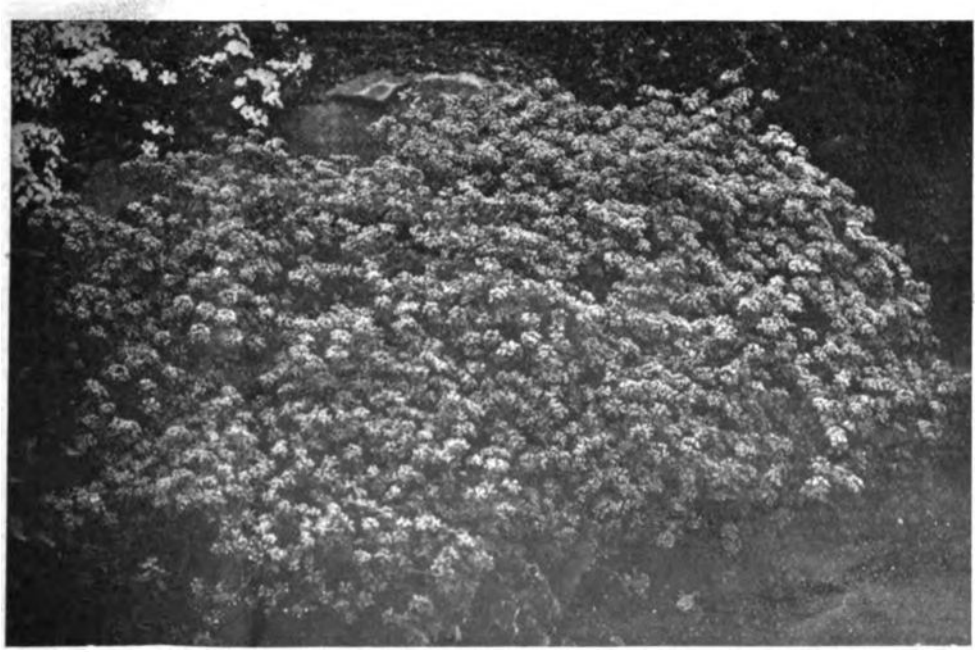
It was intended to have instituted several alterations in this number; owing to the railway strike these are postponed until the issue of February 16th.

RECONDITIONING THE ROCK GARDEN

THE Editor invites me to write on the remaking and replanting of rock-garden pockets, and the trimming of the plants which occupy them. He says that the subject is not an easy one. He is right; but I think the trouble arises less from any inherent difficulty in the processes involved than from the fact that it is a thankless as well as a fruitless task to attempt to lay down general rules to cover a wide range of varying conditions, whatever the subject be. If you know what sort of soil and situation you are dealing with, and what kind of climate you possess, then an elementary knowledge of gardening and a little common-sense will leave no formidable problem to be solved. But how can one prescribe at the same time for clayey, sandy and peaty soils? For the climate of Sussex, Devonshire and Lancashire? For the rainfall of Essex and North Wales? But before coming to these practical questions, there is an æsthetic one on which I should like to offer a few comments, as it is bound to govern our operations to a considerable extent. The question is fundamental, and is simply this: What are we aiming at? In other words, what kind of rock garden is our ideal? There is quite a wide divergence of opinion and of practice in this matter. The trained professional gardener, turned into the rock garden, will instinctively wish to introduce into it some of the orderliness which he associates with good gardening. He will, generally speaking, not approve of one plant invading the territory of another, and a "mixed grill" of three or four species all intertwined will not appeal to his palate. He will tend to confine each plant or clump to its own domain, as one does in the herbaceous border, and in replanting a pocket or slope he will dot a number of young plants evenly over its surface. The gardener, on the other hand, who is also a traveller, to whom alpine and rock plants recall the glorious prodigality of growth and bloom on the Pyrenees or Alps or Carpathians, will place less store on neatness. A tangled mass hanging over a boulder may give him a thrill when the best workmanship would leave him cold, and a happy riot of half a dozen harmonious species, recalling with a "pleasure that's all but pain" the alpine meadows of the Val di Fain or Pilatus, will appeal as the best work of scissor and trowel could never do. This antithesis was well exemplified a few years ago in a correspondence in a gardening contemporary, which some of my readers will remember, which followed on a criticism by an eminent gardener, residing within fifty miles of Waltham Cross, of a famous rock garden, situated within the same distance of Kingston-on-Thames. There is a good deal to be said on both sides. It all depends on what you want. Probably most rock gardeners prefer a middle course. In any case, there are certainly some plants which, if they are to look well and happy in the rock garden, need drastic treatment, and others that should be carefully left alone.

Well, first as to pockets. If your natural soil is light and porous, it should keep in good condition for a long time, and, of course, the same applies to good made-up stuff used where the natural soil is unsuitable. Some of the pockets at Kew have not been renewed for thirty years, and still do not need it, despite the fact that smoky atmosphere and sooty rain, due to proximity to London, tend to produce atidity of the soil. Porous material and very thorough drainage help to keep the ground sweet. A word may be said against the plan (used at first, I believe, at Wisley, only to occasion subsequent regret) of building the rock garden first, and subsequently digging out the pockets and filling them with good material. Better make a proper job of it at once. Many rock plants have a remarkable root-run —several yards in some instances—and to surround them with a wall of inhospitable material is to handicap their full development. Besides, many delight to get their roots well under the rocks, where the soil tends to be drier and warmer in winter, and cooler and moister in summer.

Of course, if pockets are being replanted, the opportunity should be taken to dig them thoroughly and enrich the soil a little with leaf-soil, sand



A YELLOW-FLOWERED TRAILER, ALYSSUM SERPYLLIFOLIUM.
Alyssums are not long-lived, so should be renewed periodically.

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if the ground seems heavy, lime if it seems sour, and in some cases (on sandy soils, for instance) a little thoroughly rotted manure. An annual top-dressing with fine leaf-soil and sharp sand is useful in all cases; but on the whole, if there is deep drainage and good light soil, this should suffice for many a year, and the plants themselves will give warning, by their want of vigour and of crispness, when a change is required.

As to the amount of trimming, etc., to be done in autumn or spring, tastes vary, as I said at the beginning. But without doubt, while some plants look best as a separate clump, others, notably many of the carpeters, are singularly pretty when allowed to intermingle freely—to marry each other, as Mr. Burbidge used to call it. You can get the quaintest effect by allowing things like Acæna microphylla with its crimson fruit-heads, the grey-green A. Buchanani, Cotula squalida with its brownish tint, Arenaria balearica covered with little white stars, prostrate Thymes, and so on, to intermix as pleases them; by doing this, of course, you lengthen considerably the flowering period of the carpet.

Among the plants which should not be disturbed at all are dwarf shrubs, such as the prostrate cotoneasters and willows, those with long woody roots (in their native haunts mostly found on dry, poor soils) such as æthionema and potentilla and astragalus and coronilla and fleshy tap-rooted plants like eryngium and most gentians, and some statices and campanulas. Save for the autumn "bedding-up," these are better left alone, both above and below ground. On the other hand, we all realise that many of our best known rock garden plants—arabis, aubrietia, alyssum, achillea, rock-roses, pinks, at least all the larger species of them—need a good hard cutting-back to keep them from looking untidy and unnatural—for in their native habitats, under more rigorous conditions, they grow neat and crisp, and do not straggle or "flop"—to use poor Reginald Farrer's favourite word. Other plants, again, such as many of the Mossy and Kabschia saxifrages, enervated by a too mild climate and a too rich soil, tend after a few years to die off in the centre of the cushion. With the Mossies, which root very readily, we have only to remove the whole clump, dig over the pocket, and replant in small pieces. The Kabschias, being slower to root, it is better to replace the old tufts with young plants struck a year earlier in a cold frame. Often a new lease of life can be given to such a cushion by simply top-dressing and then dumping down a stone on the dead portion. The stone provides protection and encourages growth, and is soon fringed with healthy verdure.

Many of the small shrubby plants, such as Hypericum olympicum, H. Coris, micromerias

THE ROSE-FLOWERED DIANTHUS CÆSIUS GRANDIFLORUS.
The larger-growing Dianthi are improved by topdressing.

SAXIFRAGA BURSERIANA IN A ROCK CREVICE.
Now is a good time to topdress the Kabschia Saxifrages with a gritty compost.

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of sorts, Spiræa Hacquetii, and so on, die back a long way, and need hard cutting, but this should not be done too soon; leaving the fruit encourages seeding, and the dead rusty brown stems are not without beauty in the autumn, when the rock garden lacks interest so sadly. But even here we should be a little cautious. If we cut a santolina, for instance, hard back, it will make in the following season a fine round grey bush, but no flower, for it flowers on the second-year wood from the leaf-axils of the preceding season; but the second year after cutting it will bloom better, probably, than it ever did before.

As to the time at which these operations should be carried out, there is no secret or mystery; once summer is over, work can begin, and continue throughout the winter: but planting and replanting are best done in autumn, since better growth will result in the following season than if one delays till spring is approaching. In a backward season like the present one, however, planting may still be done with a prospect of a good flowering season to come.

R. LLOYD PRAEGER.

FOTHERGILLAS AND PARROTIAS

THE hamamelis family, to which the fothergillas and parrotias belong, is not a very large one, but it includes some very interesting and attractive plants, for, besides hamamelis, fothergilla and parrotia, it comprises liquidambar, corylopsis and distylium, all well worth representing in any garden. Fothergilla consists of three, perhaps four, species, all from the south-eastern United States, and the name commemorates Dr. John Fothergill, a Quaker physician, well known to gardeners and botanists in the late eighteenth century through the fine collection of hardy trees and shrubs he cultivated in his garden at Upton in Essex. A curious feature of the fothergillas is the absence of petals from the flowers, the beauty of which is solely in the numerous long stamens arranged more or less in bottle-brush fashion. They have one other great attraction in the fine coloration of the foliage in autumn, all the species being notable in this respect. These notes, indeed, have been suggested by seeing, in Sir George Holford's fine arboretum at Westonbirt during late autumn, the newest and least known of the fothergillas (F. monticola) in rich red colour. F. major turns yellow or orange in autumn; F. Gardeni, beautiful crimson. The oldest and for many years the only fothergilla in cultivation was

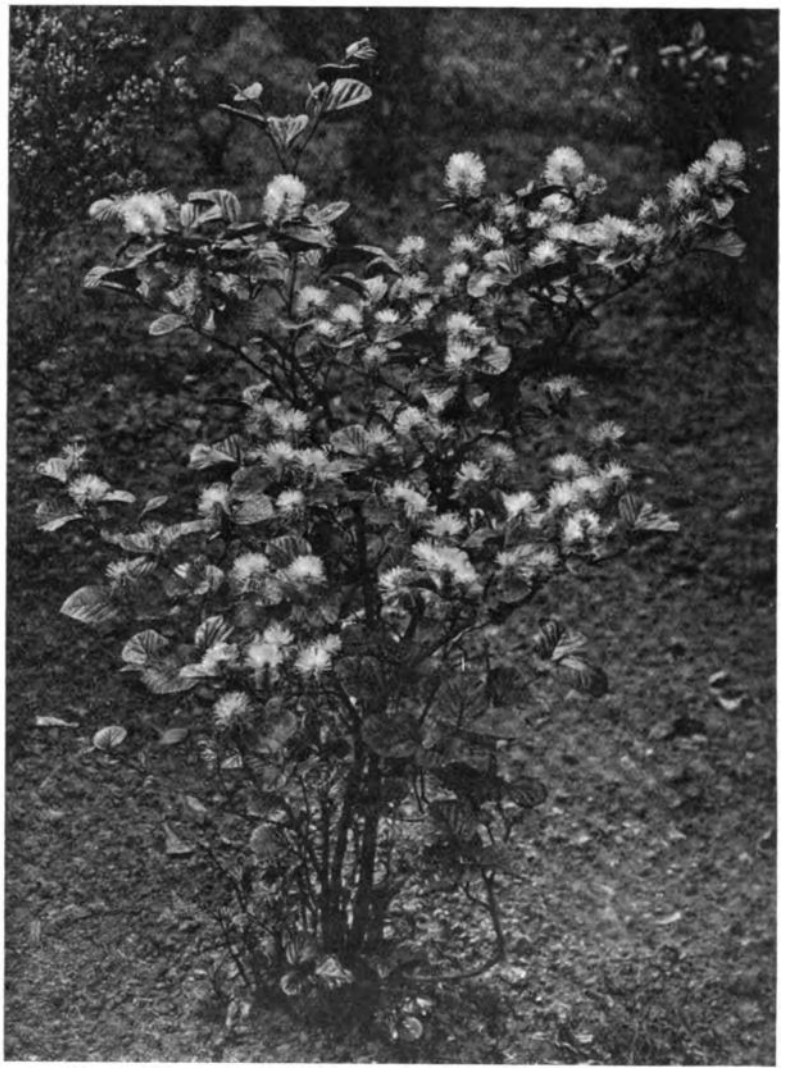
F. GARDENI. It was introduced in 1765, but has never been common, nor, as a matter of fact, is it so now. It is a shrub of rather weak habit which is rarely seen more than two or three feet high, with heart-shaped or ovate leaves 1½ins. to 2½ins. long. It blossoms in April and early May, the stamens being about half an inch long, white with yellow anthers, and forming a globose or cylindrical cluster 1in. to 1½ins. long. It is quite pretty at this time, and the fragrance of its flowers adds to its charm. But, after all, it is its beauty in autumn, perhaps, that will recommend it most strongly, the leaves varying in hue from rich crimson to scarlet. It is not a vigorous shrub; if it were it would be commoner than it is. But of its capacity to withstand cold there is no doubt; it succeeds in the Arnold Arboretum, Mass., where they have, occasionally, forty degrees of frost. It likes a sunny, sheltered spot, and a lightish loamy soil or one of a peaty nature seems to suit it best. This shrub is known in gardens frequently as F. alnifolia, and a new name, F. carolina, has been concocted for it in America.

F. MAJOR is a much more robust and more easily cultivated shrub and grows up to 8ft. in height. It was cultivated in this country more than one hundred years ago; but was lost sight of until about twenty years ago. It is one of the shrubs whose re-introduction we owe to Professor Sargent and the Arnold Arboretum. When freely in blossom it is very attractive, being covered with its cylindrical clusters, up to 2ins. long, of white stamens. The leaves are roundish or roundish oval, rather glaucous beneath, usually obliquely heart-shaped at the base and only slightly toothed towards the apex. On the whole, although not so noticeable in autumn as F. Gardeni, it is a better shrub for gardens. There is a large group of it near the Palm House at Kew.

F. MONTICOLA was first recognised as a species by the American botanist, Mr. W. W. Ashe, in 1897, but continued to be confused with F. major. Both the distinguished dendrologists, Mr. Rehder and Dr. Schneider, at first considered it as not being specifically distinct from F. major. Not having then seen the living plant, and following them, I made the two species synonymous in my book on hardy trees and shrubs, published in 1914. The plant is now in cultivation at Kew, Westonbirt, Aldenham, and no doubt in several other places, and is easily distinguished from F. major by the leaves being much more conspicuously toothed towards the end, green (not glaucous) beneath, and by their turning red in autumn. Also, the branches, erect in F. major, are open and spreading in F. monticola. The flower clusters appear to be very similar and equally ornamental. It is found wild in the south-eastern United States from North Carolina to Alabama, and is apparently quite hardy, growing 6ft. to 8ft. high.

American botanists distinguish a fourth species, F. parvifolia, which appears to be very near F. Gardeni, differing in the more rounded leaves toothed from the apex to the middle, and in the shorter stamens. It may be in cultivation, but I have not distinguished it.

All these fothergillas can be propagated by cuttings made from firm leafy twigs in July and August. They should be put in very sandy soil in a mildly heated close frame.



FOTHERGILLA MAJOR.

An attractive species with cylindrical clusters of white stamens.

Turning to the parrotias, of which two species are known, we find that they differ from the fothergillas in being trees, although not large ones, and they are also natives of the Old World. The better known of them is Parrotia persica, which was introduced to Kew in 1841 and is found wild in Persia and the Caucasian region. Growing to between 30ft. and 40ft. high, it has wide-spreading horizontal branches that give it a very picturesque appearance, and a stout trunk from which the bark peels off like that of the plane. The flowers

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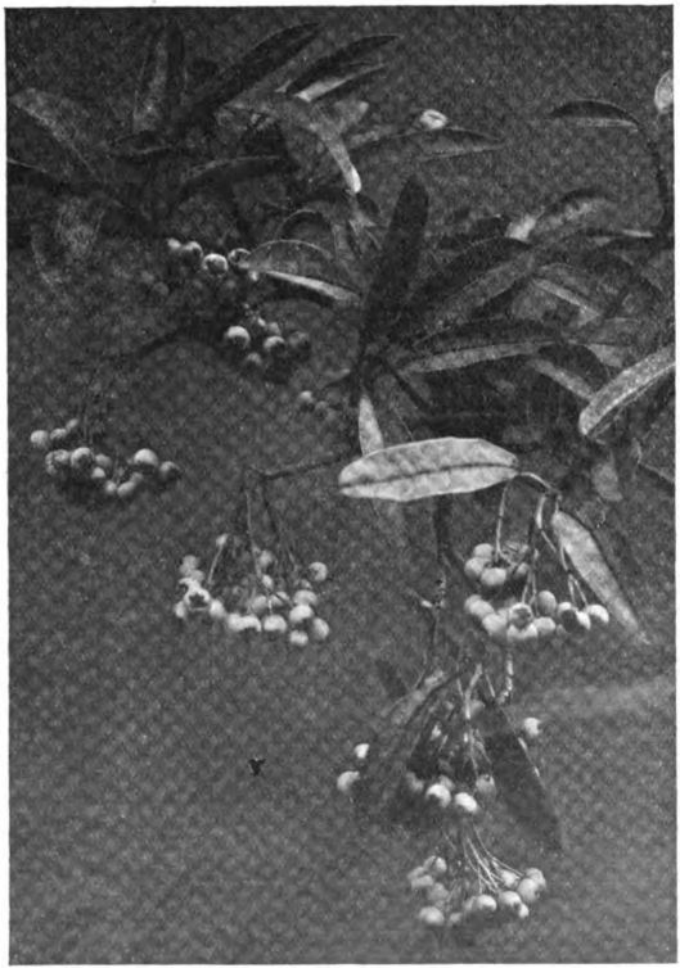
usually appear in March, sometimes earlier if the weather be open and mild, and although individually small, they are extremely abundant. They appear on the leafless twigs in clusters ½in. across, and, like the fothergillas, have no petals, the only conspicuous part of them being the red stamens. When well in blossom a tree gives a pleasing effect, especially when seen from a short distance away during sunshine—a curious, haze-like glow of red.

This tree is well represented in Sir George Holford's collection at Westonbirt and does its part in producing the wonderful pageant of autumn which is, perhaps, the most outstanding of the varied fascinations of that great garden. The foliage dies off in beautiful tints of crimson and gold.

P. Jacquemontiana, the other species, is a much smaller tree than the Persian one and only half its height. It is a native of the Himalaya, especially in Cashmere, and although known since 1836, when it was discovered by Dr. Falconer, it was only introduced in 1879, in which year seeds were sent to Kew. Like P. persica, it has no petals, but it has one great distinction from that species in the large white bracts which accompany the flowers. In P. persica these bracts are small and brown; in P. Jacquemontiana they are petal-like and ½in. to 1in. long, giving the same appearance as a white flower with a large cluster of yellow stamens in the centre. Of all the species mentioned in these notes this is the least effective in autumn. Naturally, the leaves would appear to turn yellow if they had the chance, but they remain fresh on the tree so long in our climate that before they have time to acquire the natural tints of slow decay they are battered by the wind, rain and frost. Both these trees are hardy in the home counties, but, no doubt, P. persica is the hardier and more desirable. They like a good loamy soil and a sunny spot. W. J. BEAN.

NEW AND RARE SHRUBS

ARUNDINARIA MURIELÆ.—The impetus given to the cultivation of hardy bamboos by the publication of the late Lord Redesdale's book, "The Bamboo Garden," in 1896, has slackened somewhat in these latter years. We are now able to judge which are really worth a place in the ordinary garden and which are better kept out of it. While some of the best bamboos are still unequalled for vegetative grace and beauty, others are apt to develop into unmitigated nuisances. Among the latter is the one we used to grow as Arundinaria pygmæa, which Mr. Gamble has lately named A. vagans. Nor, in any garden where I had a tree hand, would room be found for AA. Veitchii, angustifolia or humilis. The work entailed in keeping such species within proper bounds is not sufficiently repaid by their none too obvious attractions.



THE NEW RED-BERRIED STRANVÆSIA SALICIFOLIA.

But I believe one can safely prophesy that this new species, introduced from Western Hupeh by Wilson, will secure a permanent place in cultivation. One can give it no better testimonial than to say it is allied to A. nitida and that it promises to rival it in beauty. It has the same luxuriant leafage, the same grace, the same crowded cluster of stems arching outwards at the top, but the stems (purple-black in nitida) become rich yellow in Murielæ, the sheaths that partially clothe the younger ones are straw-coloured and the leaves are rather larger. So far as one may judge from its behaviour during the few years it has been growing in the open air, it is hardy. Wilson found it in 1907 up to 10,000ft. altitude in Hupeh growing from 6ft. to 13ft. high, "with its clear golden, slender stems, one of the most beautiful of Chinese bamboos." A small plant in a pot was introduced to Kew in 1913 from the Arnold Arboretum, which, after being nursed in a greenhouse, was ultimately planted in the open ground and grew luxuriantly. Mr. Gamble named it three years ago after Mr. Wilson's daughter, Muriel.

ROSA MIRIFICA.—This is a new and interesting rose from the south-western United States which was introduced from the Arnold Arboretum to Kew in 1917. It had been collected the previous year by Mr. Rehder on the Sacramento Mountains in New Mexico at an altitude of about 6,000ft. Some twenty to twenty-five years ago a rose named R. stellata was discovered in the same State and has once or twice appeared in cultivation, but has proved difficult of culture. To this species R. mirifica is closely allied, but, fortunately, it is thriving quite well, and has proved a pretty shrub, very distinct from anything previously in cultivation except its relative. In habit it is lax and does not promise to be more than two or three feet high, the stems being armed with sharp slender spines ½in. long and furnished with gland-tipped bristles. The leaves are about 1in. long and made up of three or five leaflets, each of which is ½in. to ¾in. long, obovate, coarsely toothed and smooth. The flowers are solitary at the end of short twigs and of a pretty and distinct shade of pink, measuring 2ins. to 2½ins. in width. The globose ovary is thickly covered with pale spines like those on the young shoots but smaller; like the sepals, they persist on the ripe fruit. It flowers in July at Kew.

R. mirifica differs from R. stellata in having most frequently five leaflets to each leaf, whereas R. stellata has never more than three, also in the absence of starry down on the shoots to which the name stellata refers. It should have a place in full sunshine and can be propagated by the suckers it produces. Mr. Rehder considers it one of the handsomest and most distinct of American roses. Even in the Arnold Arboretum, he tells me, it is fairly hardy, so it ought to be perfectly so with us.

SMILAX MEGALANTHA.—Among evergreen climbers the smilaxes give a very distinct effect, for there is nothing quite in their way in this class of shrub. Their botanical relationship with the lilies is also remarkable. Many of the species have deciduous foliage, but two evergreen ones, SS. aspera and excelsa, have long been cultivated in England; but lately appear to have disappeared from cultivation. Wilson introduced several species from China, the most striking of which is Smilax megalantha. This also is evergreen and grows some 15ft. high, the stems being armed with irregularly scattered spines up to ½in. long and furnished with tendrils proceeding from the leafstalk. The leathery-textured leaves vary much in size and shape, but the largest—9ins. long by 6ins. wide—surpass in size the leaves of any hardy smilax; they are richly green above, glaucous beneath, and conspicuously three-nerved. The plant is worth growing for its foliage alone. Wilson describes the flowers as greenish (they are of no great beauty in this genus) and the fruits as globose and coral red.

It is a native of Hupeh, Western Szechuen and Yunnan, and was originally collected by A. E. Pratt and the Rev. E. Faber. Neither of them sent home seeds, and its introduction was reserved to Wilson who, in 1908, sent seeds under his number 661.

STRANVÆSIA SALICIFOLIA.—I first saw this shrub in the nursery of the Arnold Arboretum in 1910 and obtained from Professor Sargent a plant for Kew which I believe represents its first introduction to this country. It had probably been sent to America from China by Wilson during his 1907-8 journey. It is, no doubt, closely related to Stranvæsia undulata, another

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of Wilson's introductions now becoming pretty well known and appreciated in English gardens, but is of taller, more robust growth and very distinct also in its oblong, longer and proportionately narrower leaves. It is evergreen and may possibly develop into a small tree, the young shoots being densely clothed with brown wool. The flowers are produced on downy-stalked terminal clusters 3ins. wide, in June, each flower ½in. wide with five round petals; the stamens have red anthers which give a pretty tinge to the cluster. The flowers, however, are too fleeting to count for much and the chief attraction of the shrub is in the fruits. These are globose, red without the orange shade seen in S. undulata, and about ¼in. wide, remaining on the branches until November and December. The shrub is evidently very hardy and, producing its fruits freely, promises to make an attractive addition to the garden in autumn. W. J. B.

A NEW HEDGE PLANT

Lonicera nitida supplies all the requirements for an evergreen hedge. It is completely hardy and of rapid growth.

LONICERA NITIDA so amply meets the chief requirements of an evergreen hedge plant in our climate that it is curious that it has not been widely adopted for that purpose. It reached us from China some score of years ago, but I did not come across it and get plants until 1912. It was then offered as a new and rare shrub at a price varying from 3s. 6d. to 5s., and so conservative are our nurserymen that these attributes and values have lingered in some catalogues to this day. In a catalogue sent to me by Messrs. Gauntlett fairly recently—this firm have the bad habit of not dating their publications—the claim of rarity is indeed, abandoned, but it is still termed a "dainty specimen bush 4-5ft. high"; and, although the description ends with the sentence, "if clipped it makes a fine hedge," there is no quotation by the hundred or even by the dozen, and single plants are charged 2s. 6d. and 3s. 6d. I claim that if a demand equal to its merits had been created by publicity, it ought by now to have been put on the market at the same price as the common privet, a claim based on my experience of it, which is as follows:

Obtained for Mounton House in Monmouthshire in 1912, the plants, treated as "a dainty specimen bush," were set in a shrubbery which, during the war years, was not overhauled. Indeed, there was little time for much rearranging and replacing until 1920, when, also, the propagation department regained some vigour. It was noted that Lonicera nitida was among the few evergreens that had escaped the 1917 winter unseared, that it had grown into bushes 6ft. high and as much through, and that far from being dainty it was an aggressive neighbour, dangerous to small or slow-growing plants from the self-layering habit of the bottom boughs. It was also found that layering was by no means the necessary form of propagation, but that cuttings put in a frame or even in the open rooted without a single failure and in a very short time. These qualities gave the idea that its real sphere was as a protective hedge, easily raised, of rapid growth and complete hardiness, upright in growth and with leaves so small that clipping did not give the effect of laceration. It was certainly worth the experiment, and some five or six hundred cuttings were put in. In May of 1921, just before the long drought set in, most of the old plants were found to be too expansive for their position among other shrubs and—in order that their half-smothered neighbours might suffer least in the process—were pulled rather than dug out. Each broke up into several, and all were set to form a screen in the wood garden far away from the possibility of watering At the same time some yews of equal age were removed with the utmost care from one situation to another a few yards away. They were screened, syringed and watered for months, and yet quite a third of them were lost. But, although some of the neglected loniceras died back somewhat, every one came through the ordeal, and in 1922 regained what they had lost. Meanwhile the cuttings had been set out in rows and grew apace, so that in the autumn of 1921 the hedge now illustrated was planted in a garden then in its inception and situated in an exposed spot 700ft. above the sea. On the other side of the path, and therefore beyond the left-hand edge of the illustration, young bush fruit was set, and between the rows, awaiting a final destination, what was left over of the loniceras were aligned. During 1922 the hedge was left to itself, but it was clipped both early and late last summer. It was after the second clipping that it was photographed, and it will be seen that it is already trim and shapely. When the photographer came the operation of removing the surplus loniceras to their permanent place was imminent and so one specimen was dug up, a 5ft. 6in. high man set next to it, and the camera brought to bear. Thus not only the erect habit and general characteristics of the plant are shown, but its height, with the ball of earth resting on the path, is seen to be higher than the man. When set in soil it measured just under 5ft. Have we any other hardy evergreen that will reach such a height within three years of being a twig on the parent plant? Its habit of not only sending up several erect stems, but also laterals springing from the root stock is well seen in the illustration, and some of these, having formed independent roots, were removed before replanting. Thus, anyone using three year old plants for hedge-making can get stock for a hedge of six times greater length in the following season. And as to cuttings, so keen on survival is every twig that the clippings of the late summer trimming, having been thrown on a rubbish heap, quantities of them were found to have rooted when the heap was turned over at the end of October. They were rescued by the man who appears in the photograph, who has set them as a future hedge round his cottage garden.

Although, surely, many others beside myself must have recognised its merits, I had not until last summer came across any use of Lonicera

LONICERA NITIDA.
A clipped hedge of plants three years old.

LONICERA NITIDA.
A single plant three years old.

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nitida as a hedge plant except the one illustrated. But then I saw one at Mr. Eley's garden at East Bergholt in Suffolk, a garden with few equals for the variety and healthiness of its shrub collection. He had set the plants ten or more years ago to form a screen, intending to leave them to their natural growth; but they soon showed their trespassing character, and the shears were brought into requisition to restrict them to their own area. They are thus disciplined into an admirable hedge, stout, strong and dense, kept down to about 6ft. high and rather less through. Thus Mr. Eley has tested it for longer than I have, and that test establishes its many virtues, while—anyhow, so far—it has developed no vices. It flourishes alike in East Anglia and in the Western Counties.

H. AVRAY TIPPING.

A PATH EDGED WITH LIMNANTHES DOUGLASII.

SOME DESIRABLE ANNUALS

ONE of the pressing needs of the moment is the making out of seed lists, and it will, possibly, be helpful to draw attention to some good things that may generally be overlooked. There are a certain number of good annuals that may be advised for such a place as a border or bank in full sun—plants from California, Mexico and South Africa. Among them are some of the poppyworts—eschscholtzias, of which there are now such gorgeously coloured varieties, and Argemone grandiflora with its large white poppy-like flowers, much resembling those of Romneya Coulteri. This fine plant stands nearly 3ft. high, and the prickly-looking foliage is not the least part of its beauty. The Californian Bartonia aurea, more properly called Mentzelia Lindleyi, is a shorter plant. Arctotis leptorhiza has flowers of a fine orange colour and rises to about a foot in height. Dimorphotheca aurantiaca is another showy orange composite. Thunbergia alata is a trailing plant with dark-eyed cream and orange flowers that would suit the sunny front edge of the warm border. These last three plants are from South Africa. Arctotis and eschscholtzias may be sown in the open, and possibly bartonia, but the others should be raised in mild heat and put out in the first days of June. With the exception of the argemone they are all plants of strong, warm colouring that will make a fine show if planted in company. There is another desirable dimorphotheca, D. pluvialis, less suited to be planted with these, but a fine plant. The flowers are white, with the back of the petals of that pleasant quiet colour that is like diluted ink, such as one sees in that interesting plant Stobæa purpurea.

There are a certain number of annual plants whose small stature or neat habit makes them specially suitable for the rock garden or the top edge of dry walling, or anywhere where they are brought near the eye. Asperula azurea setosa is a charming little plant with lavender blue flowers, delightful in a still dwarfer setting of Alyssum maritimum; both are sweet-scented. Another little blue beauty, Anagallis cærulea, about 6ins. high, may well be in the same company; also Nolana prostrata and N. atriplicifolia, blue-flowered plants of prostrate habit, natives of South America, that can be sown where they are to flower. One hardly expects blue flowers from any stonecrop, but the little annual Sedum cæruleum certainly has a faint blue colouring. Grammanthes gentianoides, another tiny gem, sounds as if it ought to be blue, but the flowers are of a rich deep orange colour almost approaching that of the brightest mahogany. This and the sedum should be raised in pots and planted out just as they are, straight from the pots without any disturbance. Nycterinia selaginoides is a delightful little pale pink starry thing, so small that it would be lost on the level, but a wonder of form when seen close.

There is a splendid poppy that seems to be always forgotten, the tulip poppy (P. glaucum). The large flowers of deepest scarlet are among the most brilliant of its kind with its grand bloom and glaucous buds and foliage it is a more striking plant than P. umbrosum, which is more commonly grown. It is best autumn sown. The leptosiphons are good plants that are too much neglected; the rich colouring of the red and orange varieties have an effect of being diffused, from the small size of the abundant bloom. When once grown they appear again self-sown. They are not too large for places in bold rockwork.

The night-scented stock (Matthiola bicornis) is too often forgotten. It has no effect in the daytime, for the flowers are of no size and are of a

Photo, Sutton and Sons

THE BRILLIANT ORANGE DIMORPHOTHECA AURANTIACA

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dull pinkish, brownish colour. They remain closed till dusk, but when the light is gone they open widely and freely exhale their delicious scent, and are quite the best of the night-scented flowers of the hardy garden. Platystemon californicus has flattish cup-shaped flowers of a pleasant cream colour, with a spreading habit something like that of the better known Limnanthes Douglasii. Both of these are best autumn sown, when a single plant will cover nearly a yard of space. Platystemon when once established comes again by self-sown seeds. Lathyrus sativus is a pretty little blue pea of mildly climbing habit, about two feet high; it may be sown in place. The better, purplish blue L. pubescens will grow 4ft. high or more, but is tender and perhaps hardly to be classed with annuals. But the gem of all climbing plants is the splendid Ipomœa rubro-cœrulea. It should be grown in heat and planted out in June. It is usually seen in a greenhouse, but in a fairly warm summer on a south or west wall, its wonderful and perfect blue is a sight to see. The deep purple blue and a lighter tint of the same, of a good strain of the old Convolvulus major (Ipomœa purpurea), are also fine things; they are rampant climbers, up to seven or eight feet. A beautiful climbing annual that was in much favour fifty years ago is Maurandia Barclayana. It is raised in heat, potted off singly and put out in June. The foliage is delicate, and it has pretty purple flowers shaped something like a pentstemon; it should have a place near or against a warm wall.

Among annuals of large size there is the fine old Lavatera trimestris, with flowers of a good pink. There is also a so-called improved variety of a deeper colour, dangerously approaching an unpleasant quality of rankness. It is a case of progressing backwards! But another variety called Loveliness, also of a stronger colour, is without this taint. The pure pink lavatera groups charmingly with white cosmos, also a plant of some height. The habit of cosmos inclines to be straggly, but it can be bettered by stopping the growth at least twice, when it assumes a bushy habit and gives more bloom.

Biennials are usually associated with annuals, and one may mention the usefulness of the purple rocket and the darker kind of purple honesty (lunaria). The two plants are much alike, both in colour and habit, and are of great use in the back regions of any garden scheme of which the time is the month of May.

To return to true annuals, salpiglossis should never be forgotten. The tall kind is the best. The colourings of gold and mahogany, crimson and purple, all tone well together.

The tall African marigolds are indispensable in borders in the late summer and autumn, the best being the orange and the primrose coloured: the latter being a much better colour than the one of an intermediate yellow that is sold as lemon. Where there is a rather large space that it is desired to fill for the summer, the annual daturas, D. ceratocaula and D. cornucopia, are grand plants for the purpose; a single plant requiring four or five feet of space. Towering above and behind these, or in any other open space among shrubs, where something tall and large is required, the 8ft. high balsam, the white variety of Impatiens glandulifera, sometimes sold under the doubtfully correct name of I. Roylei, can be recommended. GERTRUDE JEKYLL.

FORTHCOMING EVENTS.

February 5.—Royal Caledonian Horticultural Society's Meeting, —— Croydon Horticultural Society's Meeting.

CULTIVATION OF THE GLOXINIA

CULTIVATION can be taken to mean the sprouting of the tubers which flourished last year or the raising of fresh plants from seed. First let us take raising from seed. And, before we set out upon purely cultural directions, it cannot be too strongly emphasised that strain counts, and so you will be well advised to procure your seeds from a reliable firm. With so important a flower, you are not likely to obtain poor seed if you pay a fair price for it—and a fair price is from 3s. 6d. per packet. Such firms as Messrs. Sutton, Carter, Blackmore and Langdon and Webb have strains that are above criticism, while the name of Peed and of Kelway's "Model" are so notably "specialist" that their excellence makes it impossible to arrange them in any sort of "order of merit." In whichever direction your choice may fall you are certain of the best, and that means a noble display of richly varied velvety flowers which expand for weeks in succession: with broad deep green leaves as a setting, and stiff erect stems that enable you to gaze right down into the centre of the flower and appreciate to the full the marvellous beauty of throat, stamens and stigma.

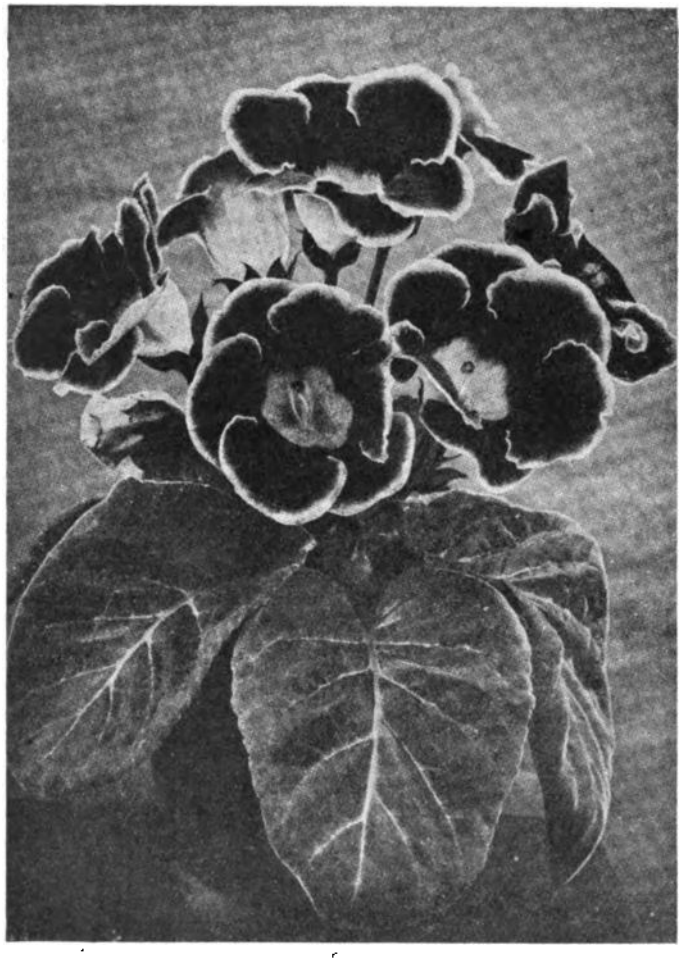

Photo. Blackmore and Langdon.

A GOOD TYPE OF GLOXINIA.

Gloxinia seed—when you open the packet—never fails to impress you as horribly expensive, there does look such a small amount of it: but, if one seed be separated out with the point of the penknife from the bulk and you then consider the size and quality of plant that it is going to produce, you will realise that the value is there. This brings us to the first point—thin sowing, no easy matter with such minute seeds. Personally I always follow the time-honoured dodge of mixing the seed with an equal bulk of fine silver sand, which enables thin distribution to be effected fairly easily. The best kind of sand to use is that supplied by the grocer for scouring purposes. It is not only very fine, but white, so that, in the dark soil, you can *see* just how thickly the sowing has been done. Consideration of the minute size of the seed and its even distribution leads naturally to the question of the most suitable kind of soil in which to sow this. A mixture of fibrous loam, peat, coarse sand and a small amount of leaf-mould cannot be bettered, and, in addition to thoroughly mixing these, the result should be sifted finely.

Shallow seed pans are the best receptacles, and, over the drainage hole, one large slightly convex crock should be placed, with several smaller ones upon the top of this: for no question must arise as to the efficiency of the drainage. Over this, fill the pan to within an inch of the top with the coarser part of the soil, finishing off with half an inch of the finest compost. Press this down firmly and then water through a fine-rosed can and set aside for a couple of hours to drain before sowing the seeds. It is possible to cover with the merest sprinkle of fine soil after the seeds have been sown, but I prefer merely to scatter on the surface and then to place a pane of glass and a sheet of brown paper on top. The glass prevents undue evaporation, the brown paper ensures that darkness which is essential to germination. Place the pans in a steady temperature—65° to 70° Fahr.—and see that the soil is kept evenly moist. The glass should be reversed twice a day to dispel condensation and prevent drip, and it will be some time before any further watering will be necessary. When it is, the water should be tepid, and the safest method of applying it is by standing the pans to half their depth in a pan and allowing capillary attraction to draw the moisture upwards until the surface has been thoroughly moistened. Allow the temperature to fluctuate as little as possible, and keep a sharp look-out for those tiny shoots which show that the seeds have germinated.

Directly germination is observed, you should dispense with the brown paper and allow the light to reach the seedlings: but light only, not direct sunshine. These wee seedlings are very easily injured by those bursts of spring sunlight that are so usual as the days grow longer. Nothing could provide a better demonstration of the

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advantages of thin sowing than those healthy little plants which result where it is *not* necessary to prick off until the seedlings have gained some size; but if you should find that, here and there, sowing has been done too thickly, it is better to prick out a few of the crowded plants and transfer them to other pans rather than allow them to crowd each other. These transplanted seedlings need care in handling; the main point towards success being to make quite sure that the soil is pressed into contact with the tiny roots on all sides. In all cases, the plants should be given single pots as soon as the leaves are half an inch long. Use a similar compost to that which was advised for seedlings, but without sifting.

When potting, care should be taken to finish off the soil so that the surface is slightly convex, with the plant upon the top: water will not then lodge in the crown, and care should also be taken not to bury this. Keep the atmosphere humid and the temperature even and grow on steadily in a good light, but always using the blind while the sun is shining. Atmospheric moisture is best ensured by damping the floors, etc., several times a day, taking care, however, never to wet the foliage of the plants themselves. There can be no question that they grow fastest and do best when stood upon a closed staging, covered with shingle or ashes. Close warm humidity, indeed, is *the* secret of rapid growth of seedlings, but sufficient air should be admitted to keep the atmosphere fresh and prevent a stuffy feeling.

By the end of May or some time in June the plants will be ready for 5in. pots and, when they have filled these with roots, buds will begin to appear. Through the summer, take care that the plants are never crowded: each one should have sufficient space for those broad leaves to curl over the rim of its own pot without touching its neighbour, so that air can circulate freely between them. Seeds may be sown in January, February or March, according to the temperature at command—though it may be remarked in passing that splendid batches of seedlings can be raised at an early date, by the aid of a propagating frame. Maintain the plants in this frame until the temperature of your house has risen by the aid of the sun, etc., then gradually give more air and remove them to the staging of the house.

Where a stock of tubers—grown on from previous years—has to be started, February and March are the best months for doing this: although, where very early flowers are wanted, a few tubers may be placed in brisk heat soon after Christmas. The later period is the best for the main batch, following up—where late flowers are desired—with a small batch that has been kept cool in April. The initial procedure is the same in every case, and consists in embedding the tubers level with the soil in shallow boxes filled with light soil. Place these in brisk heat and keep the soil moist by regular overhead sprayings; but take care that this is not excessive, so that the soil becomes sodden and the tubers are constantly covered by beads of water. Directly top growth begins this spraying should cease and the soil only be watered. Do not allow top growth to advance too far before the tubers are placed in single pots or the roots will become entangled and cannot be separated without damage.

Pots double the size of the tubers should be used, while the drainage should be very perfect. Make a compost of equal parts of fibrous loam, peat and well decayed manure, with enough coarse silver sand to make the whole feel gritty. The tubers should only be just covered with soil and, until growth becomes active, only moderate supplies of water are needed, increasing this as the growth develops. Keep near the glass and observe precisely similar conditions to those advised for seedlings. At the end of a couple of months, large tubers should be given larger pots and (with those that are four or five years old) truly amazing results can be produced. A plant bearing 130 blooms, expanded at one time, is not an impossibility under good culture; and four or five such plants, grouped on the staging, form a sight that is not likely to pass from the memory.

When buds begin to push up, feed generously, but always use your stimulant weak and vary it as widely as possible. Soot water is splendid for giving depth of colour to the foliage. Clay's fertiliser, sulphate of ammonia, and liquid made from cow manure, are all invaluable in imparting intensity to the flowers.

While in full bloom, cooler conditions are desirable, and the flowers remain in good condition much longer than where subjected to stronger heat. As the autumn draws on, however, you should be prepared with the fire, so that a little heat can be circulated through the pipes at night; otherwise the moisture in the atmosphere will condense, in the form of cold dew, and every bloom will be peppered with brown dots.

As the flowers pass, give the plants plenty of air and very gradually reduce the supply of water until the last leaf has completely yellowed, then store away the pots—with the tubers in them—in a dry place where the temperature will not fall below 50° Fahr. until planting time returns.

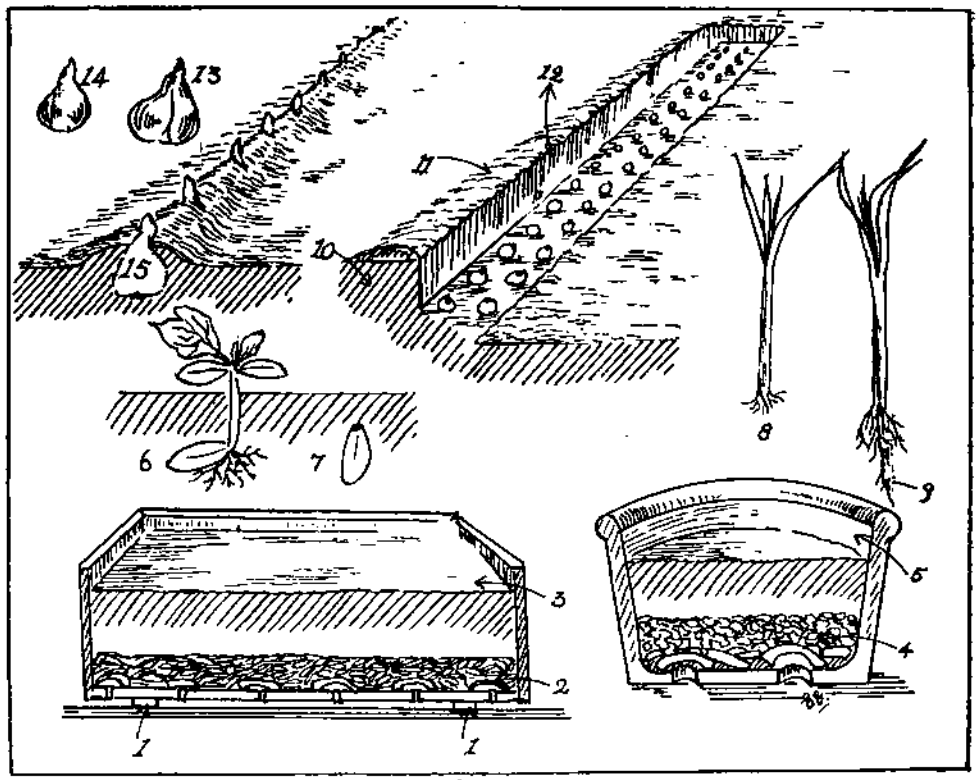
Special varieties, that it is desired to perpetuate true to name and colour, are almost invariably perpetuated by means of leaf cuttings taken from the parent plant in early summer. Choose an adult leaf and detach it from the variety you wish to increase, then nick through the mid-rib here and there with a sharp knife A pot or pan is then filled with light soil and surfaced with a quarter of an inch of sand. Water through a fine rose, and then lay the prepared leaf on the surface, pegging into contact at the nicked places with short wire pegs. Stand these pans in a brisk temperature and give sufficient moisture to enable them to root without setting up decay of the leaf.

In course of time, small swellings will appear at the nicked places, and these will ultimately develop into tubers furnished with leaves. A brisk growing temperature is essential to quick development, and the faster the young tubers can be grown on, the larger and stronger they will be before autumn. Where a sufficient temperature can be maintained, it is a good plan to keep them growing—all through the winter—as green plants. Losses during the resting season are thus avoided and large and early-flowering tubers are ensured

Whether you are dealing with seedlings, plants or leaf cuttings, the penalty of too dry an atmosphere will be thrips; the obvious remedy being to afford more moisture. Greenfly is not especially troublesome: but, when it does appear, several repeated light fumigations will clear it. Such insecticides as require spraying should be avoided, or the velvety leaves will be ruined. H. W. CANNING-WRIGHT.

TOPICAL NOTES ON VEGETABLE CULTURE

FROM day to day at this season, the sunshine perceptibly strengthens and the work of the gardener, in all branches, increases too. The wise cultivator has duly prepared the soil of the open borders, harvested a stock of compost in readiness for seedling raising under glass and also for the outside borders, where the natural loam is of a heavy nature. Not only are boxes and pans required for sowing seeds in but also for the reception of the seedlings, as most of them are improved by being transplanted once in other boxes before their final transplanting to the open border. At this season, warmth is essential to success. By the judicious selection



A

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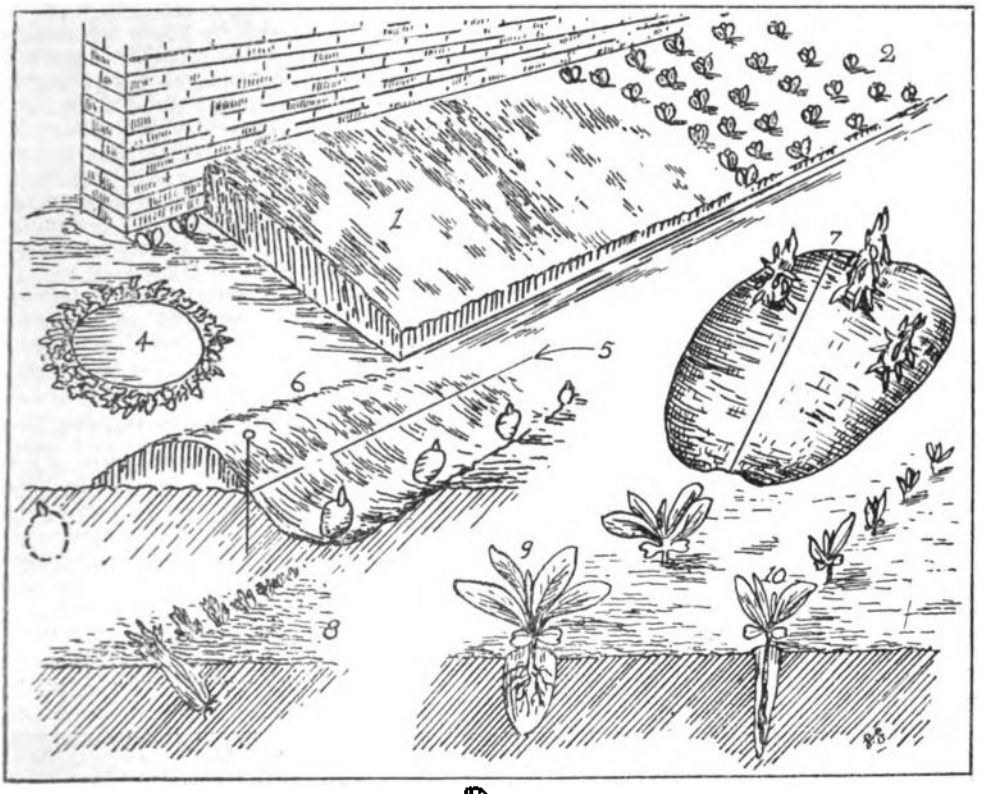
of naturally sheltered positions and the provision of temporary shelters, young plants are protected from cold winds, the soil is warmer than that in open borders and so we secure earlier germination of seeds than those sown in the former. Therefore a part of the work is done under cover and the other in the open garden. In many gardens there are enclosures in convenient places for frames and glass pits, and it is in such positions that great quantities of early vegetables can be grown independent of the start made in the open quarters of the vegetable garden itself. In these days only the most tender and refined vegetables count; there is not room for the rough and the coarse; consequently, the skill required is causing more and more interest and pleasure in the work.



B

BOXES AND PANS.—In Fig. A, Nos. 1, 1, show strips of wood nailed to the bottom of a seed or plant box. These strips not only preserve the box from premature decay, but also ensure more complete drainage, coupled with that shown at No. 2, the latter being half-rotted leaves. The bulk of the compost is shown at No. 3. This box is prepared for seeds and young plants. Nos. 4 and 5 respectively show drainage material and compost in a pan prepared mainly for seeds, such as those of tomatoes. In small pots the early cucumber plants can be raised in a compost of equal parts of loam and leaf-soil. No. 6 shows how the seed should be placed in the soil; not as shown at No. 7—if placed so the seed is, sometimes, lifted quite out of the soil during the process of germination. Many young onions and leeks will now be available for transplanting in boxes. The cultivator should be careful to preserve all the roots intact as shown at No. 9 and not mutilated as shown at No. 8. Early, round-seeded peas should be sown freely in warm borders in light soils and sparingly in those of a clayey nature. In the latter the drills should run from east to west or from north-east to south-west as shown in the sketch at No. 10, a ridge being formed on the cold side, even after the loose soil (No. 11) is placed on the seeds. No. 12 points to the north. Shallots should be freely planted during this month. In naturally moist soils early growth is encouraged by planting on tiny ridges raised with the aid of the draw hoe. Do not plant the divided sets shown at No. 13, but those similar to No. 14. No. 15 indicates the depth to plant.

THE SUNNY BORDER.—This is shown at Nos. 1, 2 and 3 respectively, in Fig. B. The raised and slightly rounded border is shown at No. 1, leaf-soil, odd loam, etc., should be mixed with the ordinary soil where the latter is cold and heavy. In such beds early potatoes, carrots, turnips, spinach and lettuces, also radishes may be grown, and the summer stocks of cauliflowers, cabbages, late leeks and, a little later, early dwarf beans, may be successfully grown. Where the soil is light or even sandy, it is the position that counts, chiefly; there is no need to have a specially raised bed, the plants being put in as shown at No. 3. While in a dry state the more forward specimens of endive should be blanched where growing by placing on them tiles, slates or boards shown at No. 4. Frequently the plants simply rot away if empty inverted pots are placed over them.

Plant potatoes in drills where the ground was manured for them last autumn. Do not tread down the soil more than can be helped; simply place the garden line, No. 5; open the drill 5ins. deep, cover the seed tubers with the loose soil, No. 6, and proceed to open another drill 2oins. away from the last one; plant the tubers 1ft. apart in the drills. Where it is desirable to cut well-sprouted tubers, do so as shown at No. 7; if the tuber bears two sprouts cut evenly; if three sprouts allow more tuber to the two, as shown, than to the single sprout; if divided into three allow, as nearly as possible, an even portion of tuber to each sprout. Rub dust charcoal on the cut sets and leave the latter in a dry shed several days prior to planting.

It may be necessary to take up the remaining celery plants in order to prepare the ground for other crops. If so, make a trench in a convenient place and "heel in" the celery close together, as shown at No. 8; firm the soil round the plants. Thousands of nice, useful plants of cauliflowers, cabbages and Brussels sprouts will need transplanting in nursery beds before their final shift to the open quarters prepared for them. In every case discard the dibber and use the hand trowel or fork, both for lifting and replanting. The future welfare of the plants depends very much on the careful handling they receive at this stage. Do the work of re-planting as shown at No. 9 and not as shown at No. 10.

GEO. GARNER.

THE EARLY-FLOWERING CHRYSANTHEMUM

DURING the past twenty-five years the early, or summer-flowering, varieties have been very extensively used for filling flower-beds and also for supplying cut flowers. If a judicious selection of varieties be made, flowers of really good quality will be available from the end of June till November.

Before the final planting work is done the wise cultivator will make his selection for both objects and treat the plants accordingly. From a miscellaneous collection some flowers will be available, but there will be gaps and the colours are sure to be mixed, the plants of certain varieties being dwarf, may be hidden by taller-growing ones. In the accompanying list the approximate height of each sort is stated, also colour.

CURRENT TREATMENT OF YOUNG PLANTS.—Cuttings may be propagated any time from January to mid-April; the ideal date, however, is the middle of February. The resultant plants grow, with ordinary care, unchecked till the flowering stage is reached. Those resulting from early propagation become hard-stemmed and stunted unless they receive suitable accommodation under glass.

I favour a rather rich compost for the cuttings to root in, also boxes in preference to pots, about one thousand cuttings being rooted in the latter annually, there being few losses. Boxes 5ins. or 6ins. deep are chosen, several holes are made in the bottom of each one, and a 1in. thick layer of rotted manure placed in the boxes. A good compost is used 2in. deep surfaced with coarse sand. The cuttings are inserted 2ins. apart, watered and covered with squares of glass. By placing the boxes so that the sun does not shine on them in the greenhouse or frame the cuttings are always exposed to the light and do not become unduly drawn up.

Roots form quickly and, in due course, the young plants should be transplanted in other boxes, retained in a cold frame for a time, then again transplanted in a nursery bed outside, or in a frame from which the lights can be removed to complete the hardening process before the final planting out about mid-May. Some gardeners grow on the old roots, but however well they may be treated, they never give such good results as young stock. Readers will, no doubt, have noticed the extra strength of the outside shoots of clumps of herbaceous plants, such, for instance, as those of phloxes. It is just the same with the old roots of border chrysanthemums. Where these old specimens must be depended upon they should be carefully lifted as soon as possible and all the strongest, outside suckers divided, the parts—small ones—being transplanted in a mixture of rotted manure, loam, leaf-soil and sand in a cold frame or in a nursery bed outside, where temporary protection can be supplied in

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case of severe frosts. The inside weaker suckers should be discarded, also the stem shoots. In the meantime the cultivator should be busy digging and enriching the border soil wherein the plants are to flower. I strongly recommend the enriching of the soil. Plants grown in a poor rooting medium are generally unsatisfactory. We now possess nice, dwarf-growing sorts, and when these furnish the border with strong stems and healthy foliage the blossoms on such are, as a rule, very attractive. In the case of heavy, retentive loam, well rotted leaf-soil makes a good substitute for rotted manures, and bone meal is always an excellent stimulant. Naturally poor soils should be trenched two spits deep, otherwise the plants will partly fail in such if we have a dry summer in spite of surface mulching.

One pinching or stopping of rooted cuttings in the early part of May will be sufficient. Simply remove the tip of the shoot.

A SELECTION FOR THE BORDERS.—Champ d'Or, yellow, 18ins., flowers from June to October; Carrie, yellow, 15ins., July; Mme. Marie Masse, lilac-mauve, August, 2½ft.; White Masse; Almirante, orange-bronze, 2½ft., September; Elsenham White, 3ft., September; Ena Thorpe, shell pink, 2½ft.; Fee Parisienne, rosy mauve, 3ft.; Fire Fly, crimson-scarlet, 2½ft.; Goacher's Crimson, 2ft.; Golden Glow, 3ft.; Mary Mason, rose, 2½ft.; Normandie, pink, 2ft.; Pink Profusion, 2½ft.; Provence, rosy pink, 2ft.; Red Almirante, Sanctity, white, 2ft.; Tonkin, reddish orange, 2½ft., all flowering in September.

The following are at their best in October: Champagne, crimson, 3ft.; Cranford Pink, 3ft.; Dolores, terra-cotta, 3ft.; Elenore, rose pink, 3ft.; Etoile d'Or, yellow, 3ft.; Mignon, mauve, 3ft.; Nellie Brown, reddish orange, 3ft.; Nina Williams, crimson and gold, 2½ft.; Red Emperor, 3ft.; Satin Rose, 2½ft.; Source d'Or, reddish bronze or orange, and Lizzie Adcock, its yellow sport, both 3ft., may be planted for latest flowering and to risk frosts with.

FOR SUPPLYING CUT FLOWERS.—Almirante; Brilliant, golden bronze; Cranford Pink; Eldraco, orange amber; Elsenham White; Goodwill, apricot yellow; Miss Burchfell, rose pink; Mrs. Ward, creamy white; Nina Williams; O. J. Quintus, pink; Pink Delight; Provence, rose pink; Red Almirante; Roi des Blancs; Sanctity; Verona, terra-cotta; Source d'Or and Lizzie Adcock. The selection is made with a view to good, distinct colour effect in beds and bowls, respectively. HANTS.

CORRESPONDENCE

BERBERIS BERRIES.

THERE appeared in THE GARDEN (December 1, 1923, page 626) an interesting communication by the Rev. Joseph Jacob on berberis berries. Mr. Jacob has asked to hear of the experiences of others who have made jellies or preserves out of these berries.

We have in certain sections of the North-western States of Oregon and Washington a profusion of Berberis Aquifolium and Berberis repens. Berberis repens grows close to the ground in a straggling bunch, but in favourable situations it makes an attractive and conspicuous plant. The fruit is a handsome blue berry with a "bloom" the colour of wild grapes, contrasting well with the foliage which turns red in the autumn. Berberis Aquifolium is similar but is more upstanding and has very shiny leaves and is a beautiful plant indeed. These plants are known throughout the Pacific North-west as "Oregon Grape," and incidentally they are our state flower and are favourites with a large part of our population, as they are highly useful for landscape gardening and for interior decoration.

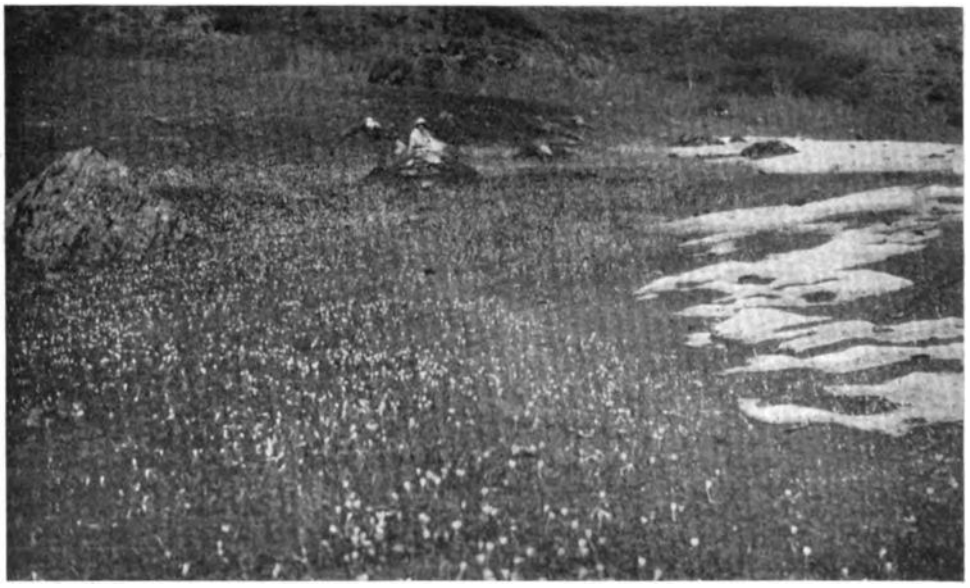
The berries of these two plants make a delicious jelly, and while it is somewhat tart, it has a fine flavour. It is doubtful whether many of our own people realise what a fine delicacy may be made from these fruits.—LEWIS A. MCARTHUR, *Portland, Oregon.*

WHITE GENTIANS.

I WAS much interested in seeing the pictures of Gentiana acaulis alba in the January 12 number of THE GARDEN, as we found it on three occasions when in Switzerland last June. We also found one plant of G. verna alba.—S. H. S., *Cornwall.*

CROCUS VERNUS IN SWITZERLAND.

I WAS very interested in the illustration of Crocus vernus in Switzerland which accompanied Mr. W. R. Dykes' most delightful article, "Some Early-flowering Bulbs," in THE GARDEN of January 5 last, especially so, as I had the pleasure of seeing these lovely little flowers growing in Switzerland last summer. Mr. Dykes says these flowers "appear in countless numbers . . . *almost* as soon as the melting snow recedes," etc.



CROCUS VERNUS IN SWITZERLAND; FLOWERING AS THE SNOW MELTS.

The enclosed photograph which I took shows that these little flowers actually come up and into bloom *before* the snow has completely gone. They are accompanied by the soldanellas, and the effect of the carpet on the dripping brown earth is wonderful. I thought that the picture might be of interest to your readers.—H. STEWART WACHER, *Canterbury.*

DISPENSARIES FOR SICK ANIMALS.

WILL you allow me to make an appeal to your readers for gifts for the gardening stall at our Shopping Fair to be held on February 25th, 26th, and 27th, at the Kensington Town Hall for the benefit of our dispensaries? Our work is growing enormously, many hundreds of sick and suffering animals being treated *daily*, and we are sadly in need of funds. We are therefore making a great effort to realise a substantial sum through our Shopping Fair and I feel sure that if your readers were to visit one of our dispensaries and see for themselves the vast crowd of animals, often in a terrible condition, which are brought to us, I should not lack a ready response to this appeal. I am also greatly in need of gifts for the produce stall, such as butter, eggs, cheese, cream, flowers, etc., and for the gardening stall I shall be very grateful to receive packets of seeds, bulbs, small rose trees, or plants of any kind. If any of your readers who are animal lovers will help me to raise funds to ease the pain of the thousands of pathetic dumb sufferers which would remain in their misery but for our dispensaries, I shall indeed be most grateful. Gifts may be sent to me at any time at 14, Clifford Street, New Bond Street, London, W.1. Perishable goods should be sent to the Kensington Town Hall on the days of the fair.—MIA DICKIN, Hon. Director, People's Dispensaries for Sick Animals of the Poor.

PROTECTING AUTUMN FRUITS.

A PEER whom I had the honour of serving was very fond of gooseberries. He was proud of his grapes when they were good enough for his visitors to admire, and they sometimes were, but for his own eating he preferred the more plebian fruit. Adjoining the garden was a large wood, in which much game was preserved, and as the keepers would not tolerate a hawk, many small birds lived and bred there, and often paid visits to the garden. Some of them were helpful, others the reverse, while others again, notably the common sparrow, were a something of both. First the sparrows thinned the fruit-buds, sometimes severely; next they carried off myriads of insects to feed their young; afterwards when the fruit was ripe, supposing any buds had been left to produce it, the blackbirds and others came to be recompensed for the good they had done earlier in the season, but they were apt to take more than their legitimate share. Well, the peer must have his gooseberries, so in order to protect both the buds and the fruit a gooseberry house was built against a north wall. It was perhaps 60yds. in length and 5yds. or 6yds. wide. Its shape was like an ordinary lean-to, and it was covered with wire netting.

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We congratulated ourselves on saving the buds, but something else happened. Soon after the green leaves appeared there were hosts of caterpillars, which did much mischief before they were noticed. We managed to keep them somewhat in check by the application of insecticides, and later in the season we had a friendly visitor in the shape of a young cuckoo, which worked very diligently, and no more insecticide was wanted that season or the following one. This was the only instance I have ever known of a young cuckoo feeding itself. I have seen wagtails and hedge-sparrows working almost to death in trying to satisfy the appetite of their monster foster children, but in this case no other bird was ever seen in the enclosure. Late in September I was grieved to see my good friend lying on the ground, dead. It was starved, for there was hardly a caterpillar to be found, although I had seen a few a day or two before.

Then there were the wasps to fight against, but as I was authorised to pay for both queens and nests, these were not much trouble, even when they invaded the butchers' shops in the neighbouring town. Some thousands of queens were paid for, and though I am of opinion that some of them were not natives of that particular spot, their destruction was doing somebody good, and my employer did not grumble so long as they were kept out of my lady's boudoir and away from the gooseberries.

The variety of gooseberry which served my purpose best was Warrington (of pendulous habit), of which I had pecks of fruit hanging late in November and after the leaves had fallen. This was many years ago, and there may be other suitable varieties now. But gooseberries were not the only occupants of this cage. Morello cherries were kept long enough to be suitable for dessert, and if not sufficiently sweet for some palates, they made a beautiful dish for a large decorated dinner-table. Red currants, too, were kept till November and answered the same purpose. Then we had late plums, of which Coe's Golden Drop was the favourite, and when kept late this is a really delicious fruit. Our soil was fairly heavy; possibly, fruit would not keep so late on a light soil. Were I to build a cage for the same purpose now, I would have part of the structure movable. The upright part, which might be 3ft. in height, would be made in 6ft. or 8ft. lengths and placed on a bottom rail when in position and fastened with buttons top and bottom. These sections would be removed as soon as the buds had started sufficiently to be out of danger from the birds and replaced when the fruit was approaching the ripening stage.

A gentleman in this neighbourhood has a large patch covered with wire netting raised sufficiently high for one to walk under comfortably, and most of his small fruits, including strawberries and raspberries, are grown under it. It is a great convenience to be able to walk in and gather the fruit as required without the trouble of removing a net and the risk of leaving fruit partly unprotected when time is limited. It would be possible to grow a large quantity of gooseberries, currants and plums trained to the upright sides and in the winter and spring it might be utilised as a run for fowls, to the benefit of the poultry and the trees owing to the destruction of insects. Ducks especially would not leave many slugs to feast on the strawberries. A fixed wire cage will last many years, while nets composed of string will not. It also has some effect in sheltering from wind and spring frosts. In some districts where chemical fumes abound it is advisable to paint galvanised wire before fastening plants to it.—WM. TAYLOR, *Bath.*

GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

The Kitchen Garden.

Brussels Sprouts.—To secure really fine sprouts a long season of growth is required, and a piece of ground should be set apart for their culture. If not already done it should be given a liberal dressing of manure and dug deeply, leaving the surface as rough as possible. At the first opportunity a sowing should be made on a warm sunny border in lines 1ft. apart; but if a cold frame is available it should be utilised for raising such plants as cauliflowers and Brussels sprouts. Two or three inches of fine soil should be placed in the frame, and the seeds sown broadcast. When germination is effected, admit air, and grow them cool to ensure strong, sturdy plants. Aigburth, Exhibition and Scrymger's Giant are all reliable kinds.

Cabbage.—To supplement and follow the spring crop, a sowing of a quick-growing variety, such as Earliest or Wheeler's Imperial, may be made in boxes containing light soil. Place them in a cool greenhouse or frame, and when the seedlings are large enough to handle prick them off in a cold frame a few inches apart.

Broad Beans.—Where this vegetable is appreciated a substantial sowing should now be made. The Long-pod varieties are well known, but for quality the Windsor type should be chosen. Plant either in single or double rows, the former placed a foot apart and the latter about twice the distance.

Herbs.—New beds may be made any time now, lifting half the existing beds of perennial kinds, such as mint and tarragon, and after dividing them replant in a fresh spot which has been dug and afforded a dressing of manure. Sage, basil, marjoram and the common thyme may be raised from seed. Seed may be sown now in boxes, or in the open ground in March or April.

The Flower Garden.

Lobelia cardinalis.—There are several varieties of this fine tall plant, and perhaps Firefly is one of the best. They are usually lifted in the autumn and stored in a frame, and where this was done the clumps may now be divided into single crowns, potting all the strongest in 3in. pots. The remaining species, if needed, should be placed in boxes containing sandy soil for growing on. For a few weeks the plants should occupy a heated pit, but when well established a cold frame will suit them admirably.

Frames.—The occupants of cold frames, such as violets and violas, intended for the rock-garden will need attention from time to time, and each day due regard should be paid to ventilation. Pinch out the centres of violas and calceolarias, so as to produce nice plants with several growths, and remove all dead and decaying leaves. Stir the soil between the plants lightly with a pointed stick. When the weather is favourable the lights may be removed, especially during the day.

Dahlias from Seed.—Raising seedlings is always an interesting pursuit, and if dahlia seeds are procured from a reliable source some really fine flowers will be obtained. If the seeds are sown now useful plants will be ready for planting out in May. Both the single and pæony-flowered sorts are decorative and useful for cutting purposes. Sow the seeds in well drained pans containing light soil, and raise the seedlings in a warm house or pit. When large enough, transfer them singly to small pots and gradually harden them off till they can safely occupy a frame from which frost is excluded. The young plants should not be starved, but potted on if needed.

Dianthi, especially the rock-garden kinds, can be raised from seed. A little heat is needed at this season until the seeds have germinated; afterwards cool treatment should be the rule. August is also a good month for sowing seed.

The Hardy Fruit Garden.

Planting.—The greater part of January was too unfavourable for the planting of trees, but with better conditions such work should be finished as soon as possible. Those planted earlier in the season should be examined, to ascertain if they have become loose in the soil or if stakes have chafed the bark during rough winds.

Figs.—In some gardens it is the custom to protect the trees during bad weather, and now such material should be removed if the elements are favourable. Any pruning and nailing necessary should receive attention; the former consists chiefly of thinning the shoots rather than cutting the young growths back. Prevent overcrowding and see that the main branches are made secure to the wall. Such work may be carried out during the next few weeks.

Birds.—The bullfinches and allied species are often troublesome at this period of the year in destroying buds of cherries, damsons and plums. Later on gooseberries and currants, and also pears, are attacked. Lime and soot and spraying with quassia extract will keep them off for a time, but for the small grower or private gardener netting the small fruits will be best.

Vegetables Under Glass.

Tomatoes.—A liberal sowing is advised about this date, which will furnish plants for growing in the greenhouse, and outside, providing accommodation can be found for the latter until it is safe to plant them out in the open. Sow the seeds in pans or boxes, and place in a temperature of 60° Fahr. When the young plants have made about three leaves, pot off singly and keep them near the roof glass. T. W. BRISCOE

(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

The Kitchen Garden.

Peas.—Pride of place should be given to this very choice vegetable and those favoured with a garden enclosed by high walls and having a south border should, if the soil has been well cultivated and manured, make a sowing of an early variety. Ameer, Earliest of All and William the First are reliable varieties, while The Pilot, although taller than some of the other early kinds, is very dependable, and takes the lead as a first early. Sow in lines 8ft. apart so that early potatoes may be grown between the lines. Those having a heavy soil should take out lines 6ins. deep and place old potting soil along the bottom to the depth of 3ins., on this sow the seeds, then cover with a layer of the same material before filling in the rows. There is the alternative of sowing in boxes or pots under glass and setting out on the border when the plants are a few inches high.

Onions.—It is advisable to sow early, yet seed may still be sown and good results obtained. Here we use ordinary cutting boxes which measure 24ins. by 14½ins., and 4ins. deep. Place in each box some decayed farmyard manure and fill to within an inch of the top with ordinary potting compost. When the surface is smoothed, sow the seed thinly and cover with fine soil. Afterwards place the boxes in one of the vineries. Ailsa Craig and Cranston's Excelsior are two splendid varieties.

Cauliflowers.—Early Snowball should be grown by all, as it is a first-rate early. It is most important that the seed should be sown thinly. Other seeds to sow now, and raise in heat, are celery, lettuce and tomato.

The Flower Garden.

Sweet Peas.—Poor indeed would be the summer and autumn supply of cut flowers without this beautiful and generous annual. To get good results the ground should have been properly and liberally manured some time ago. For one section of our sweet pea hedge we sow the seeds now in V-shaped boxes each 6ft. long, 4in. boards are used to construct the boxes, and smaller pieces of wood are fixed at the ends, and so placed that the boxes stand quite steady when in use. The ends can easily be detached, and the plants slipped into the prepared ground without much disturbance when planting time comes. The boxes are filled with ordinary potting soil and pressed level; holes are made between 2ins. and 3ins. apart and about 1in. deep, in two lines, and a seed dropped into each hole and covered over. The boxes are then placed in one of the greenhouses and watered. Varieties are numerous, but any of the well known kinds enumerated in the catalogues of high-class seedsmen will give satisfaction.

Geraniums.—If these plants are used for summer bedding the young rooted cuttings should be placed separately in 4in. pots—or massed if this old custom is still practised—and the plants placed in a brisk heat for a few weeks. Antirrhinums and East Lothian Stocks may still be sown in pots

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or pans filled with fine sandy soil and raised under glass.

Fruit Under Glass.

Vineries.—The work of thinning and pinching the young growths in the early house should be done at intervals, and a night temperature of 55° to 60° maintained. In the late house the cleaning of the woodwork and vine rods should be done without delay. Gishurst Compound is a useful and safe insecticide, and the proportions to use can be ascertained from each box.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

GREENHOUSE AND CONSERVATORY.

Sweet Peas that were sown during autumn and are now in 48-sized pots, should be ready for a shift into the pots in which they are to flower. These pots should be eight to ten inches in size. The potting compost should consist of a good loam, some dry well decayed cow manure, a six-inch potful of fine bone meal to every bushel of compost and enough sand or old mortar rubble to keep the whole open and porous. The plants should be potted firmly and stood in a cool, airy greenhouse. Water should be very carefully given until the roots get a good hold of the fresh compost. The plants should be grown under perfectly cool conditions at all times, and in their younger stages should be supported with some slender sprays of hazel and as they increase in length kept neatly tied to slender canes.

Ardisia crenata, with its dark green foliage and bright red fruits is a very useful plant for the conservatory, as the fruits remain in good condition for at least six months. This plant takes three years to reach its fruiting stage so it is therefore important to keep up a succession by raising a batch of plants each year. This plant may be propagated by means of cuttings at this time, but they are really best raised from seed, which should be sown now. The seed pots should be plunged in a bed with bottom heat at command, as the seeds usually take some time to germinate.

Cyclamens raised from seed sown last August should now be ready for potting. If they have been grown in pans or boxes they should be placed in small sixty-pots; if, on the other hand, they have been grown during the winter in thumb pots they will stand a shift into large sixty-pots. The compost should consist of a good loam with a little leaf soil added, while instead of sand it is an advantage to use some old mortar rubble. Cyclamens enjoy a moist atmosphere at all times, and in their younger stages may be given a fairly high temperature—55° to 60° being suitable. As the season advances they should gradually be given cooler conditions and during the summer months are best grown in cold frames, from which the lights can be pulled off at night, so that they get the benefit of the dews.

Begonia semperflorens and its many fine varieties are in the south largely used for summer bedding, while in the colder parts of the country they are equally useful for the conservatory and greenhouse. They are easily raised from seed sown at this time. The seed pots should be stood in a warm house, and covered with pieces of glass until germination takes place; when large enough to handle the seedlings should be pricked off into pans or shallow boxes containing light rich soil. When large enough the plants may be placed in small pots, shifting them on as they require it. Five-inch pots being generally large enough for the plants to flower in. If desired they may be grown on in boxes, and afterwards planted out in a bed of rich soil in cold frames. By this method fine large plants are obtained which can be lifted and placed directly into their flowering pots.

Royal Botanic Gardens, Kew. J. COUTTS.

OBITUARY

MR. A. M. BURNIE.

IT is with much regret that we have learned of the death of Mr. Archibald M'Indoe Burnie, one of the directors of Messrs. Dobbie and Co., nurserymen and seedsmen, of Edinburgh. Mr. Burnie had been in ill-health for some little time, but was going about until shortly before his death, which took place at a nursing home in Edinburgh. Originally, Mr. Burnie was connected with the profession of banking in Rothesay, of which town he was a native, and where he was interested in public affairs and was a member of the Town Council and Burgh Treasurer. About thirty years ago he entered the firm of Messrs. Dobbie and Co., devoting himself with much success to taking charge of the financial department. Mr. Burnie was very highly esteemed and was an active member of a number of benevolent and social movements in Portobello and district. He was in his sixty-third year, and resided with his sister at 18, Hillhead Road.

Answers to Correspondents

ROCK GARDEN.

GERMINATION OF ANEMONE SEEDS (C., Surrey).—Seeds of Anemones alpina, sulphurea, Pulsatilla, narcissifolia and sylvestris, will germinate if sown in the spring, but, naturally, they will be longer in coming up. Many will probably lay dormant till the following spring. Keep the seed pots in a cold shady frame, and do not allow the surface to become covered with liverwort or moss. A layer of sharp silver sand will prevent this to a great extent. Seeds sown in the autumn and exposed to the frost during the winter usually germinate freely in the spring.

TREES AND SHRUBS.

SHRUBS FOR HEDGES (C. E. A.).—About mid-April is a good time to prune a hedge of Cupressus macrocarpa. It depends on the condition of the trees and the ultimate height of the hedge how soon it is desirable to commence pruning. If a height of 10ft. is proposed no cutting need be done this spring, but stop the leading shoots when 5ft. or 6ft. high. The Laurustinus, Viburnum Tinus, is a good shrub for an evergreen hedge in the south and west. The escallonias are popular hedge plants, E. macrantha being perhaps the best.

MALE AND FEMALE SHRUBS (W. J. T.).—It is only possible to determine which are male and which are female aucubas, skimmias and sea buckthorns when the plants are in flower or fruit. Some slight knowledge of botany is necessary to aid in distinguishing the parts of a flower. The stamens with pollen grains represent the male, and the pistil the female. In the great majority of flowers these two organs occur in the same flower and fertilisation is easy. These are termed bisexual flowers. In the case of the aucuba, sea buckthorn and Skimmia japonica the flowers are unisexual and borne on different plants. Only the female plants produce fruits but to pollinate the flowers about one plant in every six grown should be a male. In Skimmia Fortunei male and female organs are borne on the same plant.

MISCELLANEOUS.

TRANSPLANTING COMMON POLYPODY (F. G.).—This operation may be carried out in the early spring, just before the plants start growing. Choose a shady position and use plenty of leaf-mould and sand in the soil.

NAME OF FRUIT.—H. B. L.—Apple Minchall Crab.

NAMES OF PLANTS.—A. C., N. B.—1, Calanthe vestita rubro-oculata; 2, C. Bella; 3, C. Byran; 4, C. vestita rosea; 5, C. v. luteo-oculata.

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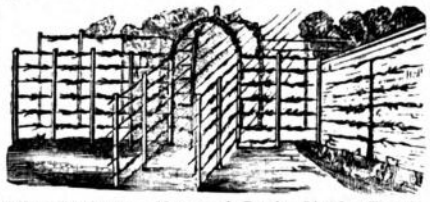

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THE GARDEN

No. 2725.—Vol. LXXXVIII.] [February 9, 1924.

DWARF-GROWING VERONICAS for the ROCK GARDEN

"Speedwell" is the common name for members of this genus, which consists of some 160 species of hardy herbs, shrubs and small trees, widely dispersed over the temperate and cold regions of the North and South Hemisphere. For the rock garden many of the low-growing kinds are very valuable, growing into large carpet-like patches that are covered in season with masses of flowers in various shades of colour. Pure white, blue of almost gentian hue, pretty shades of rose and rich purple are all represented in various species. Besides those species of herbaceous habit are some fine dwarf shrubby kinds, natives of New Zealand, which are beautiful in form, some resembling small conifers, while others take on the appearance of the club mosses. They are valuable evergreen plants, very useful for furnishing the rock garden during the winter. All are easy to grow in any good, well drained loamy soil, the herbaceous kinds being propagated by division in the autumn or early spring, while the shrubby species are easily increased by means of cuttings in the summer. Although some sixteen species are found wild in this country, only one, V. spicata, is grown much in gardens. Another well known plant is V. Chamædrys, one of our prettiest wild flowers. Taking the herbaceous kinds first, the following are some of the best and most suitable for growing in the rock garden:

V. Allionii.—This charming dwarf rock plant from Spain only grows 6ins. high and produces long spikes of lovely deep blue flowers from May to July.

V. alpina is a rare native plant that grows on some of the higher Scotch mountains, as well as being found over the whole of the North Temperate regions. It grows about four inches high, and bears blue violet flowers in short spikes during the months of June and July.

V. austriaca (syn. V. multifida).—This plant is almost tall enough for the herbaceous border, and may be welcomed in the rock garden for its neat habit. It makes bushy plants about 1ft. high and bears large flowers in long spikes of a good blue. These are produced in succession from June till early autumn, the var. pinnatifida, with leaves more deeply divided, has flowers of a deeper shade of blue. This species is a native of Europe.

V. bombycina is a beautiful species from Syria, with white woolly leaves and pretty blue flowers. It requires a sunny position in gritty soil, with protection for its foliage in winter from wet.

V. cæspitosa.—This is a rare plant, found in Palestine on the higher Lebanon, above the cedars. It also has white woolly stems and leaves with large pink flowers in small spikes. It requires the same treatment as the above species and grows about six inches high, flowering in June and July.

V. canescens is similar in habit to the well known Arenaria balearica, and is a miniature species from New Zealand. It is perfectly hardy in sandy soil, forming dense carpets of slightly hoary minute leaves on creeping, rooting stems. The pale lilac flowers are comparatively large and present the appearance of having been strewn thickly on a carpet.

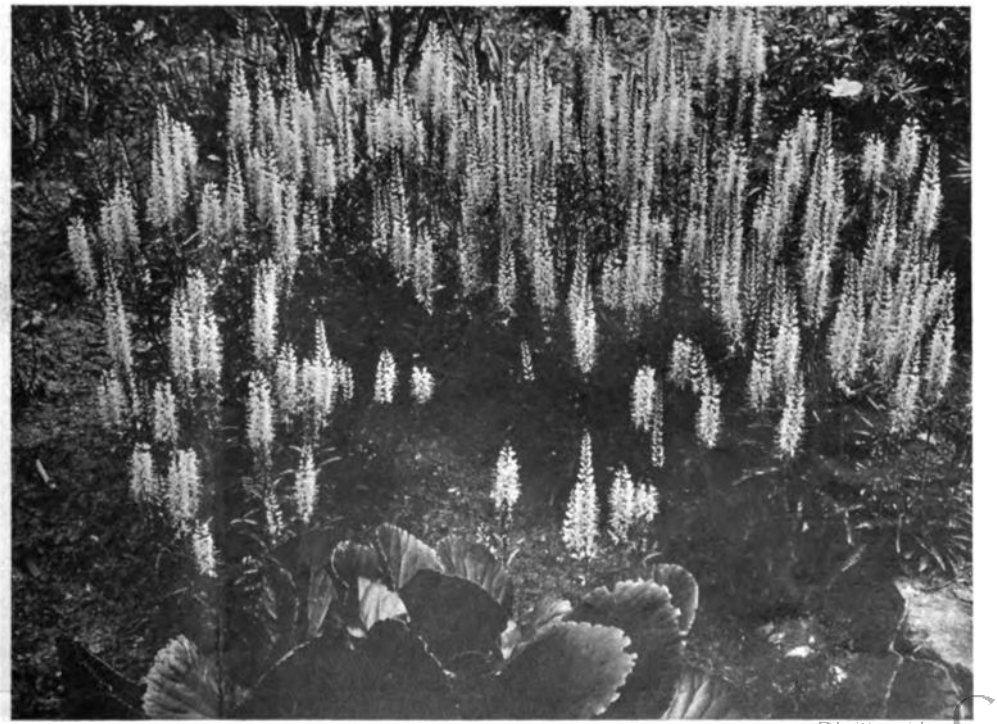
V. cinerea.—This is another hoary leaved species from Asia Minor with pale blue flowers that is somewhat tender in our damp winters. It requires a well drained sunny position.

V. filifolia has most elegant, finely divided foliage on stems about 6ins. high and should be grown in every garden. In May and June it produces numerous pale blue flowers in short racemes. It comes from Russia and is one of the most easily grown kinds, soon forming large tufts that flower profusely.

V. gentianoides.—Although more of a border plant, this is useful for the larger rock garden. Generally about 1ft. high, with broad leaves and long racemes of blue or white flowers, it is variable in habit and there are several varieties grown in gardens. It comes from the Caucasus and flowers in June and July.

V. incana is a very effective dwarf species from South and Eastern Europe, with silvery white foliage and racemes of deep blue flowers. The latter are produced on stems some 8ins. high during the months of June to August. Like many others it is very variable in habit, there being forms with larger leaves and flower stems 18ins. in height.

V. orientalis (syn. V. taurica).—This is a



AN IDEAL PLANT FOR THE ROCK GARDEN, VERONICA SPICATA ALBA.

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A GOOD FORM OF VERONICA INCANA.

somewhat lax growing plant, with diffuse or decumbent stems, linear entire or toothed leaves, and bears flesh coloured flowers in loose racemes during July. It comes from Asia Minor and grows about 9ins. high. The variety tenuifolia has narrow leaves and deep blue flowers.

V. PECTINATA is a prostrate species with trailing stems, the entire plant being covered with grey woolly hairs. It bears short racemes of blue flowers in May. A native of Greece, there is also a rose-coloured form that is prettier than the type.

V. PEDUNCULARIS.—Hailing from the Caucasus and Asia Minor, this plant grows nearly one foot high. It has pretty foliage and pure white flowers, the latter being produced from April to June. For many years it was grown in gardens under the name of Veronica "E. C. BUXTON."

V. PROSTRATA (syns. V. Teucrium var. dubia, and V. rup stris).—This is one of the most attractive species grown in the rock garden. It makes an evergreen carpet, and from May onwards produces a wealth of gentian-flowers in long racemes. The whole plant is only a few inches high, and is a valuable subject for massing, or for growing on ledges where the prostrate stems can hang down and form a curtain. There is also a variety with pure white flowers. A native of Europe, this plant has been for a long time classed as a variety of the variable V. Teucrium, an erect plant some 18ins. to 2ft. high. It is however, quite distinct, and V. prostrata is a more appropriate name.

V. SATUREIOIDES is a dwarf plant from Dalmatia with creeping stems and rich blue flowers in May and June. It is somewhat like the above but does not flower so freely.

V. SAXATILIS, "Rock Speedwell."—This is a beautiful little rock plant that is found on some of the higher mountains of Scotland. It is of tufted or trailing habit with woody stems 4ins. to 6ins. high and rich blue flowers ½in. across, with a crimson eye. It flowers from June to September. A plant frequently met with in gardens under the name of V. Guthriana is a form of this of more erect habit, and self blue flowers. There is also a pure white variety. V. saxatilis is found on most of the mountain ranges of Europe and is worth a place in every rock garden.

V. SPICATA is another native plant of variable habit, the smaller forms of which are ideal rock plants; some are only 6ins. high and bear dense spikes of rich blue flowers from August onwards. There are also forms with white and rose-coloured flowers.

V. TELEPHIFOLIA.—This is a remarkable prostrate plant from the Caucasus, with glaucous foliage and pale rose or blue flowers in May. It is an excellent groundwork for early-flowering bulbs.

A selection of the woody New Zealand species should include:—

V. AMPLEXICAULIS.—This is a decumbent shrub, with clasping, glaucous leaves. It grows about 1ft. high and bears short dense spikes of white flowers. Others closely allied to this, and similar in habit are VV. carnosula and decumbens.

V. ASTONI is a dwarf little plant only 3ins. high forming selaginella-like tufts and bearing pale lilac flowers.

V. BIDWILLII is an evergreen prostrate species forming a mat of interlaced stems. From these are produced long thread-like flower stems bearing short racemes of starry white of pale lilac flowers in June. It is a rare plant in gardens, the taller-growing V. Lyallii often doing duty for it.

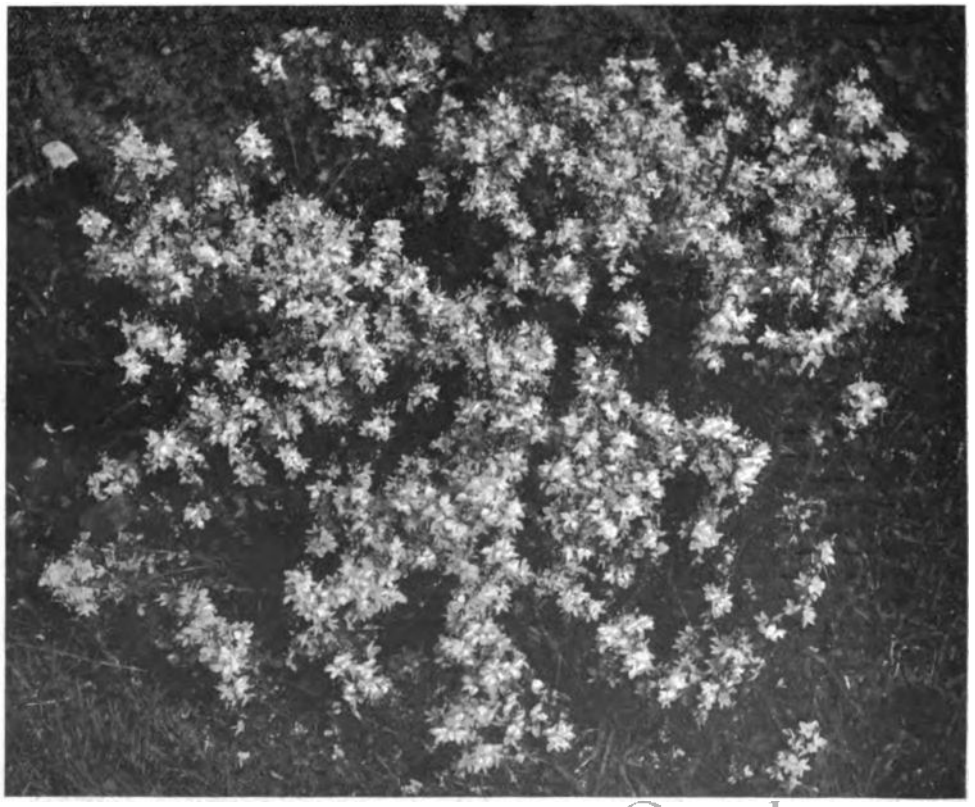
V. CATARRACTÆ is a small shrub 1ft. or more high, closely allied to V. Lyallii, differing in its larger leaves and dense racemes of white flowers. It is variable in habit like most of the New Zealand Veronicas, there being forms with smaller leaves and pink flowers which makes it difficult to distinguish from V. Lyallii.

V. CHATHAMICA is a small, prostrate, rambling shrub well adapted for covering stony banks in the rock garden, where it will thrive in partial shade. It has wiry pubescent leaves and large, dark purple flowers in short racemes.

V. COLENSOI.—This is a small shrub about 18ins. high, some forms having glaucous rounded leaves. It makes a handsome plant for the rock garden and is very free-flowering, its pinkish white flowers being produced in dense racemes during the summer months.

V. CUPRESSOIDES.—The plant usually seen in gardens under this name is a garden hybrid, the correct name of which is V. azurea. V. cupressoides makes a bush 2ft. or more high, of elegant habit, with much branched stems like those of some of the cupressus. The pale lilac flowers are borne in racemes during the summer.

V. LYALLII is a very variable plant, generally about 6ins. high, with slender stems, ovate, serrate



THE WHITE VARIETY OF VERONICA PROSTRATA.

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leaves, and white flowers with pink veins, darker near the throat. It lasts in flower for a long time during the summer months. Although it sometimes gets killed down to the ground in severe winter it breaks up freely from the rootstock.

V. LYCOPODIOIDES is a lycopodium like plant of nearly prostrate habit, with stems covered with small, densely imbricated leaves. It only grows about 6ins. high and bears white flowers in small, dense heads.

V. PROPINQUA (syn. V. salicornoides).—This charming little plant is of prostrate habit and only attains a few inches high. The leaves are small and closely set on the stems, while the whole plant has a golden appearance. In summer the small violet flowers are produced in short racemes.

V. PIMELEOIDES is a pimelea-like shrub of semi-erect habit up to 1ft. high with glaucous leaves and deep purple flowers in summer. It is a very ornamental plant for the rock garden.

V. PINGUIFOLIA has glaucous foliage like the above but more rounded leaves. The flowers are white and produced in June. Both are excellent plants for the rock garden with their evergreen foliage, which is very attractive during the winter. W. I.

SPRING TREATMENT OF TREES AND SHRUBS

WE give special attention to the pruning and mulching of fruit trees and bushes. It is equally necessary, if the best results are to be obtained, to prune and mulch ornamental shrubs. Although they interlink, it will be easier to discuss the subject of pruning deciduous shrubs and evergreen shrubs separately.

The pruning and thinning of the shoots of deciduous shrubs is intimately concerned with the flowering season of the genus or species. There are two main reasons for the work (1) the growth and maintenance of shapely bushes and (2) the development of flowering wood. The growth of the flowering wood naturally allows of the division of flowering shrubs into two broad groups, viz., (1) those which produce flowers on the previous year's wood and (2) those that blossom on the current season's growths. The first group, for the most part, flower in spring and early summer. Hence it is obvious that anything beyond the thinning of crowded shoots should not be attempted in winter or spring. The best time for pruning this section is after flowering: thus allowing new growths to develop and mature during the summer and autumn. Examples in this section include forsythias and Jasminum nudiflorum.

In order to encourage strong new shoots on the shrubs which blossom during summer and autumn, there are many it is possible to improve by liberal pruning during February or March. Examples include Hydrangea paniculata, Spiræa japonica varieties and Buddleia variabilis.

The thinning and shortening of the growths to obtain shapely bushes and sturdy well ripened wood is on a par in importance with that of pruning to obtain flowering wood. The best time for thinning is after flowering, but the actual time for the work need not of necessity be so closely practised as is done for flowering wood.

EVERGREENS.

A number of evergreen shrubs are highly valued as flowering bushes, but on the whole, rhododendrons excepted, their greatest asset is as ornamental evergreens. The best time to prune evergreens hard is during April or early May, when new growth is beginning. In actual practice many shrubs require little, if any, pruning, but in course of time, with succeeding years of growth, the bushes either become too large for their positions or grow leggy and not particularly attractive. Cases in point may be quoted of rhododendrons, Olearia Haastii and Veronica Traversii. These break away freely from the older wood when cut hard back, but it means sacrificing a season's flowers, though this loss is compensated for by vigorous new growths. The normal clipping of box, holly and yew hedges is done in July or August, but any severe cutting back into the older wood should be attended to in late April or May, according to the season. Through many years of growth or because of neglect during the war old hedges may have got out of hand. A good proceedure is to cut the growths on one side and the top hard back with the secateurs one year and a year later cut back the remaining side.

One of the worst hedges to get out of control or to need drastic treatment is the common cherry laurel. It is fortunate that the cherry laurel is also one of the quickest to recover from a hard pruning. Stems as thick as one's leg cut down in May to within 2ft. or 3ft. of the ground speedily send up vigorous new shoots. These may with advantage be topped once or twice.

In company with hard pruning cultivation of the surface soil round the bushes or along the hedges is important. Follow this up with a liberal mulching. Watering during dry weather and spraying morning and evening on sunny days will be beneficial. All cuts larger than the top of one's little finger should be dressed with tar to prevent decay and the attacks of fungoid diseases.

BUDDLEIA VARIABILIS IS EMPHATICALLY A SHRUB FOR HARD PRUNING.

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The very extensive collection of shrubs at Aldenham may be quoted as an ideal example of careful and constant shaping and pruning.

The list given at the end of this article of about fifty examples of pruning and mulching may serve as a guide to new lovers of flowering and ornamental shrubs.

MULCHING.

There are two main reasons for mulching trees and shrubs (1) the supply of additional nutriment to the soil and (2) conserving moisture in the ground for the roots. The most generally used material for mulching is decayed animal manure and straw. It is usually described as farmyard manure, which may mean a general mixture of dung from horses, cows and pigs. Stable manure infers horse dung, while perhaps the most valuable of all for general use is cow manure. We are not always in a position to practise the idea, but for preference use cow manure on light soils and horse manure mixed with plenty of straw on heavy ground.

The heating properties of horse manure are made use of in the preparation of hot-beds. While this property is valuable for some purposes it is harmful to young fibrous roots, hence, when mulching, only well decayed manure in which the heat is practically spent should be used. This is not the place to go into details with regard to the difference in the chemical properties of horse and cow manure, the subject being treated from a practical rather than a theoretical standpoint. Used in the garden the cooling property of cow manure in contrast to horse manure is a valued asset.

The introduction of motor transport has enormously reduced the supply of stable manure for horticulture, and in the neighbourhood of large towns sanitary bye-laws have caused the removal of most of the cowsheds to country districts, complicating matters still more. In addition to leaves, much more use could be made of decaying vegetable refuse as a mulch. In Cornwall and elsewhere bracken and twigs (prunings, etc.) are largely mixed with leaves as a mulch for rhododendrons. The twigs have an additional use in anchoring the leaves until well decayed. The stems of Michaelmas daisies, heleniums, helianthemums—in fact, all kinds of herbaceous plants—supply excellent material for mulching, in some cases perhaps reduced in length by chopping to render more usable. The question of animal manure for rhododendrons is a debatable point. We sometimes use one part of very well decayed manure to two or three parts of leaves, when the latter are light and flaky, to give body and some anchorage to the mulch. Decayed cow manure is preferable to horse manure. In some ways it is probably a waste of valuable manure, for rhododendrons are not gross feeders, decaying vegetable manure supplying all the nutriment necessary. Grass from lawns and other mowings provides useful material for mulching when applied with care. It is preferable to mix with leaves or twigs and mulch rather thin, otherwise the grass may become a close, wet, putrid mass and do more harm than good to the roots.

The question of when to apply the mulch must be largely a matter of convenience. With dahlias and sweet peas, for instance, the summer is usually well advanced and the ground warm before it is applied. It is perhaps the best time to mulch spring-flowering shrubs when the pruning is done after flowering. Against this must be set the smell and some mess in applying the manure. This would pass unnoticed in February or March, but may be objected to in public and some private gardens during May and June when the pleasure-grounds are at their best.

NAME.	*PRUNING.*	*MULCHING.*
Aucuba japonica	Shorten long growths to shape bushes.	Manure seldom required.
Bamboos	Cut out older canes to base if crowded or shabby looking	Good dressing of cow manure in May.
Berberis Aquifolium	Cut over bushes and undergrowth during April to maintain trim and well kept appearance	Mulching only required on very poor soils.
Berberis deciduous species	Cut out oldest wood about February to thin and shape bushes	Fruiting species improved by liberal mulching of farmyard manure in spring.
Buddleia globosa	Only requires pruning in April when bushes grow too large	Old hot-bed or mushroom manure in April.
Buddleia variabilis varieties	Cut fairly hard in March, the best flower spikes are borne on vigorous new shoots	Liberal dressing of farmyard manure in April or May.
Buxus sempervirens	Reduce size of box hedges and bushes, when required, in early May	Old hedges improved by dressing of cow manure in May.
Caryopteris Mastacanthus	Shorten wood of previous year in March	Old hot-bed or mushroom manure in April or May.
Ceanothus, spring-flowering	Shorten growths on walls and fences after flowering	Ditto. ditto.
Ceanothus, summer and autumn flowering.	Shorten growths of previous year in March	Decayed farmyard manure in May or June.
Choisya ternata	When required cut back branches to reduce size and shape bushes in April	Cow manure April.
Clematis, spring and early summer flowering	After flowering end May, June	Farmyard manure in spring.
Clematis, summer and autumn flowering	Take out weak growths and thin ends of most, prune Jackmani varieties rather harder	Ditto. ditto.
Colutea arborescens	Shorten previous year's wood in March	Farmyard manure in May if soil is poor.
Cydonia japonica varieties	Trim and shorten branches after flowering if required	Cow manure May-June.
Cytisus nigricans	Shorten growths of previous year in March	Manure seldom required.
Deutzias	Take out old growths after flowering	Farmyard manure in June.
Diervillas (Weigelas)	Thin out by removing oldest wood after flowering	Farmyard manure April.
Escallonias	When getting too big, reduce size of bushes, hedges and wall plants in April.	Cow or farmyard manure in April.
Euonymus, evergreen	Shape bushes by drawing out long growths end of April or May	A little hot-bed manure on poor soils.
Forsythias	Shorten old flowering shoots in April	Farmyard manure in April.
Fuchsias	Cut back to firm living wood or down to ground as required in March	Old hot-bed or mushroom manure in May.
Hydrangeas arborescens and paniculata	Hard pruning in March, thin crowded shoots at the end of April	Liberal supply farmyard manure in June.
Hydrangea Hortensia	Cut off old flower-heads and thin after flowering	Hot-bed or mushroom bed manure in April.
Hypericums	Liberal pruning in February or March	Well decayed farmyard manure in June.
Ilex Aquifolium varieties	Hard pruning end of April or May, clip hedges in July or August	Moderate dressing of farmyard manure.
Jasminum nudiflorum	Liberal pruning end March after flowering	Apply well rotted stable manure in April.
Jasminum officinale	Thin stems February or March	Ditto. ditto.
Kerria japonica	Cut out old flowering stems to ground end May or early June	Farmyard manure in June.
Laurus nobilis	Trim bushes of bay with secateurs in May	Old decayed cow manure in May.
Ligustrums	The golden and green-leaved privets may be cut back hard into the old wood during May.	Privets seldom require manure unless the ground is very poor or the bushes long standing.
Lupinus arboreus	Liberal pruning of the tree lupins should be done in March	Hot-bed or old mushroom manure in May or June.
Myrtus communis	The common myrtle should be pruned on walls and the bushes dealt with at the end April if required	Cow manure or ditto.
Olearia Haastii	The daisy bush should only be pruned when too large, then cut hard into old stems	Ditto. ditto.

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NAME.	PRUNING.	MULCHING.
Philadelphus species and named sorts ..	Thin out oldest wood end June to July, after flowering ..	Liberal mulching of farmyard manure in July.
Philadelphus Lemoinei erectus	Cut out old flowering stems down to ground each year after flowering	Ditto. ditto.
Phillyreas	When outgrown positions cut hard back to main stems in early May	Old farmyard manure only when hard pruned.
Prunus triloba flore pleno	Cut the year old flowering shoots hard back end of April ..	Decayed stable manure in May.
Rhododendrons, evergreen	Hard pruning if absolutely necessary should be done end of April Shortening of a few long shoots after flowering	Mulch with decaying leaves and other vegetable manures from May onwards.
Azaleas	Remove old crowded flower heads or stems after flowering ..	June ditto.
Ribes	Thin growths of flowering currants in April	Farmyard manure April or May.
Rosa species	Remove old wood of wild rose in February or March	Farmyard manure March or April.
Sambucus nigra foliis aureis	Cut back the stems of the golden elder in March	A little manure may be given in alternate years if the soil is poor. April.
Salix vitellina..	Prune back the red and yellow stemmed willows in March ..	Manure seldom necessary.
Spartium junceum	The Spanish broom gets very leggy unless pruned each year in March, especially young plants	No manure required.
Spiræas, summer and autumn flowering ..	Prune freely in March	Farmyard manure April or May.
Spiræas, spring-flowering	Thin in May and early June after flowering	Liberal dressing of farmyard manure in June.
Tamarix pentandra (syn. T. hispida æstivalis)	Prune the autumn-flowering tamarisk hard back in March ..	Seldom requires manure if soil good.
Taxus baccata vars	Any hard pruning required should be done in May	Cow manure in spring if thought desirable.
Tecoma radicans	Cut young wood hard back in March	Stable manure, June.
Veronica Traversii	Only prune when bushes overgrown, then cut stems well back into old wood in early May	Cow manure, June.
Viburnum Tinus (Laurustinus)	Tall unwieldy hedges or bushes may be hard pruned back to old stems in May	Cow manure or hot-bed. Manure in May.
Vitex Agnus-castus	Shorten previous autumn flower shoots in March	Ditto. ditto.
Vitis species (Vines)	Prune little or much as desired in December or Jaunary ..	Farmyard manure, April.
Wistarias	Shorten new trailing shoots in summer, spur back wall trees in February	Ditto. ditto.

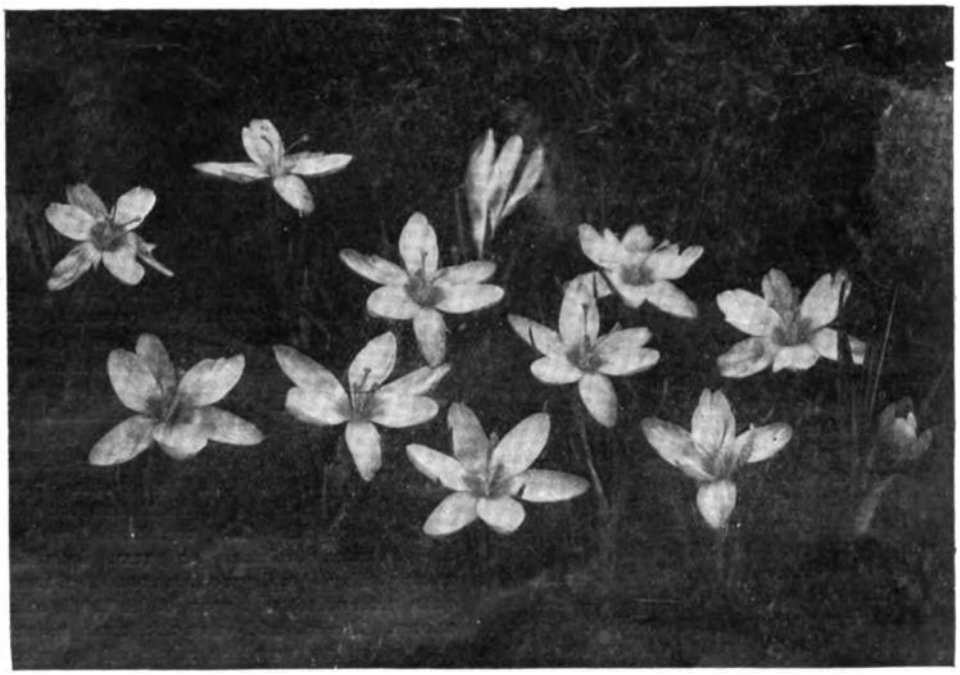
A. O.

EARLY HARDY FLOWERS IN A SUBURBAN GARDEN

THE last Sunday in January was bright and sunny even in a London suburb, and I expected that the heavy rains of the preceding week would have brought the buds of a few early bulbs to the flowering point. For some reason or other my early spring flowers are very late this year, and I wonder whether other gardeners are having the same experience. At first I was inclined to think that their lateness might be due to the fact that all my bulbs had to be lifted last summer and replanted in the autumn. This lifting tends, I think, to a more thorough ripening of the bulbs, which causes them to remain dormant until late in the autumn, and the new growths are therefore later in making their appearance above the ground. But it happens that I have some tulips and other bulbs which were dug up last summer in Asia Minor and Palestine, and all of them are very precocious in their growth. Is this due to the fact that the leaf growth was not mature when the bulbs were dug up, or what other reason can there be for their early appearance here?

Iris unguicularis is behaving well this year. I have to grow it in heavy clay in a most unlikely spot, but before planting my clumps I dug in a sackful of old mortar rubble, and at present I am picking some half-dozen buds every day. Of my neighbours, none seems to know it or ever to have heard of it, and they will hardly believe their eyes when I show them where I pick the buds. Then they begin to wonder why they do not all grow this wonderful plant, and I cannot help wondering too.

Iris Rosenbachiana has not enjoyed the change from the Surrey hills to Merton, and I am grieved to find that my plants are dwindling away. Usually I have had many in flower by the middle of January, but now there are only a few of the fat green points just breaking through the soil. I am afraid it means that most of the bulbs of the true early-flowering I. Rosenbachiana are dead and that there only remain a few of the closely related I. baldschuanica, which is distinguished by its white pollen and its later flowering habit.



CROCUS SIEBERI WITH BLUISH LAVENDER FLOWERS.

No snowdrops are out yet, though the buds are showing, not even the big, early-flowering hybrid which Canon Ellacombe used to grow at the foot of the famous wall at Bitton, where it was a wonderful sight in January. Somehow or other, it had got the name of Galanthus Imperati, though it is certainly not the true plant. The real species comes from the hills some ten miles inland from Naples and is a large-flowered late form of G. nivalis. I have, fortunately, been able to get a number of bulbs collected and, though there is considerable variation among them in the size and shape of the flowers, none of them is like the Bitton plant.

Another plant from the neighbourhood of Naples is one of the best, or even the best, of winter-flowering crocuses, namely, Crocus Imperati. The first flowers seldom fail to appear early in January, and the display goes on all through February, for each good corm sends up several flowers in succession. The buds of the typical form are

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of a pale light buff on the backs of the outer petals, usually with three feathery, brown madder veins running up them. The surprise comes when, as the sun grows stronger towards midday, these pale petals separate and show that the inner petals are a warm lilac, often of a distinctly pinkish shade. There is also a white form, in which the outer petals are tinged with cream.

Crocus Sieberi with its bluish lavender flowers is another sturdy species that is worth a place in every garden. Many of these were in full flower and formed a pleasing contrast to the rarer C. Korolkowi, the yellow flowers of which are veined and speckled with brown on the backs of the outer petals. Both these crocuses increase readily from seeds, and yet good patches of them are seldom seen.

C. Tauri from Cilicia is an amazing colour. As it grows in the garden it is easily the bluest of all crocuses, and when it is closely examined the colour is found to be almost ultramarine, which shades away into orange at the base of the petals. C. Tauri is, unfortunately, still very rare in cultivation, but the corms increase steadily, even if not very rapidly, by offsets. Equally rare is C. Leichtlini, which is really lovely in its delicate colouring. The three outer petals are white, shaded on the back with a light Prussian blue, which changes to green at the base. The inner petals are of the palest and most delicate cobalt blue, and the open flower shows the small orange stigma surrounded by green anthers with golden pollen.

C. chrysanthus was just beginning to flower. A few buds of the soft, butter yellow variety, E. A. Bowles, had already appeared, and one fine seedling with heavy crimson madder shading on its outer petals was already wide open. It had the typical rounded goblet shape and the strong scent of honey.

The last flowers of C. marathonisius from Mount Taygetus in Southern Greece were not yet faded, though the first appeared as long ago as the last week in October; and near them were the golden C. mœsiacus and the even deeper, strangely named C. candidus, which is distinguished by its very broad leaves.

Near them were the first flowers of Iris histrioides. The colour is a bright blue and the only fault is that there is no sign of the leaves when the flowers appear. For this very reason it is one of the easiest of the Reticulata group to manage, for its foliage has more chance of escaping damage by bad weather and of building up sound bulbs for the following year. The flowers of several specimens of the so-called I. sophenensis were close alongside and proved by their close similarity that it is merely a small form of histrioides. It shares its good constitution, for it has flourished with me now for some ten or fifteen years. When a bulb flowers it seems to die, but to leave behind it a numerous progeny of very small bulbs, which, however, grow on to flowering size in two or three years.

The only other iris was a very beautiful and richly coloured hybrid of I. Bakeriana and I. reticulata. The blade of the fall is of the most velvety, deep purplish black with a small central white patch and a yellow median ridge. This hybrid seems to be increasing, but it is one of the few survivors of the numerous varieties which resulted from the cross and which, unfortunately, were nearly all of them killed by unavoidable neglect during the war. The flowers are earlier and more brilliant than those of I. reticulata, and the leaves show their hybrid origin in the fact that they are cylindrical with six ribs instead of the eight of I. Bakeriana and the four of I. reticulata.

W. R. DYKES.

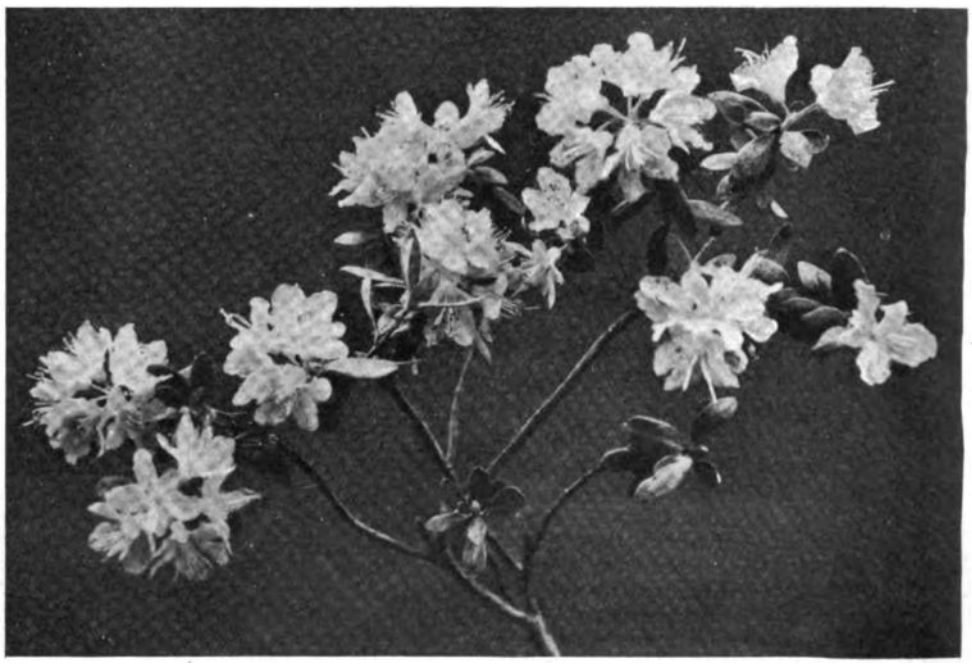
EARLY SPRING FLOWERS AT VINCENT SQUARE

VISITORS to the Royal Horticultural Society's Hall, Westminster, on January 29 must have found it difficult to realise that the drivers of the main line railway trains had "downed engines," for there was a better show than is usual in January, and there was also a large attendance.

Spring flowers, forced of course, were there in plenty, so that the hall presented a gay and festive appearance. The premier exhibit was a gold medal collection of hyacinths, tulips and daffodils arranged by Messrs. Sutton and Sons with their customary skill and taste. This delightful group was very extensive and, especially so early in the season, the flowers reached a high standard of excellence. Hyacinths were perhaps the very best, and these represented the four distinct classes—the large-flowered, the graceful "cynthellas," the multiflora hyacinths and the white Roman hyacinths. The multiflora hyacinths are particularly valuable for general decoration, as each bulb will easily produce upwards of twenty quite good spikes of flowers of all the hyacinth colours. The splendid vases and bowls of large-flowered spikes were the result of the special preparation given to selected bulbs, so that, if desired, they will flower as early in the season as Christmas. Among the very many varieties of splendid tulips Messrs. Sutton and Sons included their White Forcing, Cottage Boy, Keizers Kroon, La Reine, Montressor, Proserpine and Vermilion Brilliant.

A smaller, though graceful, display was made by Messrs. Carter and Co. with large shallow baskets of various hyacinths, Iris tingitana and excellent varieties of the dainty little Primula malacoides. Messrs. R. and G. Cuthbert set up many pots of good hyacinths with most fragrant freesias and desirable clumps of Christmas roses. A good collection of multiflora hyacinths was staged by Messrs. P. Hopman and Sons. These were single bulbs in 5in. pots carrying from six to ten spikes of bloom.

Irises were freely shown, and, besides the vases in Messrs. Carter's collection, I. tingitana was included with their greenhouse cyclamens by Messrs. John Peed and Sons. Messrs. Waterer, Sons and Crisp planted Iris stylosa and I. Sindpers with pretty little hardy cyclamens in their small rockery, and Messrs. Carter Page and Co. also had irises and hardy cyclamens.



THE ROSY MAUVE RHODODENDRON SCINTILLANS.

An interesting selection of the pretty little cyclamens was shown by Messrs. Barr and Sons in a selection of border and alpine flowers. Messrs. J. Cheal and Sons had a small rock garden thinly planted with forced alpines and early bulbs. Hamamelis arborea was shown by Messrs. Skelton and Kirby, and Mr. F. G. Wood had a restrained rock garden and his miniature gardens. The latter type was also shown by Miss Gladys Howse.

The first large-flowered rhododendrons of the year were displayed by Messrs. R. Gill and Son, who had good trusses of RR. argenteum and Nobleanum, with arum lilies and sprays of Erica codonoides. Small branches of Rhododendron Hodgsonii and R. Elizabethæ, bearing luxuriant leaves, were included in a miscellaneous collection by Mr. G. Reuthe, who also staged several green-flowered hellebores and a selection of alpines.

Very well grown little conifers of the type valued for planting in the rock garden were contributed by Mr. G. G. Whitelegg, who also had skimmias bearing a profusion of brilliant berries. In the corner near the orchid annexe Messrs. W. Cutbush and Son arranged a neat rockery and planted it with Pernettya mucronata, Daphne Mezereum, Christmas roses and other plants. Well flowered indica azaleas and Prunus triloba were shown by Messrs. L. R. Russell, Limited.

Carnations were present in their accustomed quantity and brightness. Messrs. Allwood Brothers, who also had their graceful Dianthus

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Allwoodii, showed such sorts as Marion Willson, Topsy, Chintz, Edward Allwood and Jessie Allwood. Mr. C. Engelmann staged Tarzan, Cupid, Laddie, Red Ensign and other sorts. Such good pink varieties as Eileen Low and Mrs. T. Ives were displayed by Messrs. Stuart Low and Co., and they had an adjoining collection of plants of Acacia Baileyana and a few other hard-wooded plants. Mr. John Klinkert again brought topiary specimens.

A very uncommon fruit exhibit was made by Mr. J. C. Allgrove, who brought splendid bush trees of Apple Ontario in pots. These leafless little trees still carried excellent fruits, illustrating their keeping qualities. He also had dishes of the Canadian variety, which is said to be a good general utility apple, and also showed fine dishes of Cox's Orange, King of Tompkin's County and Newton Wonder.

Messrs. George Bunyard and Co. had some baskets of brilliantly coloured apples. The chief varieties were Allington Pippin, Mabbott's Pearmain, Belle de Boskoop and Heusgen s Golden Reinette.

The garden sundries included a selection of Mr. Pinche's excellent everlasting labels, the Neeta label, gardening gloves, the Letchworth wall frame, the House and Garden seed sower and other appliances; and garden statuary by Messrs. Sander and Co.

Paintings of flowers and gardens were not so numerous as at recent meetings, but interesting pictures were shown by Miss Maude Angell—who also had dainty miniatures of gardens—Miss Winifred Walker, Miss G. Dorrien-Smith, Miss Alice Wilkinson and Miss Ellen Warrington.

NEW AND RARE PLANTS.

Carnation Freddie Ward.—In every way this is a good perpetual-flowering carnation. The shapely flowers are of good size and are borne on long, stiff stems, and the plants showed it to be a robust, free-flowering variety. The colour is a good clear crimson rather deeper in shade than Triumph. The petals are smooth edged and the flowers are deliciously fragrant. Award of merit. Shown by Mr. G. Carpenter.

Gladiolus Melleri.—Judged by the standard of the summer-flowering varieties, this would have little beyond its bright rose scarlet colour to recommend it. The habit is slender, and the flowers are few and small. But if the present is its normal flowering season, this novelty is very welcome and, in addition, we should expect it to have distinct value as a parent—the exhibitor informed us that he has other similar varieties. It was found on boggy ground at an elevation of 10,000ft. on Mount Kenya, British East Africa. The hooded flowers suggest Gladiolus primulinus, and it may be termed a very early, half size, rose scarlet G. primulinus. Award of merit. Shown by Mr. L. van de Weyer.

Rhododendron scintillans.—This belongs to the pigmy type of rhododendron, and its chief value is its early flowering out of doors. The pretty little trusses are a clear purplish rose colour. Award of merit. Shown by Lady Aberconway.

Odontonia Sheila.—The spike bore several handsome well formed flowers of clear brick red colour relieved by light flushing on the tips of the sepals and petals and a white margin to the lip. Award of merit. Shown by Mr. H. T. Pitt.

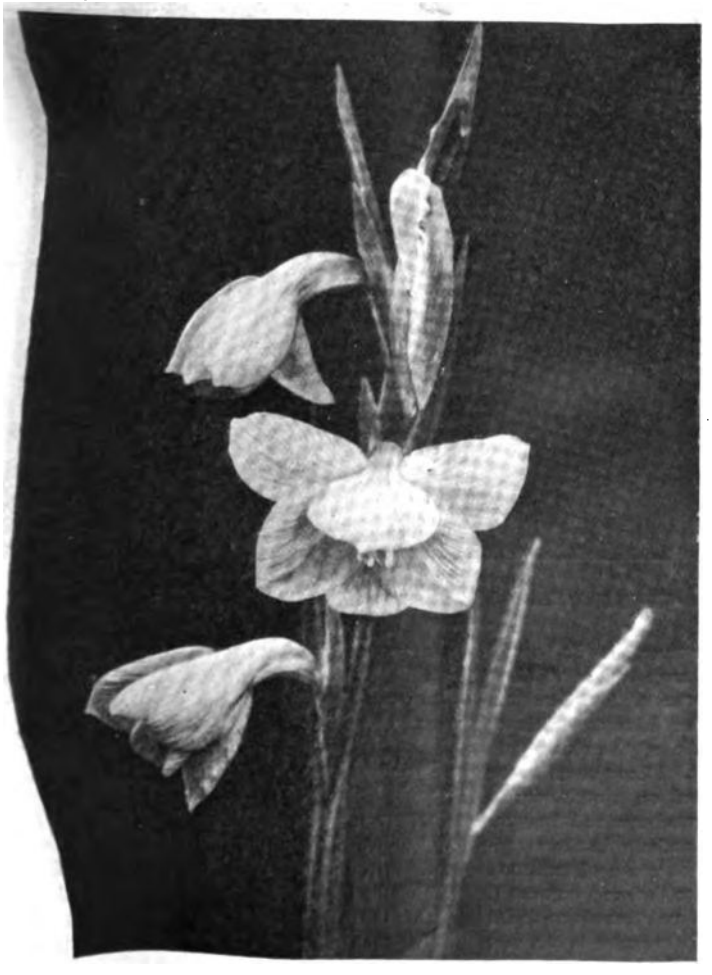
RHODODENDRON NOTES

THIS is the time of year when rhododendrons should be left in peace; although I am accustomed to play tricks with them at other times of the year, yet I never attempt to move them during January or February, when all root action is at rest.

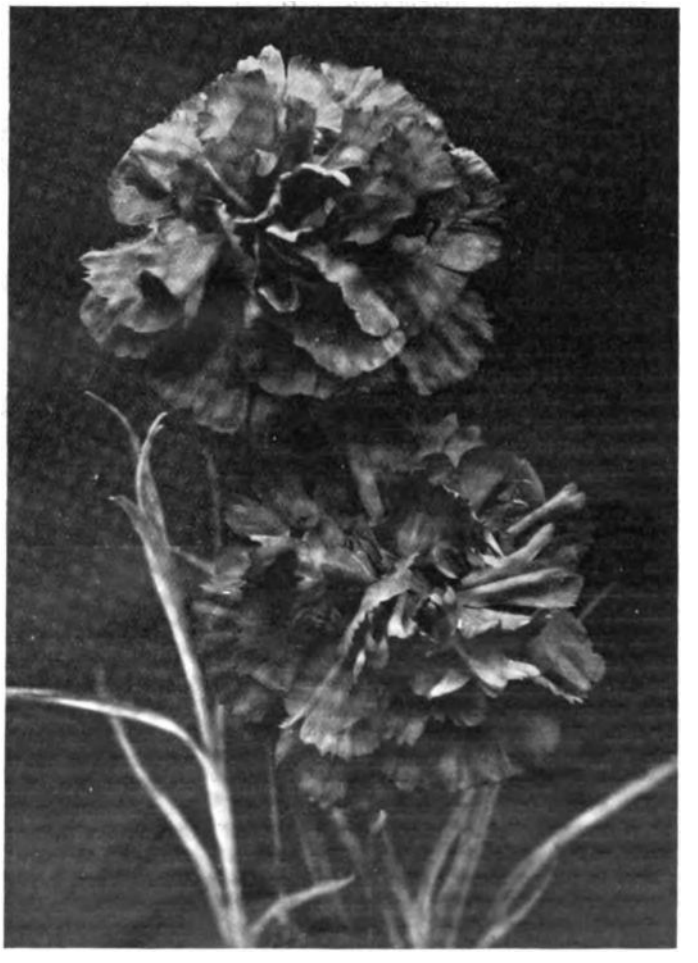
The dwarf species, such as the lapponicum series, have a habit, even inside a house or a frame, of drooping and of turning in colour to a dingy browny purple, which makes one imagine that they will never lift up their heads again. They will recover on the approach of spring or pseudo-spring, if they are kept moderately dry to prevent them from damping off.

In the case of seedlings planted outside, it should be remembered that it is a cold blighting ground draught which causes so many casualties while the plants are small. Once a seedling is 3ins. off the ground, if it is going to do at all, it is moderately safe. If your smallest seedlings in the nursery are showing signs of browning, it is as well to cover them entirely with dead leaves, so that nothing can be seen of them. On the other hand, it is a great mistake to coddle rhododendrons. If a common rhododendron is sick, throw it out, as they are extremely difficult to bring back into good health once they are ill.

A very rare plant is occasionally worth nursing. It should be brought into a house and planted in a pot or tub with plenty of room for root expansion. The soil should be enriched if possible with peat, but should not be so stiff that water will not drain away fast enough. All dead wood should be removed and the plant rigorously cut back with the exception of one or two healthy buds. E. C.



GLADIOLUS MELLERI FROM BRITISH EAST AFRICA.



THE NEW CLOVE-SCENTED CARNATION FREDDIE WARD.

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CORRESPONDENCE

THE GENUS ALLIUM.

THE genus allium consists of nearly 300 species, we were told on page 4 by "W. I.", so, naturally, in his useful article he was able to describe some of the more important only. But there are two others among the small alliums I should like to mention as particularly worth cultivating. The first is A. sibiricum which Linnæus described as a species, though it has sometimes been regarded as a variety of the common A. Schœnoprasum, L. Its beautiful bright rose-coloured flowers on quite short scapes are very elegant, and it is a more satisfactory plant than the larger and much paler A. roseum of Southern Europe, though that species has its charm. Many years ago I grew A. sibiricum from Cornwall on a rockery in a Somerset garden, but too much in shade and damp, so that some of the plants became a foot high and lost a little of their colour. In a dry, sunny position it should retain its normal compactness and brilliant colour.

A. Chamæmoly is a very dwarf and curious little species with three or four dull white flowers in umbels not two inches above the ground, and often almost lost in the sand in which it grows in Provence and other Mediterranean regions, where it flowers in January and February. The linear-lanceolate leaves are grass-like and hairy, and altogether it is a very distinct and interesting little bulbous plant which will grow in ordinary sea-sand in the South of England.

May I extol the beauty and easy growth of A. triquetrum so "well worth naturalising in the fern garden," as "W. I." says, or in an open shrubbery or woodland with plenty of moisture. It will also do well on the bank of a ditch, or stream. In Britain it is probably native in Cornwall, where it is somewhat widely spread. In Algeria it is cultivated as a vegetable. There is an old west country proverb which says:—

"Eat Leeks in Lide (March) and Ransons in May,
And all the year after physicians may play."

So the French are not alone in their appreciation of garlic!—H. S. THOMPSON.

FREMONTIA CALIFORNICA.

ALTHOUGH introduced nearly a century ago this singularly attractive shrub is still rare in gardens. This is the more surprising when one realises that it is hardy enough as an open-ground shrub in any of our westerly counties. Here it has withstood 20° of frost, losing only a few of its leaves, but it can generally be relied upon to come through any average winter with its full foliage unimpaired.

F. californica comes from the lofty foot-hills of the Sierra Nevada where it grows on the sunny flanks of rocky canons in sharply-drained soil, but the finest specimens (up to 20ft. high) are said to inhabit the eastern slopes (*i.e.*, the desert side) of that mountain range. In this country it is usually seen as a thin-habited shrub, 6ft. to 10ft. in height, with somewhat stiff, straight branches which, when young, are thickly coated with a scaly felt. Though the leaves are larger in California I have never seen them much above the dimensions of a good-sized gooseberry leaf with us. They are a dull green, normally three-lobed, thick of texture, slightly hairy above and felted beneath with a pale brown fur. The flowers, produced in early summer at the leaf axils on the old wood, are very short-stemmed and consist of a cup-shaped, five-parted calyx in a burnished buttercup-yellow, all glistening with golden hairs, the centre being filled with conspicuous clusters of orange stamens. These blossoms stand rough weather remarkably well, they last long and are often produced in such abundance that the foliage is almost entirely hidden by them. Seed is set freely and these afford the best means of increase.

In regard to the generally accepted belief that F. californica is a short-lived plant, it is interesting to note that in its own country this shrub is considered very averse to being watered during the dry season. Is it possible that planting against a south wall, as we often do, together with the practise of watering which we frequently indulge in, may be the cause of its dying-off while still young?—CAMBRIA.

SAXIFRAGA OPPOSITIFOLIA AS A MORAINE PLANT.

IT is, I think rather remarkable how few of our native alpines one sees grown with much success in gardens. Everyone grows Gentiana verna, but few make a success of it, and the native plants (usually inferior in quality to those from European Alps), do no better than those from imported stocks. Undoubtedly the gentian, in common with the charming Androsace Chamæjasme, suffers from the isolation to which it is subjected. Some kind of associated planting, such as Arenaria verna, is indicated for both.

SAXIFRAGA OPPOSITIFOLIA, AN ATTRACTIVE NATIVE ALPINE.

Saxifraga oppositifolia, however, in its many beautiful forms, is a much more amenable plant and few fail to grow and flower it. Yet it seldom looks really healthy and has a nasty habit of becoming bare in the middle of the clump and requiring frequent replanting. I have come to the conclusion that when planted on a rock garden ledge it is usually given too much sun and drought. Sun, no doubt, it gets in abundance in the mountains, but there is there no shortage of moisture. This, I fancy, is the reason for the good account it gives of itself in the moraine, and there is no doubt that where space permits, the moraine is the best place for it, along with the minute and charming (and closely related) S. retusa. I think the variety called coccinea is quite the best of the coloured forms of S. oppositifolia, but I do not agree with the late Reginald Farrer in his depreciation of the white variety, which, though starry, is very beautiful.—N. H. P.

A BEAUTIFUL PURSLANE.

AMONG the rock purslanes there are few, if any, better than Calandrinia grandiflora, a plant which is distinctive and beautiful enough to stand out as one of singular merit even among the many rivals which the lists of half-hardy annuals afford. This is a Chilian species and one that can easily be raised from seed sown in the open ground where the plants are to flower. But as it needs a warm, gritty, poor soil, those who cannot give it such accommodation may find it safer to sow indoors and move the seedlings out in May. Earlier blossoming will at any rate be secured in this way, though in our gravelly hot soil and genial climate we can get seedlings raised by out-door sowing in spring to flower in August.

C. grandiflora makes rosettes of long, narrow, fleshy leaves of a pale, glaucous green, usually tinged with purple. From the centre of these rises a stout but elegant stem to the height of a foot or more, and this bears at the tips of its branched extremities single flowers, about 1½ins. across, of an exquisitely delicate texture and a pure, bright rose with a centre of golden anthers. All the plant seems to need is as much sun as possible and the poorest of soil. Yet in spite of all these good qualities and the fact that about a thousand seeds can be secured for twopence, C. grandiflora is comparatively rare in the average garden.—N. WALES.

ASPARAGUS PLUMOSUS AS A POT PLANT.

UNTIL just recently I was quite unaware that the above plant would thrive in the atmosphere and surroundings of a cottage window. But one of the men here has given me ample proof that such is the case, inasmuch as he has a good specimen in a 7-inch pot, and this plant has been growing in one of the windows of his house for several years. It is quite healthy and a good colour, too.

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Is not this experience somewhat unique? I have always thought this plant required a moderately warm house, to say the least—and it is often found placed in quite hot temperatures—yet the above instance would seem to show it is possible to grow Asparagus plumosus under cooler conditions with splendid results, though no doubt the progress of the plant is slower when so grown. Has any reader ever known this foliage plant living in similar environs before?—C. T., *Ampthill.*

CAMPANULA LINIFOLIA AT MONT CENIS?

IN connection with the article "Alpines from the Pass of Mont Cenis" in the issue for December 8th, 1923, I have been puzzling over two points, and I should be glad if the statements might be confirmed. The first is with regard to the photograph of "Silene alpestris in the Alps." It is difficult to make out sufficient detail, but the photograph clearly shews this to be a flower of four petals. I believe silenes are always five-petalled, and in addition the petals of Silene alpestris are each toothed with four or five teeth, giving the bloom a fringed appearance. In addition Silene alpestris is an Eastern species, belonging to the Carpathians and the Alps east of the Dolomites, and does not belong to the French Alps. [The title under the picture was a slip (since corrected, page 670) for Silene acaulis.—ED.] The second point is in regard to Mr. Lofthouse's statement that he found Campanula linifolia on Mont Cenis. I do not question Mr. Lofthouse's accuracy, but, if linifolia is actually to be found there, it is a point of considerable interest. Thompson gives Campanula linifolia (Scopoli) as equivalent to C. carnica (Schiede), as being sometimes regarded as a variety of C. rotundifolia, and as being found in Carinthia only. Flahaut, on the other hand, gives C. linifolia as a species found in the Alpes of France and also as being akin to C. rotundifolia. But Thompson's linifolia is an entirely different plant from Flahaut's linifolia, and the figure of linifolia given by Flabaut bears no resemblance at all to rotundifolia. The maximum altitude of Flahaut's linifolia is given by him as 1,800 metres, and Mr. Lofthouse was considerably higher than that. This linifolia is very near to C. lanceolata of the Central and Mediterranean Pyrenees. Now what I should like to know is, whether the C. "linifolia" vouched for by Mr. Lofthouse on Mont Cenis is Thompson's linifolia or Flahaut's linifolia, or was it in reality C. rotundifolia? I mention the third alternative because it used to puzzle me why C. rotundifolia was so named and not named linifolia, until I discovered that the round, radical leaves of rotundifolia die away before the plant flowers. I seem to remember—I have not the book at hand to refer to—that in John's classic on English wild flowers, it is stated that "rotundifolia" is a misnomer, and this mistake—pardon me, if I forget—has not been corrected in the new edition by Mr. Clarence Elliott.—E. ENEVER TODD.

PETUNIAS AND VERBENAS FOR BEDDING.

I WAS much interested last summer in the behaviour of petunias and verbenas bedded out in the ordinary way in June, and other plants simply submerged in their pots and their roots restricted. The former owing to the abnormal amount of rain became rampant in growth, and it was not until quite late in the season that they bloomed to any extent. The pot-bound plants, on the contrary, commenced to flower early and made the beds quite showy, their cramped condition pushing them into bloom.—W. LINDERS LEA.

[Quite so; but suppose the season had turned out something like 1911 or 1921? Meteorology will have to be a fairly exact science before most of us will care to "bed out" in the way suggested. —ED.]

REMARKABLE FOR ITS MAGNIFICENT FOLIAGE, SPIRÆA MILLEFOLIUM.

GODFAYTHERS.

YOUR note to the correspondence on "Godfaythers" (December 29, 1923, page 679) I can corroborate, as I have heard it used both in Suffolk and Hertfordshire, but in the latter county the word "lawyer" is in more common use—meaning a prop or support to a badly built hay or corn stack. I doubt, however whether the two words are really synonymous.—J. H. KITTON, *Enfield.*

SPIRÆA MILLEFOLIUM.

ALTHOUGH perhaps not quite so attractive from a flowering point of view as some members of its extensive genus, this is certainly one of the most remarkable and interesting species. It is chiefly notable for its magnificent foliage. The leaves are from three to four inches long, bipinnate and their minute sub-divisions give them a strong resemblance to our common milfoil (Achillea Millefolium). The upper side of the leaf is greyish green, the undersurface covered with dark tomentum, while the petioles and midribs as well as the young wood are covered with a viscid gum, which gives off a strong pungent aromatic odour, said to resemble that of creosote.

An erect growing bush from three to six feet high, producing during July erect, terminal branching panicles, from five to six inches long of short-pedicelled white flowers with conspicuous yellow stamens, each individual flower being about half an inch across the flower stalk and the calyx covered with stellate hairs. This plant might be considered evergreen, although the leaves during winter are rather small and restricted to the extreme tips of the shoots.

It is distinct from all other shrubby spiræas by reason of its much divided foliage and is sometimes placed in a genus of its own as Chamæbatiaria Millefolium. Apart from its divided foliage, there are other minute differences, such as the way dehiscence of the seeds takes place, the shape of the seed, and so forth, but these are not generally considered sufficient to separate it from Spiræa. It is very similar in appearance to chamæbatia foliosa, and in Nicholson's Dictionary is given as a synonym of that, but the leaves of Spiræa Millefolium are bipinnate, whereas in chamæbatia the leaves are tripinnately dissected, while the flower structure is different. It was first discovered in 1853 by Dr. Bigelow in West Arizona, but has since been collected on the Sierra Nevada of California, and at an elevation of 10,oooft. in South Utah, and as far north as West Wyoming territory.

Here at Cambridge it is quite hardy, the dry atmosphere and soil being apparently what it requires. It should be planted in an open sunny position, and if the soil is too rich it encourages vigorous succulent growth which is likely to be injured during a hard winter. It is readily raised from seed, or from cuttings of half-ripened wood taken with a heel in August, and placed in a little bottom heat. Although introduced into this country as long ago as 1880 it is not common in gardens.—F. G. PRESTON, *Botanic Garden, Cambridge.*

WHITE GENTIANS OF THE ACAULIS SECTION.

REFERRING to your footnote to M. Correvon's "Notes from Floraire," (p. 18) last year my wife found and sketched a white gentian of the acaulis type which is clearly G. excisa (Kochiana). This was found above St. Gervais-les-Bains in Haute-Savoie. It was, however, only the whitest of a number of forms found at the same time which might be called "cœlestina." The coloured sketch shows that it was very clear white and very beautiful.—E. E. T., *York.*

THE FIFTY BEST ALPINES.

I NOTICE with interest "Purley's" reply in THE GARDEN of January 12 to my queries on his list of "Fifty Best Alpines." I see he is

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plagued with the same old enemies of alpine plants, namely, cats and slugs. Much disappointment would be avoided if we could rid ourselves of these. Does he notice what a lot of damage worms will also do? If he takes a look round his rockery after dark with a light, he will see worms coming out of the centre of many of his choicest small plants, especially Kabschia saxifrages. In doing this they eat their way through the crown of the plant and lift it right out of the soil. Then they proceed to drag the leaves of all plants within reach down the hole thus made. They also nibble off the young shoots of choice plants just as much as slugs do. I do not think "Purley" need hesitate to include Wahlenbergia vincæflora on his rockery. I grow it on my limestone moraine, where it is very happy and seeds itself freely. The flower-stems are only about 10ins to 12ins. high, and are very numerous. It blooms for a longer period than any other plant I have, beginning in June and usually continuing until the frosts cut it down, when it disappears until the following spring. The flowers are very pretty, of a pale blue colour and suggestive of an intermediary between a campanula and a periwinkle on thin wiry stems. "Purley" remarks that he does not know Dianthus gallicus or Polemonium carneum. The first is rather straggly, but atones for that fault in being the last of the pinks to come into flower, and also for its delicious scent. It commences to flower in August and continues until the frost cuts it. I have plenty of seed of it if he would care to try it. With regard to Polemonium carneum, I think it is one of the most distinctive of its race. The flowers are much larger than in any other Polemonium I know, and are of a lovely delicate flesh pink colour with a pale yellow eye. The plant seems to be quite easy and grows well anywhere. It blooms in June.—H. STEWART WACHER, 9, *St. George's Place, Canterbury.*

A CHARMING GRASS.

VARIEGATED foliage in ninety-nine cases out of a hundred looks best by itself, that is to say, when the flowers are so inconspicuous that they are never noticed, or when none is allowed to develop. The day of variegations has to a large extent gone by. The present generation of gardeners know not the famous "Mrs. Pollock." In the sixties and seventies of last century it would have been unnecessary to say more. To-day it is as well to state that Mrs. Pollock was the high water mark of tricoloured Zonal Pelargoniums. In gardens it was flowerless. Only in establishments where new varieties were sought after was the plant allowed to bloom. It was a wise restriction. Grasses are, obviously, a very different proposition from flowering plants, and in my humble opinion are the "very thing" for variegations. Mr. James MacDonald's smart-looking "all grass" exhibits proclaim the pleasing effect of different varieties suitably combined together and introduce us, if we look carefully at his groups, to some which we would find useful in an ordinary border of flowers. Among low-growing Grasses from 9ins. to 1ft. in height none, to my way of thinking, is as beautiful as Arrhenatherum bulbosum fol. var. There is a peculiar freshness and spruceness about its general appearance which is most attractive. The white and the green are such a good match for one another, and yet the contrast is very marked. There may be more than one strain of variegated-leaved Arrhenatherum bulbosum, so it may be as well to say that my plants came from Mr. MacDonald. It is so beautiful I would like to add to its already ponderous name Macdonaldi. It is worth it.—JOSEPH JACOB.

HOW TO OBTAIN GARDEN PEAS FROM JUNE TO OCTOBER

TO grow peas satisfactorily it is essential that the soil be properly prepared. Deep digging or trenching always gives good results even in the case of poor, gravelly ground. Well rotted manure is essential to success in the latter case to produce ample haulm according to the variety. A variety that should grow to a height of 3ft. will not be an economical plant at 18ins. high. If the plant is forced to a height of 4ft. or more through the use of rich organic manure or on account of the position being unduly shaded, it will not be a profitable plant. Haulm will be produced, but no flowers or pods in profusion. Peas enjoy an open position, and judicious feeding will be beneficial. About 6lb. per square rod of basic slag in the autumn, and 2 oz. of superphosphate per yard run of row, when the plants are about 3ins. high, will do a lot of good. To assist in the filling of the pods with good peas, dissolve 2 oz. of phosphate of potash in rain-water and apply at the rate of a gallon per 5yds. run of row when the majority of the pods are just formed. On light soils early surface mulching of the rows with litter, lawn grass or similar material will help to conserve moisture.

The trenches should be made at least 18ins. wide for each row. The rotted manure should be thoroughly mixed with the soil to a depth of 16ins.; there need not be any manure nearer than 5ins. to the surface, then the plants will be able to withstand a spell of dry weather—it may be just when they are beginning to flower. It is wrong to place rank manure, unmixed with the soil, in a very narrow trench.

SITE FOR EARLY CROPS.—There is no position in the garden more suitable than the raised border with a wall or adequate fence on the north side. This border may be a narrow one 7ft. to 10ft. wide; but the rows should run due north and south.

SOWING THE SEEDS.—The distance between the rows must be governed by the approximate estimate of height of each variety grown. The same distance between the trenches as the height—thus: the variety grows 2ft., or 4ft. 6ins., and so on—in cases where a number of rows are grown together.

Where a border is devoted to early, dwarf-growing sorts, I prefer to dig and manure equally the whole of the soil; then a flat-bottomed drill, the width of the spade and 3ins. deep, is readily made. The round-seeded varieties claim first attention and should be evenly sown, the seed being nearly 2ins. apart. Where mice are troublesome the seeds should be moistened and then rolled in red lead. Place on them half the soil removed from the trench.

Although early peas are appreciated the main crops are the most important and big crops cannot be grown unless full justice be done to the plants. If there is only room for four rows fully to develop in, do not attempt to grow six. The isolated rows—those grown about 9ft. apart with early potatoes or spinach between, are the most satisfactory. The crops named do not interfere with the welfare of the peas, but cabbages, winter greens and all of the Brassica tribe do, and should not be planted near peas, dwarf or runner beans. The same process applies as regards sowing as in the case of early varieties, but the seeds should be 2ins. apart in the flat-shaped drill; and 3ins. of soil will not be too much to place on the seeds on account of probable dry weather coming before the flowering stage is reached.

Two lots of sticks should be placed to each row; first, the dwarf fan-shaped ones directly the plants appear through the soil, and second, the taller ones when the plants are 6ins. high. The sticks should be driven into the ground firmly and in such a way that the tops will be about 1ft. apart. If the sticks meet in a point at the top the haulm grows through the sides two-thirds of the way up, and so fails to get the support it requires.

Peas rarely do well in dry weather if they are constantly soaked with cold water; a bad attack of mildew often being the result. The better plan is to apply a substantial mulch after a heavy rain, or before the soil gets very dry; or, in the absence of rain, immediately after a thorough watering.

Dustings of lime or soot, not the two together, will help to preserve the young plants from attacks by the weevil and fly, also sparrows. The plants are at their best at the time when young sparrows are numerous and these are not easily scared away. Netting good rows is worth while.

Strings stretched just above the rows, with pieces of glass attached at intervals, will help considerably. The pieces of glass should be securely fastened to the ends of short lengths of string, the twine depending from the overhead line.

The topping of the late crops will help in the matter of pod-filling. Only a few inches should be cut off and resultant lateral shoots should be pinched out, too. Standard varieties only are named as a guide in the following list:

Early Varieties.	*Date of Sowing.*	*Approximate Height.*	*Crop Matures.*
Pilot	February	24in.	Early in June.
English Wonder	Early February	18in.	Middle of June.
William Hurst	Mid-February	15in.	Middle of June.
Gradus	End of February	36in.	Late in June.
William The First	End of February	36in.	Late in June.
Telephone	Early in March	48in.	Early in July.
Duke of Albany	Early in March	48in.	Early in July.
Fillbasket	Mid-March	36in.	Middle of July.
Senator	Mid-March	36in.	Middle of July.
Gladstone	Mid-March	36in.	End of July.
Ne Plus Ultra	Late in March	60in.	End of July.
Latest of All	April to June	36in.	August and September.
Autocrat	April to June	36in.	August and September.
Early variety again for latest use	Late in June	16ins. to 30ins.	September and Early October.

GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

The Kitchen Garden.

Peas.—Provided the ground is in a suitable condition, a liberal sowing of an early kind may now be made, choosing such sorts as Gradus, and Early Giant. Sow Pioneer if a dwarf variety is preferred. A warm and fairly dry part of the garden should be chosen and ample space allowed between the rows. Gradus and Early Giant may be planted in lines 3ft. or 4ft. apart, and to counteract losses from slugs and mice sow rather thicker than usual.

Potatoes.—If brick pits are available they may be utilised for early potatoes. A mild hot bed containing plenty of leaves is an advantage and 9ins. or 10ins. of light soil will be needed. The rows should be 18ins. apart and the distance between the sets 9ins. Well sprouted tubers are best, and the most suitable varieties are May Queen, Midlothian Early and Sharpe's Express. Due attention should be paid to ventilation to prevent the growth being drawn and weak. Tolerably good crops may be obtained from pot culture. Receptacles 9ins. or 10ins. in diameter are recommended and two tubers placed in each pot. For a start only fill the pots half their depth with soil.

Shallots.—Good results may be obtained by planting these now. Place the bulbs in rows 1ft. apart and 8ins. asunder. Do not entirely cover the bulbs, but press them in the soil so that they are held firm and partly buried.

Parsnips need a long season of growth, so an early opportunity should be taken to sow the seeds. Student and Tender and True are both reliable and the seeds should be sown in lines 15ins. to 18ins. apart and about 1¼ins. deep. Deeply dug ground which was well manured the previous season is best for this crop.

The Flower Garden.

Phlox Drummondii.—The large-flowered strains of this beautiful annual are well adapted for bedding purposes, large patches in the borders, and filling up gaps on the rock garden. Sow the seeds in boxes containing light soil, and raise the seedlings in a warm greenhouse, afterwards grow them as cool as possible. When the seedlings are large enough to handle prick them off 2ins. apart. Boxes will suffice if only a small number is required, but for large quantities cold frames will be needed. When the seedlings begin to grow freely pinch out the centres to produce bushy plants.

Phacelia campanularia is one of the best blue annuals and two or three sowings should be made during the season. On a dry warm border seeds may be sown now, but the main sowing should be deferred till March or April. It is an ideal plant for the rock garden.

Pentstemons.—The forms known as Newbury Gem and Southgate Gem are largely grown in borders, but the bedding qualities of the large-flowering varieties are not so much appreciated as their merits deserve. They can be obtained in various shades of colour and if seeds are sown during the next week or two good plants will be secured for the beds later on. A little heat will be needed to raise the seedlings, but afterwards they should be grown fairly cool.

Dahlias.—The tubers that were not lifted last autumn may now be removed from the shed and placed in a warm greenhouse where they will produce a quantity of shoots suitable for cuttings. There is no need to bury the roots, but it is advisable to sprinkle a little old potting soil among them, and they should be kept moist. When growth is evident the roots may be divided and sufficient cuttings propagated to make good any losses or to increase the stock of special varieties.

Fruits Under Glass.

Fruit Trees in Bloom.—In some seasons both Peaches and Nectarines occasionally fail to set a satisfactory crop and several instances last year came to my notice. A frequent cause is the border being dry during the autumn months, but I am inclined to think that climatic conditions are more often to blame. A temperature near freezing point and a moist stuffy atmosphere are not conducive to the proper development of the flowers and more particularly the pollen grains. On the other hand more favourable conditions are created by raising the temperature by mid-day to 50° Fahr., with a few degrees lower during the night. Keep the trees dry and admit a little air whenever the weather is favourable. No damping down will be needed unless the sun is very bright, and then the borders and paths may be lightly sprinkled with water during the afternoon. Remove any weak or badly placed flowers and about mid-day pollinate the blooms, using a small, soft brush, or a rabbit's tail tied on a bamboo cane. It is always advisable to vaporise the house just before the flowers open to destroy any aphis that may be present and afterwards the trees should be watched for both green and black fly or the young tender shoots will be ruined.

Strawberries.—Plants that were placed on a mild hot bed some weeks ago are showing their flower trusses, and in consequence syringing will cease and the temperature be kept at about 55°. Remove the plants to a light position in a low house or on a shelf and pollinate the flowers at mid-day. When the fruits are set, thin them to six or nine on each plant, and continue to syringe them with tepid water until the fruits commence to colour. During the swelling period the night temperature ought not to fall below 60° and the roots should be fed with soot water, and some reliable fertiliser, such as Le Fruitier, or Thompson's. To keep up the supply another batch should be introduced. Pot Strawberries should never suffer from lack of moisture at the root. Both red spider and aphis should be held in check.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castle'ord, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

The Kitchen Garden.

Broad Beans.—A sowing should be made now. Take out rows—preferably running north and south—6ins. wide and 3ins. deep. Place the beans in two lines 4ins. apart; 3ft. between the rows will be found ample space for most varieties.

Asparagus Bed.—Young plants are usually set out, or seeds sown in beds, 4ft. broad. These should be well prepared before planting or sowing. In heavy soils, throw out the earth to a depth of 2ft., and lay the bottom with stones and old bricks, over these place a good layer of rough strawy manure, then add a layer of manure to a depth of 8ins. Soil and manure well mixed should constitute the next layer, which, after firming should bring the bed nearly up to the level. A soil layer of a few inches should complete the bed. At seed time there should be space on a bed of this size for three rows 15ins. apart.

Seedlings.—Cabbages and cauliflowers should now be pricked off into boxes, or into frames. Tomatoes should be placed into small pots. Sow cucumber seeds in small pots and, with the young tomatoes, place in a genial heat.

Rhubarb.—In time the plants become large and the centres barren and bare, this indicates that replanting is necessary. Dig up the roots, separate the crowns, and make certain that each crown has a good portion of root. Replant about 3ft. apart in well trenched and manured soil.

Potatoes.—It is stated by the Ministry of Agriculture that the planting of any other than immune varieties of potatoes in private gardens or allotments in Scotland is prohibited. Non-immune First Early Varieties may be planted if a permit is obtained from the Ministry.

The Flower Garden.

Delphiniums.—These stately plants thrive best in an open position and a rich soil. Where a border or portion of ground is set apart for the plants, the work of trenching or enriching the soil is easily done, as the plants can be lifted and set to one side while the ground is being trenched and manured. If the plants in herbaceous borders look at all poor they should be lifted now, and the stations enlarged and deepened. In the bottom of each hole place a quantity of rotted manure, then a few inches of soil and replace the plants, filling in and around the roots with manure and soil mixed.

Gypsophila paniculata.—The small whitish flowers and finely branched spray formation of this plant might well merit its description as the mist-like plant of the border. A mixture of two parts old lime and sand to one part loam should now be placed as a top dressing among the plants in borders or beds.

Plants for Beds.—Lobelia cardinalis should be divided and the strongest and best shoots placed in boxes containing good soil. Begonia bulbs and gladioli corms should also be boxed. Set out seedlings of East Lothian stocks two or three inches apart in boxes filled with good soil made fairly firm, and place all in a genial temperature. Ageratum, lobelia and the double-flowered nasturtiums should be increased by cuttings and kept in a warm house until rooted.

Turfing.—Occasionally, places around and near flower beds and borders get unlevel. If such should be the case, lift the turf at these places—if not already done—and put down sufficient good sifted soil to bring up to the level before replacing the turves. The edging and digging of the beds—if vacant—should also be done.

Fruits Under Glass.

Melons.—Those with accommodation for growing this fruit should sow seeds now in small pots filled with good loamy soil. Place the pots in a warm pit, or where bottom heat is available.

Peaches.—Give daily attention to the disbudding of the young growths in the early house and where the flowers are properly set, syringe the trees, damp the stages and pathways, and close the ventilators early in the afternoon so as to maintain a genial growing atmosphere.

Vines.—When the vines are in flower, tap the rods daily in the forenoon and maintain a drier atmosphere, damping down less, and especially so in cold, dull weather. Give top ventilation on fine sunny days, and when the temperature of the house is likely to rise above 70°.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

GREENHOUSE AND CONSERVATORY.

Trachelium cœruleum.—This blue-flowered plant is very useful for furnishing the conservatory. The same remark applies to its white-flowered variety. If seed is sown at this time the resultant plants will prove very useful for the stages during late summer and autumn. Plants kept over from last year will make fine large specimens for standing in the beds. For this purpose they may now have a shift into 8in. pots. This plant only requires cool greenhouse treatment at all stages of its cultivation.

Freesias.—Early batches of plants as they pass out of flower should not be neglected at this time. If it is desired to grow them on for future use, they should be given a position in a light greenhouse, or even in cold frames. The plants should be regularly watered until the foliage shows signs of dying off, then water should be gradually withheld. When the foliage has died down, the corms may be left in the pots until required for repotting, or they may be turned out of their pots, sorted into two sizes and stored in dry sand until August, when the first batch should be potted up. Freesias coming on for flower should have a good position in a light, airy greenhouse, and receive regular attention as regards watering, and feeding with diluted liquid manure and guano. Care should be taken to keep the growth properly supported. The same treatment should also be accorded to ixias, babianas and lachenalias.

Calceolarias, of the herbaceous section, raised from seed sown last August, should now be ready for a shift into larger sized pots. These plants enjoy a rich compost, thus some old mushroom-bed manure, or dried cow or sheep manure, may with advantage be added to the potting compost. These calceolarias prefer a moist atmosphere and should be grown perfectly cool at all times. They are very subject to attack by green fly, so should receive frequent light fumigations. Calceolarias of the shrubby section, as represented by CC. Clibrani, Allardii, integrifolia and angustifolia, should be potted on as they require it and pinched several times to induce a bushy habit. Calceolaria Burbidgei is also very useful for the greenhouse, and if a batch of cuttings is inserted at this time they will come in very useful for flowering during the autumn. Plants used in this way for furnishing the benches last year may now be potted on into 8in. or 10in. pots, in which they will make fine specimens for furnishing the beds in the conservatory.

Clerodendron fallax.—This fine plant is generally grown for the stove, to give a display during the winter. It is, however, invaluable for conservatory work during late summer and autumn, and it has the additional merit of remaining in good condition for nearly three months. To obtain plants for this purpose, seed should be sown at this time in a warm house with a temperature of about 60° Fahr. The seed is somewhat slow in germinating, but once it is up the young plants

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grow very quickly. They should be potted on as they require it until they are in 6in. pots, in which they may be allowed to flower. They are best grown in a temperature of 55° to 60° Fahr. until they come into flower, when they will stand quite well in an ordinary greenhouse. This plant can also be propagated by means of cuttings, which root readily in a warm propagating case, but, on the whole, seedlings give the best results.

Clerodendron fragrans, which has double white flowers, is by no means a showy plant, but it is worth growing for the sake of its fragrant flowers. It is easily propagated at this time, either by means of ordinary cuttings or root cuttings. These root freely in a warm propagating case.

Clerodendron Thomsonæ is generally regarded as a stove climber, but grown in large pots it makes fine specimens for flowering in the conservatory during the summer. Where such specimens exist they should have been kept dry and somewhat cool during the winter, but they should now be well soaked at the root, and started in a house with a temperature of 55° to 60° Fahr. All dead and weak wood should be cut out, and the strong healthy shoots trained round neat supports.

Statice Suworowi.—This is one of the best of half-hardy annuals for the greenhouse, and as such is deserving of more general cultivation. If not already done, a little seed should now be sown in a cool house. When large enough to handle the young seedlings should be pricked off into pans or boxes, and later on transferred to small pots. These plants are best grown singly, and 48-sized pots are large enough for them to flower in. If larger specimen plants are required, three plants may be placed in a 6in. pot. This statice requires careful transplanting and watering. Successional batches will keep up a display until late autumn.

Asclepias curassavica is very useful for the greenhouse during the summer and autumn, and seed should now be sown in a warm greenhouse. This is a slender-growing plant, thus the best results are obtained by growing several plants in a pot. If 48-sized pots are favoured, three plants should be placed in each pot and four or five for 6in. pots. This plant may be grown in an ordinary greenhouse temperature.

Fuchsias that were rooted last September and have been kept growing steadily on all through the winter will now be ready for a shift into 6in. pots. The leading shoot should not be pinched, but tied up to a neat stake, as the lateral growth will break naturally. When the lateral shoots have made about three leaves they should be pinched, and this should be continued up to about six weeks before the plants are required to flower. They should be potted on until they are in 10in. pots, and by that time they should have made specimens some 7ft. in height. J. COUTTS.

Royal Botanic Gardens, Kew.

EARLY CELERY

THE successful cultivation of main-crop celery requires much skill, but even more skill is required with the early batches of plants. The chief danger, with regard to early crops is in overgrowing the plants; then the latter either "bolt," run to seed, or the stalks are hollow and pithy. In dealing with early batches, or main-crop plants, the inexperienced cultivator relies on the assistance afforded by cold frames, and so the plants are grown in a comparatively cool and even temperature. In the case of early batches he should rely upon the heat from hot-beds or hot-water pipes, or both. Celery thrives best in a moist rooting medium and a cool temperature. The application of great heat is harmful. Of course, at this season some artificial heat is necessary, and a very good way to apply it is as follows: The seed pan should be well drained, both crocks and pan being clean. The compost should be light to medium: equal parts of leaf-soil and well rotted loam with a dash of coarse sand being an ideal one. This mixture should be made moderately firm, smoothed on the surface and watered; only a few seeds should be thinly dropped evenly on the surface and very lightly covered. A shelf or stage in an intermediate house forms the ideal position for the pan, and the latter should be covered with glass only. When water is necessary, apply it by immersing the pan in tepid water. Remove the glass when the seedlings appear, and transplant the latter at an early stage in a similar compost, retaining the plants in the same position. The next shift should be to a bed in a frame or to deeper boxes. I prefer the frame. A thin layer of ashes should be laid down, then 1in. of rotted manure, and on this 3ins. of good compost, all moderately firmed. The young plants should be carefully lifted and transplanted 4ins. apart each way, and after the first week the frame should be freely ventilated. When the time comes to finally transplant the celery, practically all the compost above the layer of ashes will adhere to the roots and be transferred with them to the prepared trenches. Plants, so treated, will not be checked. But bottom heat, high temperatures, close atmospheres, and careless transplanting, with overcrowding, will result in checks and disappointing crops. HANTS.

ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

TREATMENT OF IRISES (W. G. S.).—The herbaceous iris thrives best in a rich, loamy soil. By richness we mean deeply dug soil that has not been unduly exhausted by other and grosser-growing crops, and which contains good, well rotted manure—not fresh, organic manures. The bulbous kinds do not require such soils, but do best in a sandy loam; a small proportion of leaf-soil or peat will assist the growth. Old lime rubble, judiciously used, does help matters, it acts on the soil beneficially, breaking and sweetening it.

TREES AND SHRUBS.

PRUNING A HOLLY HEDGE (J. H. P.).—May is the best month to prune a holly hedge when the cutting is to be rather hard. Our correspondent's idea to cut the top and one side this year, and the remaining side next year is correct. Do not cut off more of the thinner branches than is absolutely necessary. Wood as thick as a pencil, or one's little finger, will break freely, but shoots from wood larger than this are irregular and uncertain. Clean the ground at the bottom of the hedge and give a good mulching of old decayed manure. Spray the hedge freely morning and evening on dry days, for a couple of months after pruning.

FRUIT GARDEN.

FIG TREES UNSATISFACTORY (E. S. W.).—As the trees are very old the roots, no doubt, permeate the soil a long way from the main stems. Six feet from the latter a trench should be opened and all main roots cut off at that point. It would be a difficult matter to restrict the roots entirely to that space with a cement underground wall. All such restriction is best done when the trees are first planted. All soft, sappy shoots should be rubbed out while young till the end of August. The next year's fruiting wood would thus ripen. In September pinch off the ends of the shoots retained, and all fruits, as large as Barcelona nuts, should be removed. Stop the ends of the fruit-bearing shoots next year when the fruits are swelling freely. If judiciously summer-pruned, winter pruning will not be necessary.

MISCELLANEOUS.

THE DESTRUCTION OF DUCKWEED (Lady W.).—It is not possible to poison the duckweed without damaging other vegetation. Raking it out at frequent intervals will be found the best way of dealing with it. Ducks will eat it and might, perhaps, be kept.

TO MAKE GARDEN AND TENNIS NETS WATERPROOF (H. A. C.).—First dip the nets in boiled linseed oil; then roll up for ten minutes and hang them up to dry. Repeat this once more. Give a final dressing of boiled linseed oil seven-eighths, and one eighth best copal varnish. Roll up again for ten minutes and hang out in the open air till the nets are perfectly dry. Store in a cool, dry place.

TREATMENT OF "TARMAC" GARDEN PATH (H. A. C.).—Our correspondent should procure some dry sand and small gravel or stone chippings, also tar in readiness for use when the hot weather comes. The tar should be hot when put on in a good substantial layer; before it cools sprinkle on the gravel or stone chips; when almost cold add a generous sprinkling of dry sand and roll all in with a light garden roller. Do not use pitch. An ordinary garden path should have a base of gravel and tar 2ins. thick on which the finishing layer of tar, gravel or stone chips is placed.

HOW TO SCARE WOOD PIGEONS AND MAGPIES (G., Dublin).—These birds are very cautious if once trapped or badly scared. Shooting would not keep wood-pigeons away as they will return regularly if the gunman is not visible. But as shooting is not possible our correspondent should procure some thin tarred twine and birdlime. The twine should be stretched and crossed in irregular lines from 6ft. stakes and about 20ft. apart, from line to line across the vegetable quarters. Some light twigs should be well smeared with birdlime and placed suitably. If they adhere to the birds' feet when they fly off the birds will not soon return. Twine, so placed, at 50yds. asunder, will keep off crows and pigeons from fields. Fix twine 6ft. above ground level.

FORTHCOMING EVENTS.

February 11.—United Horticultural Benefit and Provident Society's Meeting.

February 12.—Royal Horticultural Society's Annual Meeting. Jersey Gardeners' Society's Meeting.

February 15.—Manchester and North of England Orchid Society's Meeting. Eastbourne Horticultural Society's Meeting.

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THE

GARDEN

ORCHARD GARDEN WOODLAND

Vol. LXXXVIII.—No. 2726 Saturday, February 16th, 1924 Price THREEPENCE

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Section of Webbs' magnificent exhibit of Vegetables and Flowers at Shrewsbury Floral Fête, 1923. Awarded a Large Gold Medal.

A FEW OF WEBBS' GOOD THINGS FOR 1924.

BY APPOINTMENT Webbs' SEEDS

Early Favourite Pea	2/- pint	Seld. Ailsa Craig Onion	1 - and 2/6 pkt.
Senator Pea	2/- pint	Marrowfat Parsnip	1/- oz.
King George Pea	1/6 & 2/6 pkt.	Emperor Tomato	1/6 pkt.
Gigantic Windsor Bean	2/6 qt.	Aldenham Pink Celery	1/- pkt.
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THE GARDEN

VOL. LXXXVIII.—No. 2726. FEBRUARY 16, 1924

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CRAB APPLES ARE ONE OF THE JOYS OF SPRING. THEY LOVE TO HAVE THE WIND AND SUNLIGHT PLAY THROUGH THEIR BRANCHES. MALUS MICRO MALUS IS AN ORIENTAL CRAB FROM JAPAN, WHERE IT IS ONLY KNOWN AS A CULTIVATED PLANT. IT IS AMONG THE MOST BEAUTIFUL VARIETIES OF THIS CHARMING FAMILY AND ONE OF THE EARLIEST TO BREAK INTO BLOSSOM. WITH ITS ROSY PINK PETALS IT IS A PLANT WORTHY OF CULTIVATION AND AN EFFORT SHOULD BE MADE TO IMPORT IT FROM JAPAN

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THE GARDEN

FEBRUARY 16, 1924.

Editorial Offices: 20, TAVISTOCK STREET, COVENT GARDEN, W.C.2.
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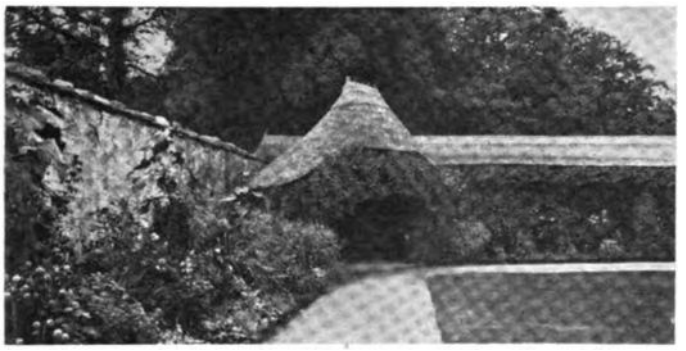

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CO-OPERATION

IN this number readers will find that considerable alterations have taken place in THE GARDEN. What these are can easily be seen on reading through the pages of this and following issues.

Gardening is becoming more and more popular every year. The reasons are difficult to determine ; they are partly economic and partly psychological, at any rate they are beside the point ; but what is interesting is that the essence of gardening is changing. In days gone by practical gardening was mostly in the hands of what Americans call " hired men," whether skilled or unskilled. The owner looked on, gave advice, sometimes hardly qualified, and admired the result, but that was all. Now a new race of gardeners is springing up, men and women who carry on a trade or a profession and still find time to work at and in their garden as a hobby and a recreation ; they are interested both in cause and effect. This is the case both in large and in small gardens, although the latter predominate.

Needless to say, we realise that post-war difficulties are strewn in the gardener's path ; we recognise the increase in the cost of labour and materials, the decreased spending power of the individual, and so on. But these difficulties, so liberally scattered, are not entirely economic ; there is a new kind of difficulty which is increasing every year, that of choice. As gardens tend to become smaller and more easily workable, so the number of varieties and species of plants seems to increase. There is a constant flow of new introductions from abroad, while native raised hybrids and varieties appear on the horizon or disappear from ken with bewildering rapidity. To us, it seems that this mass of material is the greatest puzzle with which the new gardener has to contend. He finds that it is impossible to grow even a tithe of all the good things, either mentioned in a horticultural journal or seen on the benches at the shows of the Royal Horticultural Society, so, in desperation, he chooses to specialise in one particular flower. In a way this is a pity, for the main foundation of our solid and deserved reputation as gardeners rests upon our old-fashioned mixed gardens, where could be found the well filled herbaceous border with its masses of lupins and hollyhocks and delphiniums and those oddly attractive corners of the kitchen garden filled with lavender or old sweet smelling roses. Then it was the result that counted. The new race of gardener, as interested in the growing of plants as in the result, points out with the greatest pride the rarest plants in his garden, whether in flower or not. Truly this is the age of the collector and specialist.

These remarks may appear to be a little outside the scope of the title of this article, co-operation, but they really are not, for they help to show that the difficulties which beset the gardener also affect the horticultural journal. It has to keep an exceedingly close watch on all things, large or small, which may be of interest to the gardener.

The very best service which a gardening paper can give to its readers can only be supplied if there is the very closest co-operation between them and the paper. The responsibility of the reader does not end when he has finished looking through the pages of the paper. Our correspondence columns exist for him and his fellow gardeners. One of the greatest joys of gardening is that it is not a close corporation. There are no trade secrets which have to be jealously guarded. If new methods of cultivation or new plants are found, information is willingly given for the use of the gardening world in general. It is as a vehicle for this information that our correspondence columns exist. If the information in our pages is incomplete, or either we or our contributors stumble, our correspondence pages will afford the remedy.

It is only by co-operation between paper and reader that the fullest advantage can be taken of gardening information, and we ask for, indeed shall welcome, this co-operation.

From time to time it will be seen that the by-paths of horticulture are also traversed. It is by such divergences from the straight highway of pure horticulture that we hope to be able to draw others into the world of gardens. From those who can now properly lay claim to the description of garden enthusiast we are bold enough to ask for sympathetic help on behalf of their less fortunate brethren. To be thrown down unaided into the mazes of modern horticultural technicalities is an even more awe-inspiring thought than the Biblical story of Daniel in the lion's den.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE :

THE CULTIVATION OF FRUIT IN SMALL GARDENS, Part I, by Ronald G. Hatton, M.A.

HOW TO GROW OUT-OF-THE-WAY VEGETABLES, by George Garner.

THE FIRST OF A SERIES OF ARTICLES ON THE FLOWER, FRUIT AND VEGETABLE GARDENS OF INDIA, by Sir George Watt.

THE CULTIVATION OF GREENHOUSE CYCLAMENS, by J. Coutts.

FLOWERING SHRUBS FOR A MODERATE-SIZED GARDEN, Part II. by W. J. Bean.

TRANSPLANTING TREES AND SHRUBS, by A. Osborn.

FULL REPORT OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW.

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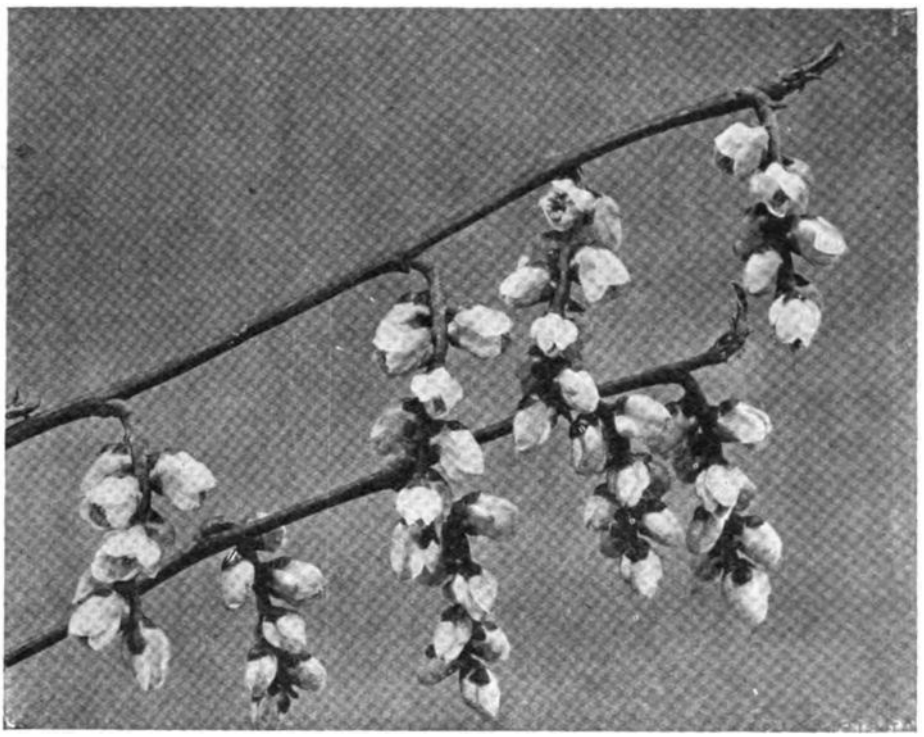
TREES AND SHRUBS

BY W. J. BEAN.

FLOWERING SHRUBS FOR A MODERATE-SIZED GARDEN.—I

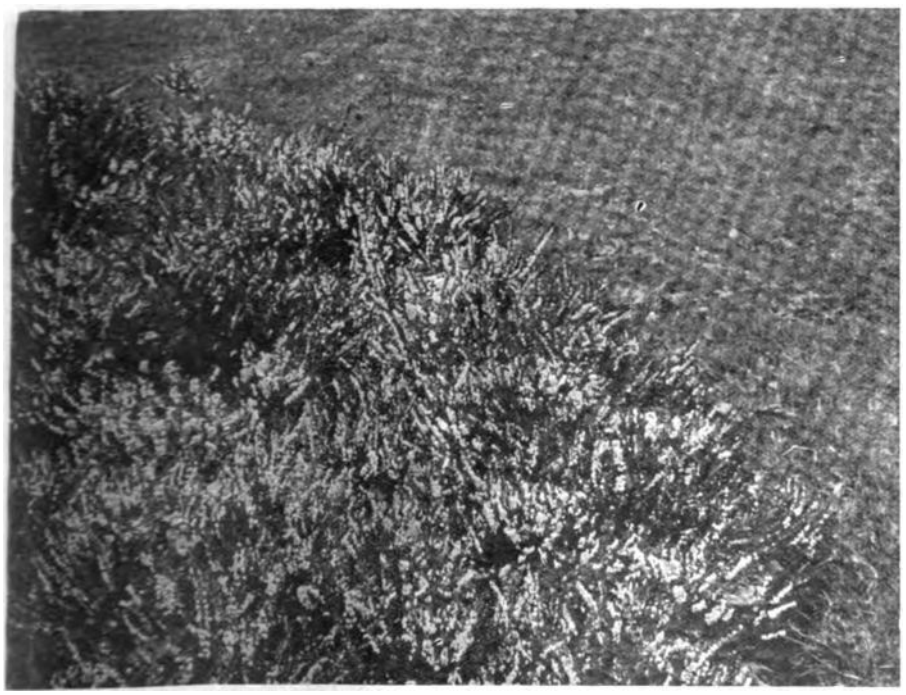
SO vastly has the number of really beautiful shrubs increased in the present century, both by introductions from other countries and by hybridisation and selection at home, that only the largest gardens can hope to find room for more than a selection of them. For small gardens, of course, the difficulty of providing room is proportionately increased; yet, as one goes about the country, it is very evident that the faculty of selection by the owners of such gardens is exercised to an insufficient extent. A really good shrub takes up no more space—in fact usually less—than one of poor or mediocre quality, yet even to-day one may see such things as laurels, privets, aucubas and the common pontic rhododendron occupying excellent situations that really good things might fill. Through change of taste and considerations of expense, glasshouse gardening has declined very much in recent years; it has, therefore become all the more important that such space as is available in the open air should be put to the best use possible. In a garden where, say, an acre of ground can be devoted to trees and shrubs and lawns, a very excellent company can be entertained, providing beauty, variety and interest for a good many months of the year. Since the war, plants, like most other things, cost more than they did; but, once the initial expense has been met, there is no form of gardening that will provide greater pleasure at such a low expenditure, either of money or time, as the cultivation of shrubs.



THE PENDENT RACEMES OF STACHYURUS CHINENSIS.
This fine shrub was introduced into cultivation by E. H. Wilson.

In a garden of the size I have in mind, a few trees are necessary to provide shade, shelter and background, but for my present purpose I must assume they already exist. What I have to do now is to offer a selection of shrubs which, as a friend of mine expresses it, will return the best dividend on the labour and cost entailed in procuring and growing them. Most shrubs when once established need very little attention. The ground beneath them should be kept loose, and free from grass and weeds; an occasional mulching is often advantageous; a little attention in the matter of pruning may be needed, chiefly the removal of dead and weakly branches, or—if one's taste runs that way—to induce a shapely growth. Some kinds, such as Berberis stenophylla, the laurustinus, or the loose-habited rhododendrons, the branches of which ultimately reach and rest on the ground, will, when that stage has been reached, need no attention at all unless they overstep their bounds.

For those who contemplate planting a new garden of moderate size or replenishing one already existing, I consider 100 to 150 different kinds of shrubs as constituting at least a good commencement and suggest about that number for the purpose, having due consideration for variety and for beauty at different seasons of the year. I will not claim they are invariably the best, opinions as to quality are too diverse for that, but they shall at any rate be good ones. By reference to current catalogues of nurserymen I have ascertained that all or almost all are obtainable in the trade. I must premise that statements as to hardiness, rates of growth and time of flowering are intended to apply to the London district.



ERICA DARLEYENSIS.
One of the finest of the early heaths.

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EARLY FLOWERING SHRUBS.

Commencing with those that flower with the opening of the New Year, there is one shrub which stands out as indispensable and that is the Chinese witch hazel, Hamamelis mollis. This year it has been later than usual, but as a rule we may expect it near London to be fully open on New Year's Day. Not only are its flowers larger than, and as richly yellow as those of any other witch hazel, but they are also strongly and sweetly perfumed. On a mild day in January the fragrance extends for many yards around the bush. One other hamamelis should be grown, H. arborea, which flowers a few weeks later. It is really a very good form of H. japonica and although the name would imply a tree-like habit, it will take many years to grow over twelve feet high.

AMONG THE SHOWIEST OF ALL THE MAGNOLIAS. M. STELLATA.

Two heaths, Erica carnea and E. darleyensis, commence to flower in January and February, the former is about one foot high the latter twice as tall. Their rich rosy-red blossoms provide a colour not very common in these early weeks of the year when most flowers in the open air are white, yellow or blue. Unlike most of the heath family these two thrive where there is lime in the soil. So much cannot be said for Rhododendron mucronulatum, a relative of the old R. dauricum, but much superior to it as a garden plant. It is worth growing for its great beauty at a dull season, but it has to be said that it blossoms very much on sufferance, inasmuch as a few degrees of frost destroy its beauty for the time being, although a second or even a third batch will sometimes follow. In this respect it is far behind the witch hazels and heaths mentioned, which bear moderate frost with impunity. It should be planted where there is shade from the morning sun and if possible some overhead shelter. Perhaps it is a debatable matter whether it should be included in this selection, but few people seeing it in its full glory of purple on a dull February day for the first time would turn down their thumbs.

DAPHNES.—Daphne Mezereum, with its stiff branches thickly set with reddish purple flowers opening in February or March is always a joy for its fragrance alone. Although wild or naturalised in a few places in Britain, it is not always an easy shrub to cultivate and possibly, like other daphnes, not naturally a long-lived one. I believe it likes cool, moist conditions and is sometimes weakened by excessive seed-bearing. This, however, renders its perpetuation easy. In my experience, D. neapolitana, often called D. Fioniana, is the most dependable in this genus, an evergreen bush 2ft. or 3ft. high, with terminal clusters of rosy purple fragrant blossom, opening from March to May. D. Cneorum does not flower till May and seems too short-lived to figure in this list, but it is a dwarf evergreen of wonderful beauty. None of the daphnes objects to lime, most of them apparently prefer it.

MAGNOLIAS.—The opening of the flowers on these early shrubs is dependent, of course, on the character of the weather, and the advent of a "skating" January and February will postpone it for several weeks, but Magnolia stellata may be relied on to blossom during the last week of March, if not before. Such a wealth of pure white flowers does it bear, so unfailingly is it set of bloom when the shrub is once established, that it cannot be omitted here, although it is unusual for it to escape all injury from frost. Still, a first crop spoiled is often followed by a second. An attractive combination of blue and white can be made by underplanting it with grape hyacinths. Having introduced magnolias, the best shrubby sorts may be here discussed. M. Soulangiana flowers in April and keeps on more or less through that month and May and, if not the most beautiful of the magnolias, is one of the most reliable, flowering freely and unfailingly. It is a hybrid bearing fertile seeds from which many varying forms have been raised. Its petals are always more or less suffused with purple on the outside, but in the var. superba this almost disappears. In M. Lennei, also a hybrid of the Soulangiana group, the flowers are almost entirely dark rose-purple outside and the petals are broader and larger; they open some weeks later. A very fine variety also is M. rustica rubra with more red and less purple in its colouring. M. parviflora and M. Wilsonii, two allied species (the latter I fear not easily obtainable yet), do not flower till June; their flowers are white with a conspicuous central ring of rosy-crimson stamens. For its late-flowering and fine foliage, glaucous underneath, I would also grow M. Thompsoniana, a hybrid from M. glauca, with exquisitely scented white flowers larger than those of M. glauca itself, to which species I think M. Thompsoniana is to be preferred, although it, too, is a very charming shrub.

Among the yellow-flowered shrubs of March the first place must be given to the forsythias, easily grown, very hardy plants of which three species and several varieties are known. The best of all forsythias I consider to be F. intermedia var. spectabilis. F. intermedia itself is a hybrid between FF. suspensa and viridissima, and this variety, distinguished by richer yellow and extraordinarily abundant flowers, is a seedling from it.

HEATHS.—An indispensable spring-flowering shrub is Erica mediterranea, which is really a tall-growing form of the E. carnea already recommended. In March, its first flowers commence to open and the bush remains in beauty and fragrance until the warm days of May cause them to fade. The flowers are rich rosy red. There is a variety with white flowers (alba), not so robust as the type, which associates admirably with it. There are other beautiful heaths of tall growth, such as Ericas australis, arborea, lusitanica and Veitchii, but they are sufficiently unreliable as to hardiness in the London area to be scarcely admissible into the present selection. To finish with the true ericas, the Cornish species, the dwarf E. vagans, may be mentioned for flowering from July to October, a good form with deeper rosy-red flowers is known as rubra. Dabœcia polifolia, St. Dabeoc's heath, is a very lovely evergreen growing 2ft. high with small glossy dark green leaves and erect racemes of glowing purple, pitcher-shaped flowers which commence to open in June and keep on till October. A pure white variety should also be grown.

A shrub of great beauty, but much neglected is Stachyurus , a native of Japan. It blossoms sometimes in February,

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sometimes in March, the pale yellow flowers, each about ¼in. wide, being produced on stiffly pendulous racemes some three inches long. The plant itself is deciduous, of thin graceful spreading habit and grows 6ft. or more high. When the arching branches are thickly set with racemes, as they almost invariably are every spring, no one can deny it a place among the *élite*. Wilson introduced a very closely related species from China, S. chinensis. So much are they alike and so equal in beauty, that only one of them need be grown; it does not matter which.

RARE TREES AND SHRUBS

EMMENOPTERYS HENRYI.

To get a tree or shrub with flowers equal in beauty to those of the well known Luculia gratissima and hardy enough to grow in the open air without protection seems almost too much to hope for. Yet that is what this new Chinese tree promises to be. It belongs to the same Natural Order of plants as the luculia—the Rubiaceæ—and has somewhat similar textured opposite leaves of oval outline and up to 8ins. in length by 4ins. in width, dark dull green and smooth above, pale and with down on the midrib and veins beneath. The flowers are borne at the end of the shoot in flattish panicles, as much as 10ins. wide and 6ins. to 8ins. high. Each flower is 1in. wide, funnel-shaped at the base, spreading at the top into five rounded lobes; they are white and downy on both surfaces, especially inside. But besides the beauty of the corolla, the inflorescence has an additional attraction. The calyx is normally small and inconspicuous, but in a certain proportion of the flowers one calyx-lobe becomes extraordinarily enlarged and develops into a large, white, more or less oval bract, the largest of them as much as 2ins. long by 1½ins. wide. They are somewhat similar to what one sees in Schizophragma.

The emmenopterys is a native of Yunnan, Szechuen and Hupeh, and it was introduced from the last-named province by Wilson to the Coombe Wood Nursery. I do not think many were raised, but in 1913 I obtained one for Kew, where it has grown outside ever since and has never suffered in the least from cold. It is now 8ft. or 9ft. high. Mr. Wilson, in his notes on this tree, says he found it in woodlands growing 30ft. to 80ft. high, with a stout trunk. He describes it as one of the most strikingly beautiful trees of the Chinese forests, and in July, when in full bloom, making conspicuous splashes of white there. It is rather slow in growth at Kew, and I expect would succeed better in the south and west. Still, as already stated, it has not yet shown any sign of tenderness. It is deciduous and can be propagated quite readily by means of cuttings made of late summer growth. No flowers have yet been borne on cultivated plants, and the particulars given above have been obtained from preserved specimens collected in its native woodlands. Mr. Wilson says the remarkable bracts do not fade with the flower, but remain and turn pink as the fruit ripens.

PYRUS ELEYI.

Mr. Charles Eley of East Bergholt in Suffolk raised this crab from Pyrus Niedzwetzkyana crossed with the pollen of Pyrus spectabilis. Judging by its parents, it will probably become a tree 30ft. high. Its young shoots are downy, and both they and the leaves are reddish purple like those of the mother plant, but of a brighter and not so dark a hue. The leaves are ovate with a short, sharply pointed apex, rounded or wedge-shaped at the base, finely toothed, 2ins. to 4ins. long, 1in. to 2½ins. wide, downy beneath, especially on the dark purple midrib and veins. The flowers come in apple-like clusters and are of apple blossom shape, each blossom being 1½ins. wide and of a rich vinous red. The fruits are rich purplish red, conical, 1in. long, ⅝in. wide at the base, each on a slender stalk 1½ins. long.

From the time the flowers open in April until the fall of the leaf in autumn this new crab is beautiful. It is very attractive when in bloom, but its charm is greatest when its thickly clustered pendulous fruits have acquired their rich colour; but even during summer, when the flowers are past and the fruits as yet undeveloped, the persistent brightness of the leaves and shoots gives it a high place among ornamental foliaged trees. In combining the high and unique colouring of Pyrus Niedzwetzkyana with the profuse blossoming of P. spectabilis, Mr. Eley has achieved a great success. The Royal Horticultural Society has recognised its value by the award of a first-class certificate.

PYRUS (MALUS) ARNOLDIANA.

This beautiful crab originated about 1905 in the Arnold Arboretum, where it first appeared among some seedlings of Pyrus floribunda. Professor Sargent suggests that it is probably a hybrid between that crab (itself a hybrid) and one of the larger-flowered hybrids of Pyrus baccata. A plant sent to Kew a few years ago has bloomed for several years past and proves to be a very charming addition to its group. In habit it is extremely graceful, producing long arching or semi-pendulous branches which, when young, are redder than those of P. floribunda. The foliage is similar, although the leaves are perhaps of somewhat larger average size. The flowers are more than half as large again, being about 1½ins. in width. In the bud state the petals are of a ruby red, paling with age to deep rose outside and pale rose inside. As with P. floribunda, the beauty of the tree is greatest when half the flowers are still in the bud state, but compared with those of the older tree they are larger and much more richly coloured. The flower-stalks are slender, reddish and from 1½ins. to 2ins. long, the lobes of the calyx awl-shaped and ¼in. long. Both flowerstalks and calyx are nearly smooth, while in P. floribunda they are downy. This crab flowers in April and it seems safe to prophesy will become a popular and well known tree in future years.

THE FLOWERS OF PYRUS ELEYI, A RICH VINOUS RED.

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THE ROCK GARDEN at BROCKHURST

THE RESIDENCE OF MR. FREDERICK J. HANBURY, F.L.S.

WITH NOTES BY THE OWNER.

BY the special desire of the late secretary, Mr. Wilks, I gave an illustrated lecture before the Royal Horticultural Society in October, 1916, on the rock garden that I had just made at Brockhurst, East Grinstead. A fairly full *résumé* of this lecture was printed in the Journal of the Royal Horticultural Society, Vol. XLII, Parts II and III, and about a dozen out of the hundred odd slides then shown were reproduced as pictures in this report. Great changes have occurred in the intervening seven years, principally through the vigorous growth of the plants, many of which were scarcely visible among the great masses of bare rock to be seen in the earlier pictures. The illustrations to this article will show at a glance that much of the bareness visible in the earlier pictures has disappeared; and here may I put in a word about rock gardens being allowed to fill up of their own accord. It is useless to expect a rock garden to appear fully clothed within the first year or two of its inception; on the other hand it is not a wise policy to plant so thickly to begin with that a year or two's growth will transform a well planned rock garden into a tangled mass, where many rare plants may be choked out of existence. It is a good plan in an old well filled rock garden to keep a corner for experimenting with plants. If they prove their worth they can be incorporated in the general garden, but it is a mistake to remove a fine plant of A because somebody has told you in a vague fashion that B is far superior. A rock garden should be viewed as much as a whole as for individual plants it may contain.

The following short particulars concerning the natural features of our garden may not be out of place. Brockhurst is 400ft. above sea level and is situated between East Grinstead and Forest Row in Sussex, and the naturally undulating ground slopes to the south-west. The solid rock which is found a short distance below the surface is geologically known as Lower Tunbridge Wells sandstone. The site of the rock garden is a rounded hill with a steep escarpment towards the north-west, and on it our cows grazed for two years before we accidentally discovered a fine mass of solid rock, some 30ft. thick, while digging holes for planting a belt of rhododendrons. We began on a small scale with the excavated rock, intending to make a rock garden at the base of the hill. As this grew bigger and the excavation in the hill grew larger, we were gradually led on to make our present garden. Details concerning this work and of the formation of the moraine, in making which I had the aid and advice of Mr. E. A. Bowles and of the late Reginald Farrer, will be found in the paper to which reference has been made. The work of construction occupied about four years. Besides having the rock *in situ*, we are also favoured with the presence of several never-failing springs which provide a plentiful supply of water.

A GENERAL VIEW FROM THE TOP OF THE MORAINE LOOKING SOUTH.
This is where many rare British plants are grown.

The average temperature at Brockhurst is about 2° cooler in summer and 2° warmer in winter than that of Greenwich.

The rock garden is best entered at the lower end where the mounds are of moderate height and separated by undulating paths. This portion provides suitable homes for a large number of the smaller plants.

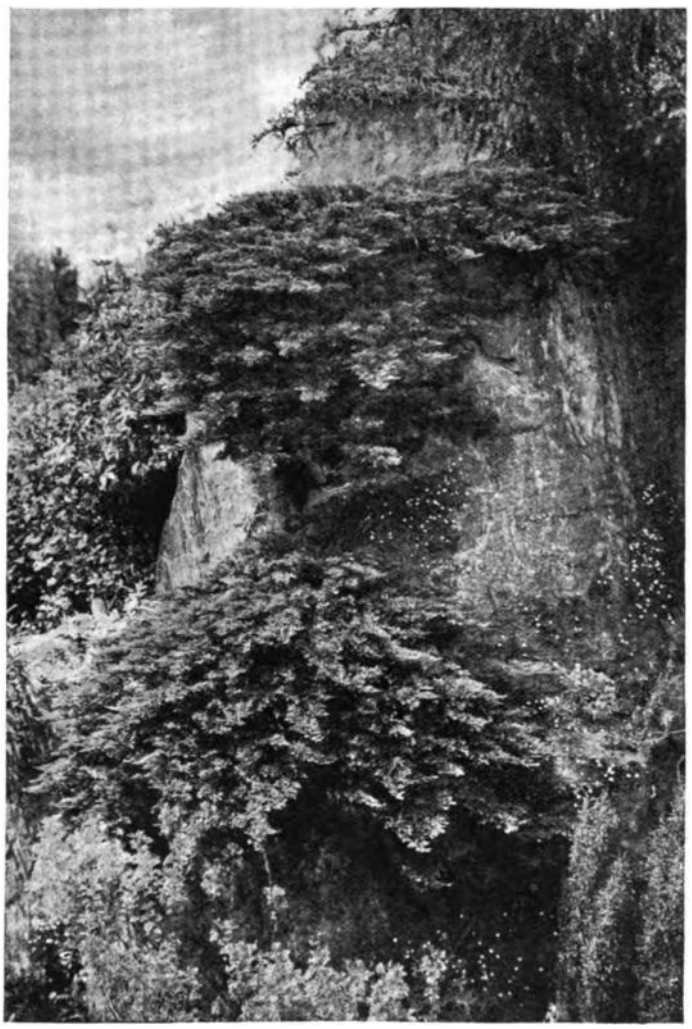
The following may be mentioned among others: Sempervivum soboliferum, which was given to me fifty years ago by the elder Fries while on a visit to Upsala. It was taken from a clump on Linnæus' garden wall, where it was known to have been planted by Linnæus himself, and it thus supplies a living link with the great botanist. It quickly multiplies itself by forming small bulbils round each rosette, which bulbils roll off and form plants. Then there are fine clumps of two or three species of Iris (Sparaxis) planted on a low bank which throw their

IN THE DEFILE.
The entrance to the great cave is on the left.

THE DEEP CHASM.
It is here where many rare British ferns flourish.

graceful arching stems right over a small path below and produce a charming effect in August, when so many of the surrounding plants have passed out of flower.

Many species and varieties of the mossy saxifrages grow here, and other plants worthy of enumeration are: Tulipa sylvestris, our native tulip; Urospermum Dalechampii, a fine pale yellow composite the ligules of which are fringed with black, so that, when expanding, the flower appears to have a large black eye in the middle, which disappears when fully out. There are many helianthemums, androsaces, primulas, violas, geraniums, sundry labiates, cistuses, azaleas, heaths, dwarf irises and a fine clump of Watsonia Ardernei which has stood our winters well and has greatly increased and usually flowers freely. Potentilla rupestris, which was collected on Craig Breiddin by the late Bishop Walsham How, sows itself about very freely. Its tall



JUNIPER POINT.
This illustration shows the growing power of the fresh garden soil. These junipers were planted ten years ago.

habit and pure white flowers make it an attractive plant. By the first pool is a fine plant of our rare Mulgedium alpinum from Forfarshire. Its deep blue flowers are a pleasing contrast to the pale washy flowers of other mulgediums which are frequently confounded with it. It does not run as do others, and is not the easiest of plants to keep in good condition. There are also a few celmisias and a good plant of Olearia insignis.

There is a central, though winding, path nearly 200yds. long, which leads eventually to the great chasm. On either side of this there are steps at intervals leading to paths which run at a higher level along the tops of the banks. About half way along the central path on the right is a sunken portion that is kept wet and which accommodates many marsh plants. This open boggy ground makes a welcome break in the general character of the rocky scene, and provides a wide open space.

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In it grow many rare marsh plants, including a large patch of Carex Buxbaumii, found only on the shores of Lough Neagh in Ulster, C. aquatilis from Perthshire, and sundry mints, roscoeas, docks, bog myrtle, Bartsia viscosa, orchises, horsetails, etc. On the banks around this open space are several of our most interesting heaths and their hybrids. Among these I may especially mention the very attractive Erica vagans var. St Keverne, E. vagans alba and E. Williamsii, which is a cross between E. vagans and E. Tetralix. All these were discovered by Mr. P. D. Williams on or near to his estate at St. Keverne, on the Lizard peninsula. Only a single plant was found of the latter, and from it all the plants in existence have been propagated. I believe it is the only known British hybrid of E. vagans. E. Watsonii, a cross between E. Tetralix and E. ciliaris, also grows by the edge of the bog alongside E. Tetralix, one of its parents. This plant has occurred in Cornwall, but I found mine near Poole Harbour in Dorsetshire. The handsome E. mediterranea and E. lusitanica also grow hard by, as well as E. Mackayi from Connemara and sundry varieties of E. carnea and the large-flowered Irish heath, Dabœcia (Menziesia) polifolia. A good bush of our only British cotoneaster, viz., C. vulgaris, from the Great Orme's Head, and a patch of our rare Astragalus hypoglottis from the Forfarshire coast, are also planted here.

AN ENTRANCE TO THE ROCK GARDEN.
So many blind corners add an element of surprise.

Proceeding along the path, which is here widened out and has miniature bogs on either side at the base of the banks, we reach, on the left, steps which ascend to a path through the moraine. To the right the central walk continues through a defile cut through the solid rock and ends eventually in the great chasm, whence the bulk of the stone was quarried. In the defile one of our illustrations shows the entrance to a long, winding and branched cave which was excavated when we wanted additional stone, but which now forms an attractive feature of the scheme. The first illustration is taken from the upper part of the moraine, looking back, and shows several of the features to which reference has just been made. In the main chasm, which is seen from different points in the third and sixth pictures, is a deep still pool with a dripping well at one end. Escape on either side from this cul-de-sac is provided by long flights of stone steps. Those on the left, the upper portion of which is shown in the last illustration, lead eventually to a walk among the highest rocks, whence there is a fine view of Ashdown Forest and distant hills, with the most rugged portion of the rock garden lying immediately below and supplying an effective foreground to the picture. The natural vents and crevices in the rocks accommodate a large number of plants, such as encrusted saxifrages, the tall white saxifrages, many sedums and sempervivums, pinks, the rarer species of small ferns such as Asplenium viride, A. lanceolatum, A. septentrionale and others, but the generality of the plants grow in the ordinary pockets that were made during the work of construction.

Throughout the rock garden there are many flowering shrubs and trees, especially is this the case as regards its outer banks. These alleviate the appearance of monotony and flatness. In some parts they are already tending to grow too large and thus to hide pleasing rock effects and to smother or overshadow the smaller plants in their vicinity. Minor alterations to overcome these drawbacks are frequently necessary. It is impossible in the scope of a short article to give a long list of the plants grown. There are several thousand species and varieties. It may be well, however, to point out that our object has been not only to collect and provide suitable and natural positions for the larger proportion of alpine plants and small flowering shrubs that are commonly grown, but also to make the garden interesting from a botanical point of view. In this connection we have introduced native plants that are intrinsically beautiful, such as Ranunculus Lingua, Primula elatior and its natural hybrids with both primrose and cowslip, Vicia sylvatica, of which the strong climbing habit and beautiful lilac-coloured flowers make it a desirable plant for large rock, or rough woodland, our native gentians, Myosotis sylvatica which will grow in dry places and sows itself about, our coast and mountain violets, such as Viola Curtisii and V. lutea, some of our rarer St. John's worts, such as Hypericum undulatum and H. linarifolium. But this list could be extended indefinitely. To botanists

THE OUTLOOK FROM THE TOP WALK.
Note how the area of rock surface is enlarged and various aspects for the plants secured by cutting bays in the cliff.

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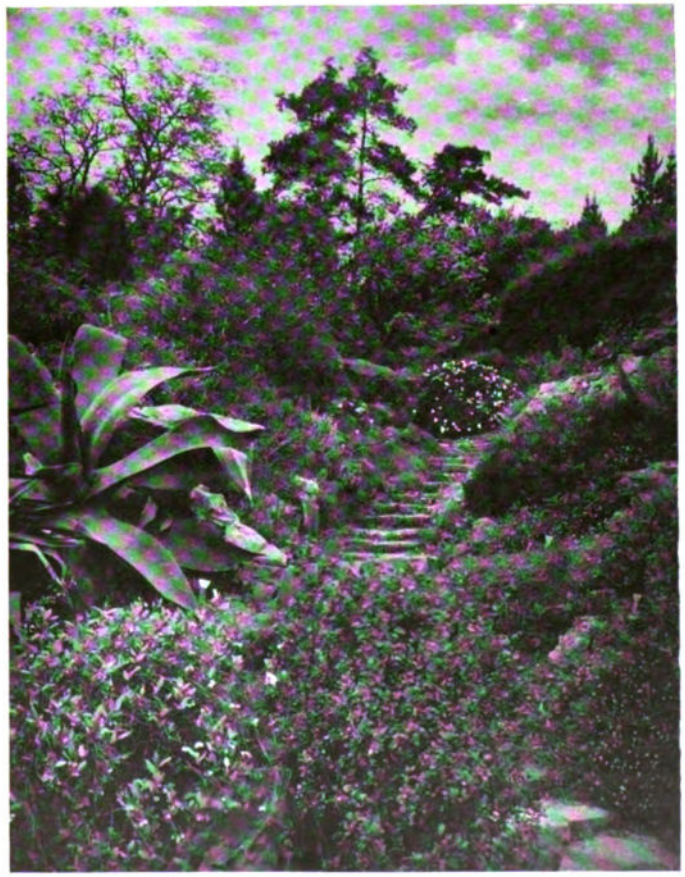
THE SKILFUL USE OF TALLER SHRUBS IN BLINDING THE CONFINES OF THE ROCK GARDEN.

A WELL FILLED CORNER.
Primulas grow luxuriantly in sheltered nooks.

THE HIGH CLIFF AT THE NORTH END.
The deep chasm lies between the foreground and the cliff.



A SECTION OF THE LONG FLIGHT OF STEPS LEADING FROM THE MAIN PORTION OF THE ROCK GARDEN TO THE TOP OF THE HIGH CLIFF.

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the willows, rare sedges and grasses, the mints, geraniums, chickweeds, pinks, clovers, hawkweeds and many rare ferns and horsetails, make a strong appeal.

The attempt to combine all the above features, as far as possible under natural conditions, is perhaps the main characteristic of the rock garden at Brockhurst. The scheme was designed by ourselves at home, largely during the progress of construction and here I must acknowledge the great debt I owe to my head-gardener, Thomas Matthews, for the very important share that he took in the work.

THE GARDEN OF THE QUEEN'S DOLLS' HOUSE

BY SIR LAWRENCE WEAVER.

[The wonderful model palace known as the Queen's Dolls' House, which will be exhibited in the Palace of Arts at Wembley, is the outcome of an idea originally expressed by Her Majesty to Sir Edwin Lutyens, the architect of the "building." This was, in effect, to make a model of what a great house of 1924 would be like if built on the lavish scale in which things used to be done in the seventeenth and eighteenth centuries; so that not only future ages would find in it a document for the early twentieth century, but we ourselves could see what might be done "if things was diff'rent."

All the finest artists and craftsmen have contributed to the perfection of this little memorial to our age, as well as most of the leading commercial houses who minister to our domestic needs. Electric light and lift, frescoed ceilings and walls, splendid furniture, books, rugs, linen—these are all provided to scale, and in the vaults we find dozens of wine, cases of beer, and every kind of stores.

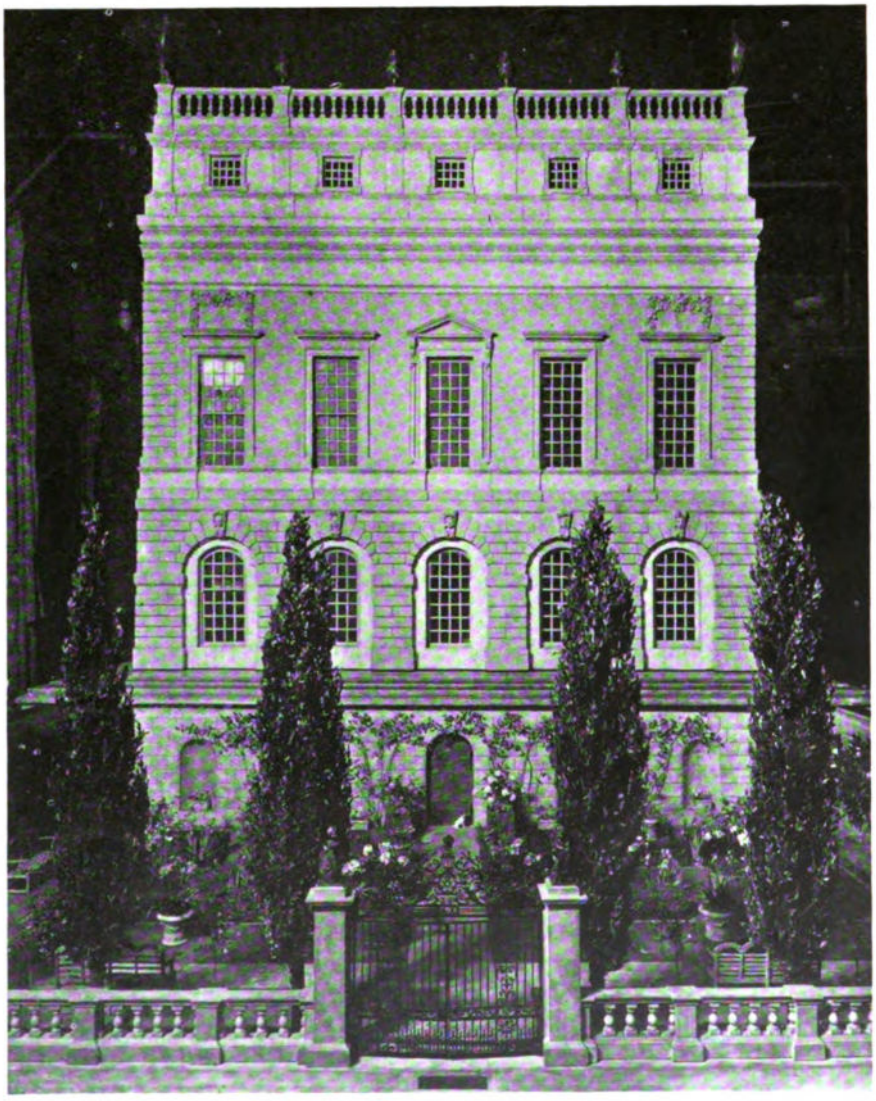
Here we give an account of the garden, which is so made that it can fold up and slide under the house itself, like the flap of a writing desk.—ED.]

IT might be supposed that whatever perfection could be achieved in the building of a palace in miniature—to the scale of one inch to a foot—whatever miracles of convincing tininess might be performed by the makers of motor cars, a grand piano, a gramophone—the problem of a garden in miniature would defeat its designer.

But Sir Edwin Lutyens, under whose brilliant direction hundreds of artists have given of their best to create a unique thing—and the word unique is used in its strictest sense—was not defeated.

With the aid of Miss Beatrice Hindley's deftness of workmanship and faithful study of botanical forms, the Queen's Dolls' House has been furnished with a garden of exquisite form and colour.

The first problem was its placing. The Dolls' House is 8ft. 6ins. long and 4ft. 10½ins. broad, and stands on a base about a foot larger each way, so in size as well as in magnificence of detail it is a Queen among Dolls' Houses. Had a garden been designed to surround the house, or even to extend along one front of it, the whole scheme would have been unmanageable.



THE HANGING GARDEN.
Enclosed by cypress trees, with paved walks, and a wonderful variety of flowers.

With typical inventiveness, Sir Edwin Lutyens got over the difficulty. In the base on which the house stands are two drawers about eleven inches deep, with falling front flaps. One of them can be extended on double runners and contains the garden. But that, the imaginative would-be visitor may say, would leave no room for anything in the way of walls or gates or trees higher than 11ft., if full scale. Not at all. The drawer front is invisibly hinged at the back line of the stone paving where it adjoins the grass, and the iron gates and balustrade and trees over 24ft. (if full scale) high are fixed to the front, so that when the front is lowered, they come into their proper places and the garden is a complete and imposing whole. So adroitly has the garden itself been devised, that when the drawer front is

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raised again the trees fold away neatly.

Students of Sir Edwin's achievements as a garden designer will not need to be told that he has devised the Queen's garden on formal lines, befitting the early eighteenth century character of the house, which is a token of homage to Sir Christopher Wren. The back wall of the garden is furnished with four round-headed niches flanking a central doorway, all five openings related to the treatment of the dining-room windows on the ground floor, which comes above the garden. The grass is of green velvet and a motor mowing machine stands by, so that the tradition of English lawns may be maintained with faithfulness. On either side of the paved middle path are two sets of four beds with a stout hedge of box on their outer edges and a smaller edging within. The flowers are various and rich in their kinds. Blue and purple iris, standard roses, lilies and sweet peas, poppies and marigolds, mallows and gentians—these fill the beds. There is agapanthus in terra-cotta vases, hydrangea and rhododendron in wooden tubs, and Magnolia grandiflora graces the stone walls. Pale climbing roses bedeck the niches.

All these plants are of repoussé metal most delicately formed by Miss Beatrice Hindley after long study at Kew of plant and flower forms, and enamelled in their proper colours.

THE GARDEN DOOR TO THE PALACE.
There are rhododendrons in tubs and agapanthus in vases.

The tree trunks are of solid metal and their branches of real twigs of dwarf growth most cunningly chosen. Even the animal denizens of a garden have not been forgotten. It is to be hoped that the miniature Majesty who will revel in this pleasaunce will not be so keen a horticulturist as to destroy the snails which may be seen, or make war upon the butterflies that have settled on the flowers, in fear lest they later bring a host of caterpillars. The little Princes of Royal Blood must be watched by their suite, lest they pillage the eggs which mother thrush has laid in her nest.

It is all very astonishing as a *tour de force* of design and workmanship, but it is something more. Queen Mary is a lover of gardens not only for their own sake, but as appanages of homes. So this Dolls' House and its garden are an expression of affectionate loyalty from a great band of artists and craftsmen to a Royal Lady for whom the domestic arts are handmaids of beauty and comfort in the homes of the Empire, where Her Majesty holds her place secure in her peoples' hearts.

And it is characteristic of the Queen that she is going to defer the delight of possession until her Dolls' House has done a great work for those who suffer. It will be exhibited in a specially built gallery of the Palace of Arts at the British Empire Exhibition this year and the whole of the gate money will be at the disposal of Her Majesty for those charitable causes to which she devotes so large a part of her energies. It is certain that many thousands of people not only of this country but also from the colonies will visit the Dolls' House at the British Empire Exhibition.

PAVED PATHS WITH BOX EDGING.
Note Magnolia grandiflora on the back wall.

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PRUNING NEGLECTED FRUIT TREES

BY N. H. GRUBB AND A. W. WITT.

THE pruning required by a neglected fruit tree depends on the kind of tree, its condition, and the size and shape of tree desired. It is not possible to lay down rules of universal application. Successful pruning requires judgment and observation, and the treatment of each tree as a separate individual. A method which will restore an apple or pear tree to good condition may result in the disease or premature death of a plum or cherry tree. Again, the treatment required by a neglected standard or bush tree will clearly be different from that needed by an overgrown espalier or cordon tree. And further, although trees which have been left unpruned for several years are usually overgrown, tall, and out of shape, lack of pruning sometimes results in a weak or diseased condition. Clearly the condition of the tree must be considered in deciding on the proper treatment.

STANDARD AND BUSH TREES.

If the trees are neither too wide-spreading nor too tall, and if they are healthy, a mere thinning of the head will be enough. Here the object is to open the head, to let sunlight and air penetrate, and to prevent the death, through shading, of the spurs on the interior branches. As a rule, it is better to thin out the weaker and crossing branches piecemeal than to cut out the whole of large branches.

With apples and pears more drastic treatment may often be an advantage. If the trees are too tall or wide-spreading, or if the branches have lost most of their spurs, or become cankered, the trees may often be restored to good condition by "heading back"—*i.e.*, the cutting back of the main branches to a considerable extent, in extreme cases even to within a foot or two of the main trunk. It is best, where possible, to cut each branch immediately above a small side branch or spur, from which renewed growth will be formed; if this is impossible, one may rely on the formation of shoots from adventitious buds, of which the best placed can be chosen to form the new branch, and those not wanted to form spurs cut clean away. With trees of any considerable size, it is always best to spread this process over two years, instead of cutting all the branches the first winter.

Where the variety is unsuitable or subject to disease, the opportunity may be taken to regraft with another variety. Some gardeners even regraft with the same variety, instead of relying on growths from adventitious buds, which may be badly placed.

Where the "heading back" is intended primarily to reduce the size of the tree, it is usually best to root prune the tree moderately, either at once, or a year later. The method is described below.

With plums, damsons, and cherries, the risk of disease, particularly "silver-leaf," makes it usually inadvisable to head back severely, even where trees are too large. Where silver-leaf is known to be rare, as in some parts of the North and Scotland, plum trees may be treated as described above for apples and pears; but even there it is wise to paint the larger wounds with a protective covering, *e.g.*, gas tar. Where silver-leaf is prevalent, as in most parts of England, it is better to put up with tall, awkward trees, unless one is prepared to risk their loss. Beyond cutting out dead wood, a moderate thinning of the head and the shortening of long, straggling branches, it is inadvisable to do much to standard and bush plums and cherries.

PYRAMIDS.

Neglected pyramids are usually so much out of shape that a severe heading back is needed to restore them to their proper form. Unless a shapely pyramid is particularly desired, it is often better to convert such trees into half-standard or tall bush trees; this can usually be done by cutting out the central branch or leader at from three to five feet from the ground. At the same time the very low branches can usually be cut away without loss of fruit.

ESPALIERS.

Neglected espaliers usually become very much overgrown; the fruiting spurs, especially on the upper tier of horizontal branches, tend to grow up into branches on their own account, and may be even six or eight feet high. The weaker of these tall growths may be shortened, if necessary to a fruit bud, not far above the original branch; the stronger growths are better cut clean out, flush with the branch from which they spring. In extreme cases it may be necessary to cut the top tier of horizontal branches back to a point near the central stem, with a view to training in new branches. Where this is done it is a good plan to tie up the lower branches temporarily to an angle of, say, 45°, in order to strengthen their spurs.

When such trees have been neglected for more than two years, their complete restoration is seldom possible in the first season; it is sometimes necessary to spread it over three years. In any case, it must usually be accompanied or followed by root pruning.

A. ESPALIER PLUM TREE NEGLECTED FOR [illegible] YEARS.
To left of illustration, untouched; to right, first [illegible] done.

CORDONS.

Overgrown and neglected cordons usually resemble badly shaped pyramid trees; the spurs have grown out to a great length, and the leader will generally have reached a much greater height than is at all desirable. To restore such trees to cordon shape drastic treatment is necessary, similar to that recommended for espaliers. The long

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B. FAN TRAINED CHERRY TREE BEFORE PRUNING AND TYING IN. (NOT MORELLO, BUT SIMILAR.)

C. SAME TREE AS B., HALF OF TREE (TO RIGHT) PRUNED AND TIED IN.

growths should be shortened, if possible to live buds within, say, six or eight inches of the main stem; and the main stem itself will often need shortening by several feet. Here again the process is best spread over two years, and root pruning will be essential for success.

WALL TREES.

Horizontal-trained apple and pear trees usually require treatment similar to that recommended for espaliers.

Neglected fan-trained plum and sweet cherry trees will usually have made strong wood growth from the upper branches; on the lower part the spurs will mostly be long and far from the wall. These lower spurs will require shortening; but this should be done gradually, one third, perhaps, of the spurs being shortened to within two or three inches of the branch the first winter. The remainder may be shortened in the following winter, or preferably later, as those first shortened come into fruiting.

The upper part of the tree will need more drastic treatment. The aim should be to replace gradually the over-vigorous and bare branches by training in any available shoots of one or two years' growth. If no such shoots are available, they can be produced by cutting hard back one or more branches on each side of the tree. If one or two of the shoots thus produced grow much more strongly than the others, as often happens, they may either be temporarily tied down horizontally, or may be shortened in the summer, as soon as it is clear they are taking the lead, and the resulting secondary growths tied in. The aim is to secure well balanced growths of moderate vigour.

Peach and Morello cherry trees require somewhat different treatment, since they fruit chiefly on shoots of the previous year's growth. The aim here should be to furnish the whole of the wall space with young fruitful wood.

Neglected Morello cherry trees have most of the fruiting wood on the tips of the branches; it is often too weak to fruit well, and there is usually much bare wood in the middle of the tree. Of the shoots standing away from the wall, those on the upper half of the tree should be cut clean out; on the lower half of the tree some will be too vigorous to be tied in, and should also be cut clean away; others may be tied in to take the place of some of the old bare branches. Some of the smaller branches over the whole tree should be shortened to within an inch or so of their base, to induce fresh growths for training in.

Neglected peaches and nectarines generally have very little new growth towards the ends of the branches, the fruiting wood consisting mainly of long spurs. Towards the centre of the tree there will usually be strong growths standing away from the wall; the less vigorous of these may be trained in, while the stronger are cut clean away. As with Morellos, some smaller branches and spurs should be shortened to produce new fruiting wood. If the spurs are very numerous, they should be thinned out.

ROOT PRUNING.

Wherever apple, pear and plum trees are too vigorous, or require drastic pruning to reduce their size, root pruning is advisable. The process involves cutting some of the roots at a distance from the trunk varying with the size of the tree, from, say, 15ins. for cordons up to 4ft. for very large trees. It is seldom advisable to cut the roots all the way round the tree in one winter; it is better to cut half round the tree one winter, and the other half the next. Care should be taken to get well under the tree from the bottom of the trench, in order to cut possible "tap" roots. With most soils it is well to ram the soil as the trench is refilled. October is considered the best month for the operation, but it may be done at any time during the dormant season.

CORRESPONDENCE

THE QUESTION OF THE INBREEDING OF RHODODENDRONS.

IN the Journal of the Horticultural Society for 1850, Messrs. Standish and Noble, formerly of Sunningdale, contribute a chapter on the history of hybrid rhododendrons. This is quoted at length on pages 28 and 29 of Mr. Millais' great work on "Rhododendrons, 1917"; he says that the firm in question was particularly active and successful. The chapter states *inter alia*, "We find that analogous to what is observed in the animal kingdom, the wider the cross the more healthy the progeny, and that breeding in and in produces weak and deteriorated constitutions. We have a remarkable instance of this in a batch of hybrids raised from R. caucasicum album (that being a hybrid) fertilised with its own pollen. The plants are extremely dwarf, with variegated foliage. So dwarf are they that many of them bore 8 or 10 flower buds when only 4 to 6 inches high and 4 years old. Flowers produced by these dwarfs were again fertilised by their own pollen and, although seeds were produced and these germinated, the plants could not be kept alive, but after various durations of existence from 2 to 18 months they finally disappeared. One of the dwarfs above named, which we have called The Bride, fertilised with the pollen from another distinct hybrid has, however, produced some very healthy seedlings. . . . We would beg to recommend all who intend practising this very interesting branch of horticulture, no matter what class of plants they propose to operate on, to choose the parents, whether species or hybrids, as far removed from each other as is consistent with the constitution of the plants and the result aimed at."

The interest in the genus rhododendron is increasing to a very marked extent.

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Much time and effort are being given to the introduction of hundreds of new species, and cross hybridisation is now being carried out on such a large scale that the flora of the gardens of the future (if there are any gardens) will be very different from that of last century.

Excellence of constitution is of the utmost importance, and it is essential that attention should be given to such points as that raised by Messrs. Standish and Noble.

In considering, first, the seeds that come from the botanical explorations of China, that great home of rhododendrons, it is difficult to imagine that they are not the result of fertilisation by self pollen. Unfortunately, I have never had the opportunity of visiting those Meccas of all flower lovers—Yunnan, Szechuen and Hupeh—but I cannot think that the pollenisation question differs there from the conditions prevailing here among many acres of old-established thickets of R. ponticum. In these I find that fertilisation appears to be generally carried out by the conveyance of the pollen to the stigmas by multitudes of humble-bees. While it is possible a bee may arrive from a different species and carrying its pollen, this is to a large extent lost in the first corolla it enters. True, this particular ovary may be cross hybridised, but when it is considered that this is only one flower of a truss and only one truss of many thousands, the odds against the seed of that particular ovary germinating and growing to maturity must be prodigious. The bee, however, then proceeds from flower to flower and truss to truss, and consequently the ovaries are practically all fertilised with pollen of the same bush and, in the majority of cases, the same truss, and, if the statements of Messrs. Standish and Noble are correct, the progeny must be inbred and, consequently, weaker. In the natural habitats of the genus this would not appear to be of importance, as I am told seedlings are seldom seen, considerations of light rendering germination impossible. Also, that regeneration occurs *en masse* usually after fire, and that possibly an entirely different species then appears. Consequently, the fertilisation by own pollen in the main would have no effect, evil or otherwise.

But it is surely altogether different when the seed of this natural fertilisation is collected, sent home and grown here. The betting is greatly in favour of the truss having been fertilised from the pollen of its own flowers. From this seed possibly only a limited number of seedlings are grown. If the plant is good, practically everybody who possesses one of these seedlings endeavours on its first flowering to propagate it by seed from self-fertilisation. In many cases this must also be carried out with the next generation and possibly farther, and, in consequence, if inbreeding is detrimental the constitutions of the eventual seedlings must be sadly impaired. A great deal of experimental work would be necessary before a definite statement one way or the other could be made, but so far I have been much impressed by the very slow growth of R. discolor × self as compared with R. discolor × R. discolor, the latter seedlings being more than three times the size of the former and infinitely more virile. R. discolor has been crossed with a multitude of species and hybrids, and generally, I think, the most outstanding feature so far is their excellence of growth. For instance, R. discolor × R. B. de Bruin (a somewhat dwarf hardy hybrid) promise to be rhododendrons of great size. On the other hand, I think I am correct in stating that seed of R. auriculatum has only been sent home under one number (Wilson No. 920) and I have been told that there are under fifty of the original plants in this country. But there are now very large numbers of seedlings from these plants, and all those I possess or have seen are vigorous to a marked degree, making in their very youthful stages a couple of large growths each year. But these form no conclusive argument, as careful tracing of the parents would be required.

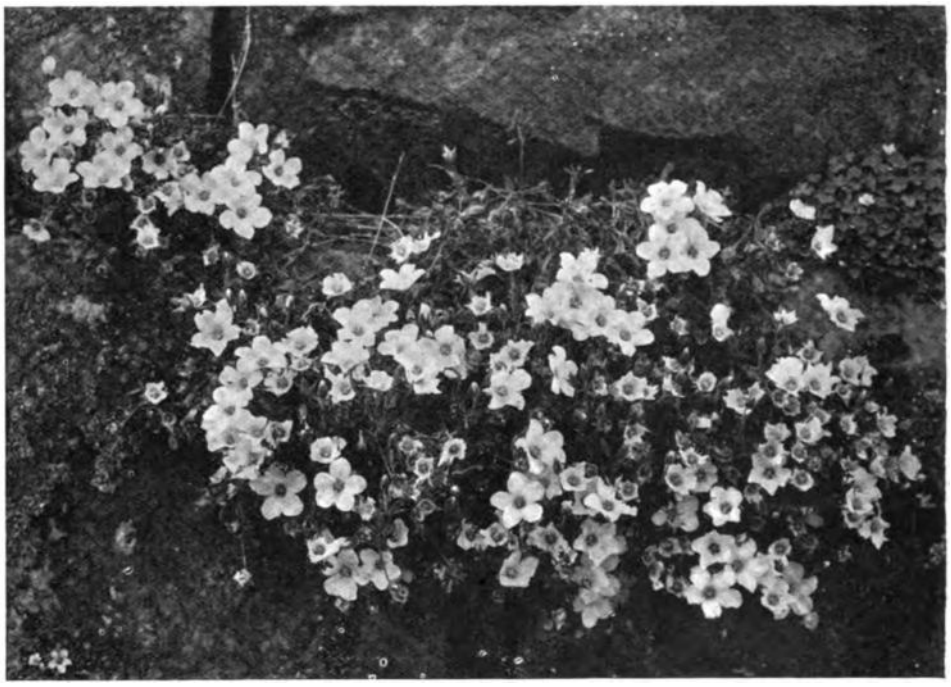
It has been said that the many species in the same phylums of some of the series are caused by geographical separation. If so, and if the progeny of widely separated (geographically) parents are more robust, a great field awaits the hybridiser. Such crosses as arboreum (blood red) × Delavayi (blood red), Thomsoni × Meddianum, sino grande × præstens, croceum × Wardii, Hookeri × Meddianum, barbatum × strigillosum, neriiflorum × hæmatodes, sanguineum × hæmaleum, Farrers 979 × Hupeh Fortuneis, auriculatum × diaprepes, sulfureum × Boothii or theiocroum, and an infinite number of others suggest themselves. Purely from a garden point of view, the offsprings of these crosses should be practically identical with their parents as far as leaves and flowers are concerned, and I wonder how their constitutions would compare.

In view of what is happening to-day in rhododendron cultivation, perhaps some of your readers would express their opinions. A learned botanist's verdict would be particularly helpful, especially, if possible, confined to this particular genus.—J. B. STEVENSON, *Ascot*.

[This subject of inbreeding appears to be of such general interest that we shall be pleased to receive the views of our readers.—ED.]

THE MOUNTAIN SANDWORT.

A FAVOURITE with all lovers of white-flowered alpine plants is that hardy, spreading European Sandwort, Arenaria montana grandiflora. It is adaptable to almost any soil and position, and, once established, blossoms with the utmost profusion, the large pure flowers being thick enough to create masses of crystal white. It is indispensable on the rock garden, where it soon carpets large areas and tumbles down in rivulets of blossom between the boulders. Of this pretty genus this is the largest-flowered kind, and is here seen growing between the sandstone blocks of a low retaining wall. Little or no soil is used in the building of these walls which form such happy homes for small plants, a mere scattering of sand or fine soil sufficing to balance the stones. The plants depend, of course, on the border in their rear for nourishment. The packing of large quantities of soil between the layers of stone—a course often adopted—is not to be recommended for many reasons. As a broad edging to raised beds of flowers this pretty sandwort could scarcely be surpassed, for do what one will the rolling lines of bloom insist upon falling over the edge and into the path in a very picturesque way. Quite recently I saw it scrambling through the branches of Abies excelsa nana, the



ARENARIA MONTANA GRANDIFLORA AT GRAVETYE.

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face of which was embedded in snowy whiteness up to a height of 2ft. It is easily increased either by division of its roots, cuttings in early autumn or seeds in spring.—E. MARKHAM.

ROCK GARDENS UNDER GLASS.

I ENCLOSE photographs of two old greenhouses which are now used as indoor rock gardens. The smaller illustration is the outside view taken from the north-west, and shows the general arrangement. Outside against one wall there is a rockery which hides the brickwork and gives one a chance to compare inside and outside behaviour of plants. This outside rockery tends to hold moisture and gets some shelter from the east. It was planted up in spring with all sorts of things to fill up, and they made quite a brave show until the frost came. I had a few of Kingdon Ward's new Chinese primulas growing here and Gentiana Farreri did quite well, but the autumn was too wet to let me save seed and increase my stock.

The larger of the two houses is the old alpine house with an inside rockery, and this was completed before the larger and more elaborate house in the Royal Botanic Garden, Edinburgh, was begun. Plants did well in it until my gardener was called up for Service, and then the house was more or less left alone.

It is possible to make out the leaves of Primula verticillata on the first step on the top, and a little farther in is Rosmarinus prostratus, and still farther off in an intermediate position P. marginata is putting out new leaves. We had frost outside on one night—down below 10° F. in the screen and the soil inside the house was frozen well in.

The other illustration shows my later house. It is a moraine, and along each side, buried just under the ventilators, is a perforated pipe which can be turned on or off as required, and thus supply underground water to plants that are in a permanent position. This house has been filled up with pots to make a show, but there are a few things planted out in it. Halfway along on the right side is a colony of P. malacoides, but this has been supplemented with pot plants to make a brave show. Those permanently planted stood the frost I mentioned above. On the same side, right in the corner, will be seen heads of P. Mooreana. This plant has been in flower since August.

THE NEW AND OLD HOUSES.

The older house is better adapted in the matter of ventilation and light for growing hardy alpine plants, for the newer house was designed originally for growing cypripediums in a moist atmosphere. I cannot yet say whether the ventilation is right, but the two houses give some variety where it may be desirable.—WM. LOW, *Balmakewan, Maryhirk, Kincardineshire.*

[If other readers are accustomed to this phase of gardening, we shall be glad to receive their views.—ED.]

EUCRYPHIA PINNATIFOLIA.

HAVING had considerable experience with this shrub in various parts of the country, I would like to add a few notes to those now appearing in THE GARDEN. Probably up here in Scotland, like the colder and less favourable districts of England, the planter, as "Formakin" (page 9) remarks, must possess his soul in patience. But in the south and the western counties plants raised from seed and planted out in a good free soil will generally flower profusely in their fourth or fifth year; at this stage the plants should be 3ft. to 4ft. high. Many at this size can be split up with ease. I find, like the Donard Nursery Company (page 37), that seedlings vary considerably both in habit and flower, some forms growing very quickly and quite erect, while others seem to make up the difference by branching out into bush form—doubling is rare and not desirable.

Although good specimens are sometimes seen in odd and often sunless corners, in my opinion they seldom reach the standard attained when planted in the shrubbery or grown as lawn specimens, provided they get plenty of well rotted manure or decayed leaves, and are not too much exposed.

So far, I have had no occasion to resort to the saw when propagating, but can quite imagine it being done with complete success when the necessity arises. I find patience is most needed when striking cuttings, for it is a considerable time before they emit roots. Where E. pinnatifolia is known to be a success it might be made more use of, especially in some formal gardening schemes, and in some cases in place of the pergola. Erica carnea might then be used as an edging plant, and early bulbous plants could be introduced without interfering greatly with the plants' development. An annual top-dressing of old potting soil and spent mushroom dung will prove beneficial and to many is preferable to farm manure. Here, E. cordifolia is more at home than E. pinnatifolia.—J. T. H., *Dupplin Castle Gardens, Perth.*

A PORTION OF THE INDOOR ROCK GARDEN.

THE SNAKESHEAD.

THERE is much to be said in favour of the view expressed on page 49 by "N. H. P." that the snakeshead fritillary thrives best when the ground has a covering of some live plant over its roots. I have never seen a mixed bed of the chequered and white variety in the garden grow with such vigour, variety and numbers as in a meadow being grown for hay near Oxford, where the plant is native. In some meadows that were pastured by cattle the plants were scattered thinly over the ground, but the hayfield was practically purple with the flowers of the fritillary, just overtopping the rank grass. Many shades of purple were to be seen, and the darkest ones were the most distinctly chequered. Pure white ones also occurred. The soil must have been as full of bulbs as if purposely planted.—HORTULANUS.

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TREATMENT OF SEEDLINGS

BY L. B. STEWART,
Of the Royal Botanic Garden, Edinburgh.

THE introduction of seed into this country has for the past few years called for a large amount of attention from the gardener, as he has been handling such a quantity of new material never in cultivation before.

When collectors, like Mr. G. Forrest, send home seed, the seed packets are numbered; if not, the genus is mentioned, *e.g.*, Aconitum sp., etc. It is always advisable to have the collector's numbers running consecutively when sowing; then finish off the sowing with the genera alphabetically arranged. Where there is a large genus to deal with, such as Rhododendron, it is better to keep all the species together, having them numerically arranged, thus making it easy to get into touch with any of them at short notice.

When germination starts, the pots should be gone over every day, and each one as its seeds germinate should be removed from among the sowings to a separate bench and kept there until the seedlings are making their leaves beyond the cotyledons. Following this, they should be put into a house or frame with a cooler temperature, where they will remain for a time making growth, and in due course be pricked out. This operation should be done at the earliest period, as it is found in this establishment that the sooner the seedlings can be handled the more success is met with. I think if the seedlings are left until the roots have all interlaced before removing, it will be found that they get a severe shock and never attain their full growth, often having disastrous results. We always prick out rhododendrons at the earliest moment—just when the young plants have finished making their seed leaves.

Often it will be found, however, that the amount of seed to be handled is too great in proportion to the size of staff and accommodation that can be given to it; then, of two evils always choose the lesser. Such seed as meconopsis, primula, campanula, roughly speaking, all herbaceous and alpines, must be sown and handled the same season. The exceptions to the rule, however, are cotoneaster, berberis, castanopsis, quercus and betula; if there is not time to handle these the same season they should be sown thinly and allowed to remain in the seed pots until the following season, when it will be found that a great many will be ready to run out into nursery lines. If they have not attained a size for planting out in the nursery, they can be allowed to become fairly dry, after which the earth should be shaken off the roots. They may then be potted singly or pricked out in pans or boxes. The following is, I find, an excellent plan for liliums and nomocharis: Sow thinly and leave in seed pots until they have gone to rest, then plant out in frames or boxes. Although I have observed that with some liliums which are pricked out, like ordinary seedlings, they often make a second growth, but my experience is that they are better left until they rest before shifting.

After pricking out has gone on for a month or six weeks, it will be found that many of the first batch are ready to be put out in an ordinary cold frame. At this time it is advisable to arrange the plants in their groups—Herbaceous, Alpines, Shrubs, Trees—with each genus in rows and numerically arranged. Should there be members of any of the genera which have evergreen and deciduous species these should be arranged, deciduous and evergreens separately. As the season goes on it will be found that the herbaceous plants do not go to rest all at one time, and as each one goes to rest it should be removed from among the growing seedlings in order to get proper treatment. This is only done for the convenience of watering, as it is not practical in this case to do this individually, for it is much easier to water in community. The moving, although taking a lot of time, has a great advantage, as it prevents the roots from rooting through the pans or pots into the ashes, sand or soil in the bottom of the frame, avoiding the breaking of roots which so often causes the death of the plants. The alpines which have been raised and pricked out are best kept in a cool frame or small pit by themselves, as they can be better handled and prepared for planting out, as many of their larger neighbours are very apt to overcrowd them. If once they are overcrowded, they become unhealthy and many die. In preparing the alpines we find, in this northern area, that plants do best planted out of small pots—nothing larger than 3in.—because the pockets in some rock gardens are so small and planting out should be done with as little disturbance as possible to the roots. If done carefully the plant will get little check, if any. I think it is a great advantage to move plants by stealth, so that they are unaware of having been moved.

Temperature is one of the things which require a considerable amount of study. In the springtime, when we begin to get sunny weather, one has to be on the alert to prevent quick rises of temperature and the airing must be regulated with the greatest of care. Never force up the temperature to day-heat with fire, unless it is evident that the sun is not likely to come out. However, if the sun refuses to come out, a little more fire heat will be required, but then only keep it at the minimum dry temperature. During the past few weeks we have had very trying weather—one day and night hard frost, the frost registering 13° Fahr., the next day very mild, the temperature rising to 48° Fahr. maximum. Under such conditions the keeping of seed pits or frames at an equal temperature is somewhat difficult, but big fluctuations should always be avoided, and this may be done by heating, or covering frames with mats or straw. Where hot-water pipes are employed big fluctuations need never occur.

Watering is always an all-important matter with regard to seedlings. When the seeds are first sown in the Royal Botanic Garden, the first watering is always done by placing the pots in a tank or large saucer of water, as near to the temperature of the house in which they are to be germinated as possible, and this treatment goes on during the whole season. After the seedlings are out in the frames, before watering them the water which is taken from the outside tanks must in many cases be heated. This prevents the young plants from getting chilled. After they have passed the seedling stage, however, the care of temperature of the water is somewhat relaxed, although I think, and have proved many times, that by kindly watering many deaths have been avoided.

In potting seedlings the main point to be observed is the root system of the plant. A plant which has a straggly root system needs much more care than does a plant which has a very fibrous root system.

We come now to the time when we are receiving seed from abroad. Never should packets of seed be laid aside with the saying, "We will sow in the spring." As all practical gardeners know, there are seeds, such as quercus, magnolia, elm, crinum, etc., which may be termed viviporous seed, and which should be sown at once. At this time of year it is not advisable after sowing to place these seeds into too much heat, but just to keep them moving until they "catch the season," when you will find that you have far healthier plants and very much bigger plants. If placed in heat the growth is either short and stumpy or of a very long-drawn-out structure, which in a lot of cases causes a "C 3" progeny. The hard-seeded ones may also be sown and put into a dark place—underneath a stage. The remainder of the importation may then be left and stored until spring. The labels of these can be written now in order to save time later in the spring, when there is so much to be done.

It will often be found with seed coming from abroad that the seed coats have become impregnated with different kinds of moulds. Many of these moulds are distinctly harmful to the germination and growth of the seedling, and should be got rid of as quickly as possible. When the seed is large enough to handle easily, we wash it in the Garden here in a 5–10 per cent. solution of permanganate of potash, and when the seed is small it is treated in the seed pots by watering with a fine rose. This solution kills the fungi, seems to stimulate the seedling, and hastens its germination, and when applying the water solution it should be of the same temperature as the house or frame in which the seed-pots are kept.

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CANTERBURY BELL CULTURE

BY H. W. CANNING WRIGHT.

PROBABLY no other member of the great Campanula family enjoys quite so large a measure of popularity as does the Canterbury Bell. Certainly none of the biennial species does. Not only are they "easy to grow," but very beautiful, and one is sure of a long, lasting and abundant display of their glorious flowers, with but a minimum of attention.

The first point, naturally, that arises when considering their culture is sowing the seed. Obviously, the best results must follow where the plants that are put out in autumn consist of those giant rosettes of leaves which only follow a long period of steady growth—the result of early sowing. Experience and observation have taught us that the usual period—May or June—is too late, and that late March or early April are far better, especially where the plants are to be used for pot culture for flowering about Christmas time, although

Photo Carter and Co.

A FINE COLLECTION OF CANTERBURY BELLS UNDER GLASS.

it is a remark that applies with equal force where ordinary open ground culture is to be followed. Shallow boxes, filled with light, rich, rather sandy soil made very fine on the surface, are the best receptacles in which to sow, and this, of course, should be thinly done. The merest scatter of soil over the surface is sufficient covering and, if placed in the greenhouse, only the most moderate temperature should be used. April sowings only need a cold frame, and once the little plants are up and have formed three or four leaves (whether raised in heat or not), no time should be lost in pricking them out in the nursery beds where they are to grow until the autumn.

Rich soil is not at all necessary, provided it has been well dug and a reasonable amount of manure added during the winter; while, too, a semi-shaded spot will serve quite as well as a sunnier one. Give the seedlings sufficient space—1ft. from plant to plant is not excessive in the case of these early sowings—and, beyond an occasional watering during dry spells and free hoeings to keep down weeds, the plants will make but small calls upon your time during the summer.

Before leaving the subject of seed sowing, attention may well be directed to a very charming but somewhat unusual use of the plants, *i.e.*, growing in walls. Their effect here is splendid and, owing to their adaptability to growing well in poor soils, they give excellent results where but a modicum of earth exists. In this case we much prefer to sow the seed *in situ*, rather than transplant the roots, and a good method to follow is to scoop out a hollow between the stones that form the wall and fill this tightly with fibrous loam. Place some moss in a small bowl with just a little water, add enough loam to form a stiff paste, and then take up enough of the mixture to form a small ball, drop a few seeds into this and push it firmly into the prepared wall pocket. It will be necessary to see that this soil is kept just damp during dry times until the seedlings are well started, and not more than one plant should be allowed to grow at each point. Once well started, they are quite capable of taking care of themselves and bear long droughts without injury.

Reference was made above to their culture in pots for flowering about Christmas time, and this is extremely easy, for they will do so, either then or at a later date—with the most moderate inducement in the way of artificial heat. For this purpose the plants should be lifted from the nursery beds in September and potted up in 8in. or 10in. pots, according to the size of the plants. Drain the pots freely—the Canterbury Bell detests stagnant moisture—and use a compost consisting of two parts fibrous loam to one of old manure, and sufficient sharp sand to make the whole feel thoroughly gritty. Pot firmly, without making hard. Place the pots in a cold frame until established, then admit plenty of air. The plant is perfectly hardy and will stand a good deal in the way of cold, but one does not want hard frost to injure the rosette of foliage. All dead and decaying leaves should be removed, water very moderately and—during October—introduce into a very cool greenhouse where plenty of air is admitted. When the centre begins to spindle up into the flowering stem, support by a light strong stake and feed with weak but varied liquid manure.

In the open ground, a great point should be made of getting the plants into their flowering quarters *early*. They are splendid for following annuals, etc., as this permits their being put out during the first half of September, and far better results follow this method than where the work is deferred until later. Do not forget the point that they detest an ill-drained soil and that you may plant either in full sun or partial shade with assurance of success.

Lavish massings give the best effects, although here and there specially vigorous plants may be set out singly. In this case they will, with rich soil, attain a similar height to pot-grown specimens—2½ft. to 3ft.—and become pyramids of blossom from base to tip. As the first flowers pass, the plants should be gone over with the scissors and all faded blooms be snipped off, while the soil may be watered with a little sulphate of ammonia. This causes the secondary buds to swell and develop, and but a short interval will pass before your Canterbury Bells are again a mass of bloom.

As tub plants on lawns and terraces, the Canterbury Bell is capable of forming noble specimens that will prove a formidable rival to the fuchsia when they are more widely appreciated in this direction.

In raising from seed, only a proportion will come true, especially among the doubles, while even singles vary in colour. The Cup and Saucer varieties are among the very best as equally good in pots or the open ground.

Biodiversity Heritage

WEEDS AS HOST PLANTS FOR INSECT AND FUNGOID PESTS

BY A. J. MACSELF.

THE indictment of weeds as criminals of the garden embraces counts of major and minor importance. Robbery of nourishment from the soil is undoubtedly among the majors; but, whatever may be said about their untidiness, and of the evidence the presence of weeds affords of careless and negligent husbandry—and these are very real and very true—they should certainly be called minor evils compared with the serious and dangerous count against many kinds of weeds that they act as host plants for insect and fungoid pests.

It is somewhat strange that we hear and read considerably less about this sinister vice of weeds than we do of their greed of nourishment and their untidiness; but if careful thought is brought to bear upon the matter, it must be realised that the harbouring of pests and diseases is by far the worst of the three evils.

If weeds steal nourishment from the soil, it is, at any rate, possible to replenish that nourishment by applications of manures and fertilisers, albeit the extravagance merits censure; but if weeds are allowed to serve as a refuge and breeding ground for all manner of pests they menace the healthy occupants of the garden and probably nullify the benefits that should accrue from any remedial measures employed upon infested and diseased plants.

It is of little use, for instance, carefully to spray roses or other plants to free them from a plague of green fly if a colony of sow thistles near by is allowed to remain teeming with aphis. The theory that different species of aphides attack different classes of plants is all very well up to a point, but there is not enough difference between the green fly one may find on weeds and those that infest calceolarias and the roses to render the latter immune from the unwelcome attentions of the ever increasing hosts of the weed-fed insects.

The recumbent foliage of a dandelion may afford shelter and food for slugs, and the thoughtless may say, "Let them feed away." It is all right when the slugs eat weeds, but the trouble is, there is no gaurantee that the slugs will remain on the dandelion, but a big risk that they will, sooner or later, migrate to the lettuces or the pansies. Chickweed, spreading prostrate over the ground, is another cosy shelter for slugs, and at night out they will come, to vary their diet upon the most appetising seedlings and young shoots around.

One of the most prolific nurseries for aphides is the hirsute foliage of Hieracium Pilosella, a pretty enough little plant, but a most persistent weed, especially on lawns and grassy banks. Every flower stalk becomes densely crowded with greenfly, and it is no unusual thing for ants to transport the young aphides from their overcrowded home to the tender young shoots of plants near by, where they may feed and grow fat, to yield payment for services rendered by exuding honey-dew upon which the ants will feed. The hieracium often establishes itself on banks at the foot of the hedges around a garden. It is prudent, therefore, to extend weeding operations even to the hedges and ditches, where often caterpillars as well as green fly are bred.

The frog hopper or froth fly breeds freely on weeds, and the mature insects will travel from them to chrysanthemums and many other plants of the herbaceous border. It may be readily understood that if an odorous spray fluid, or a bitter wash such as quassia and soft soap, has been used on a batch of plants, a moth or fly, seeking a suitable leaf or twig upon which to deposit her eggs, will hesitate to select the sprayed plants. If, however, a clean healthy batch of weeds with soft young growth happens to be close at hand, the trouble of further search is avoided, and instead of a clean slate so far as that particular pest is concerned, the weeds will serve to maintain the stock. The troublesome white fly is quite frequently able to find refuge among weeds when fumigating starts. It is not only in regard to insect pests, but, perhaps even to a greater extent, with fungoid diseases that weeds are a menace. Even the common groundsel will frequently be literally smothered by common mildew, or in times of drought with one of the summer rusts that develop when a plant is stunted and weakened. It often happens that the small, starved plants that crop up between the stones of a yard or path become afflicted with disease while healthier and stronger plants escape. With all these spore-producing, parasitical diseases the smallest foothold is sufficient to start what may easily, under suitable atmospheric conditions, develop into a veritable plague. The dreaded hollyhock rust will develop on wild purple mallow, and several of the potato diseases affect the solanums in the hedges. Leaf-curl, shot-hole fungus, cladiosporums in variety, and puccinias will all be found sooner or later where neglected corners are choked with weeds, and spores or mycelium will eventually get to valuable plants.

The common-sense conclusion to which these facts lead is that herein lies one of the greatest—if not, indeed, *the* greatest—of all reasons why weeds cannot be tolerated in the garden or orchard, nor even along the hedge banks and ditches or in the odd corners around the rubbish heap. It will, moreover, be very apparent that the mere chopping down of weeds, or the process of uprooting them and allowing them to lie on the ground will not suffice. Spores of fungoid plant diseases, eggs and pupæ of insects may fall to the ground and lie dormant until a favourable moment for activity arrives, and to this fact may be attributed the sudden and mysterious outbreak of trouble on a batch of plants that started with much promise.

Old weeds should be pulled up, placed directly into a basket or barrow, and conveyed to a rubbish fire. Only perfectly clean young weeds should be dug in, and only the smallest of young seedlings allowed to remain on the surface after hoeing.

These precautions are an essential part of a really well planned campaign against the enemies of the garden.

GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Cauliflowers.—To maintain a succession another sowing should be made, and if the ground is dry enough and a warm border is available a sowing may also be made outside. Sow the seeds thinly in lines one foot apart and select such varieties as Early London and Magnum Bonum.

Lettuces.—Both cabbage and cos varieties may be sown in the open providing the soil is not too wet, if so it will be best to utilise boxes and raise the plants in a cold frame. When large enough to handle, the seedlings may be transplanted on a warm or sheltered piece of ground, but before this is done they should be well hardened off. Two of the best lettuce I grew last year were Ideal and Golden Ball.

Turnips.—Although it is early to sow turnips in quantity, it is advisable to make a beginning with Snowball or some other small white variety. Here again a warm spot is advised and only a few lines should be sown. Protection from birds will be necessary.

Celery.—During the next week or two sowing of celery is recommended, choosing Solid White and Sulham Prize. Sow the seeds thinly in boxes containing light soil, and place them in a warm house or on a mild hot-bed until the seedlings appear. Keep the young plants well up to the light, and do not let them suffer for the want of water. When the plants are large enough to handle, prick them off in boxes or a cold frame about 3ins. apart. A mixture of loam and leaf-mould or manure from a spent mushroom bed will make a suitable rooting medium, and if

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a cold frame is selected it should be set on a hard bottom. Gradually harden the plants before pricking them off, and when the weather is mild admit air freely.

Spinach.—Make another sowing of spinach on a piece of ground which has been dug deeply and afforded a liberal dressing of manure. Spinach is often sown between lines of peas, but if it is decided to sow elsewhere, the rows should be about fifteen inches apart.

THE FLOWER GARDEN.

Herbaceous Borders.—Many leave the digging and manuring of these borders until the present time or early in March, but much depends on the season, and in any case such work should be completed as soon as possible. There is still time for planting, and, no doubt, early spring planting has its advantages: the roots soon become active, and there is often less trouble with slugs.

Petunias.—For a sunny garden petunias are strongly recommended, and perhaps for beds the large-flowering single varieties are the most showy. Seeds may be sown during the next few weeks in pans containing light soil and the seedlings raised in a warm greenhouse. Prick them off when large enough, and if the sun is strong they will need a little shade until they are re-established. It is advisable to prick off all the small seedlings as they often produce flowers more richly coloured than the strong-growing plants. Keep the seedlings free from aphis and do not allow them to become starved.

Border Chrysanthemums.—A good supply of cuttings is now available on old stools that were lifted and placed in a cold frame, while several varieties left in the open ground are also well furnished with young shoots. These will readily form roots if placed in pots or boxes containing sandy soil, and arranged in a warm pit or greenhouse. A cold frame will also suffice, but, in this, damping off should be watched for, and decayed leaves removed immediately. Young plants produce the best flowers, but where any variety is scarce the old stools may be planted out later on.

THE HARDY FRUIT GARDEN.

Old Fruit Trees.—These will be greatly benefited by applications of liquid manure, and I remember one orchard containing rather aged trees that received three or four good soakings annually and the fruit improved in quality. In most gardens manure is scarce owing to motor transport, but in many places the liquid manure pit is still available, especially where cows are kept, and it ought to be utilised to the best advantage. Liquid manure should be given when the ground is more or less moist and not during a dry period.

Autumn-planted Trees.—Specimens that were planted early in the season may be lightly pruned about this time. Strong shoots should be cut back about one-third of their length, and weaker growths pruned to three or four buds, or entirely removed if they are likely to crowd the centre of the tree.

Raspberries.—The autumn-fruiting kinds will need attention during the next week or two, the canes being cut down to the ground level, and if not already done beds that have not been transplanted should be afforded a mulch of farmyard manure. There is still time to make new plantations. When the new growths appear they should be well thinned. Some of the autumn fruiters, especially the Hailshamberry, produce a large number of shoots which, if left alone, would become a mass of weak growths that will only produce inferior fruit.

FRUITS UNDER GLASS.

Melons.—Now is a good time to raise a batch of plants which will ripen their fruits when the sun is strong. The fruits will therefore be of excellent flavour. Small well drained pots should be chosen and filled with light soil, and it is advisable to place them in the warm house or pit a few days prior to sowing the seeds. When the soil is warm sow the seeds singly, and if the compost is not too dry no water will be needed until the seedlings appear. A temperature of 65° to 70° is essential during the day with a fall of 5° or so at night. A cucumber house is excellent for growing young plants of melons, but when they reach the flowering stage different treatment is necessary. When the small pots are filled with roots, the plants may be transferred to receptacles 5ins. in diameter and kept well supplied with tepid water.

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FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Horseradish.—Vegetative propagation is the usual method by which this plant is increased. Pieces of the roots should be secured now and placed into holes 8ins. deep—made by a dibber—in good and well trenched ground. The holes should be 1ft. apart and about 2ft. allowed between the lines.

Onions.—Where seedlings are well advanced they should be set out into boxes containing soil that has been firmly pressed. Prick out the seedlings carefully at 1½ins. apart. Keep in a moderately heated house or frame and shade from bright sunshine until re-established.

General Work.—If a spare frame or portion thereof is available, a little of the following seeds should be sown: cabbage, cauliflower, Brussels sprouts, leeks and lettuce. Continue to forward the digging, manuring and trenching of all vacant ground.

THE FLOWER GARDEN.

Foxgloves.—Masses of these plants when in flower in woodland or vale are a charming sight. Here we have a large number of plants raised from seed, and these we shall set out now in open places in the shrubbery.

Herbaceous Borders.—The autumn is the best time to trench and replant these borders, but where the planting has been delayed it should now be carried out. Some kind of plan should be worked to as regards colour harmonies and arrangement, also see that every plant has a proper station at proportionate distances. This applies more to formal borders of medium size, and where varied plants are set to give of their beauty over as long a period of the year as possible. Each plant or group of plants should be labelled, so that an intelligent interest may be taken in their care and cultivation.

Roses.—If climbing roses have become overgrown, they should be taken down from the poles or rustic erections and properly pruned by cutting out all dead and worn-out wood. Select the young and best placed ripened stems and from these cut away all small side shoots an inch from the stems. Afterwards replace and tie the pruned stems to the poles, etc. Where rose planting of any kind has yet to be done, have the work completed at once.

THE HARDY FRUIT GARDEN.

Apricots.—The training of the trees should now be taken in hand, and more progress will be made in mild weather than on cold days. If time is available, all old shreds should be cleared from the stems, so that nothing likely to harbour dormant insect life is left about the trees. Next space out as uniformly as possible—3ins. apart may be taken as a guide—all properly matured wood, cutting out all spindly and badly placed shoots to two or three buds from the base. All prunings and old shreds should be burnt. For a top-dressing loam, old lime and sea sand, mixed in proportions of four parts loam to one each of the others, will be found suitable. Before applying see that the soil, especially near the base of the wall, is not in a dry state. Sometimes violets are grown at the base of wall fruit trees, and these plants are a hindrance to top-dressing.

Cherries.—These trees, and indeed all wall fruit trees, should be made secure to the walls and the young wood laid in where necessary. The pruning of the Morello consists in cutting out all old and worn wood and retaining the young wood except where overcrowded. The other kinds of cherry trees bear their fruits on spurs. The soil recommended for apricots may be used as a top-dressing for all stone fruit. Farmyard manure may be applied to apple and pear trees.

Small Fruits.—It is not too late to plant or transplant young currant or gooseberry bushes; however, the work should be completed at once. The soil between the bushes of established plantations should be lightly forked over and the plants mulched with farmyard manure.

Spraying.—As soon as the pruning is completed spray the trees. Bentley's Concentrated Alkali applied according to directions and in the proportions given on the tins is to be recommended. Apply with a fine spray; this wash will burn the moss and lichen on the stems. Choose a calm day for the operation and take the precaution to wear strong gloves and smear the face with cold cream or vaseline. All places on the old wood likely to harbour insect life should be thoroughly sprayed.

FRUITS UNDER GLASS.

Figs.—Prune trees on walls by cutting out all weak and overcrowded wood. Afterwards cleanse the stems with Gishurst Compound and then tie up the trees.

Peaches in the late houses should now be in full bloom, and the work of pollinating will call for daily attention. A small soft-haired brush or a rabbit's tail tied to a stick will be found very useful for going over the flowers. Ventilate the structures freely on all fine days, and hive bees, if in the vicinity, will enter and industriously work among the blooms. In early houses, where fruit is set, syringe the trees daily during fine weather.

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GREENHOUSE AND CONSERVATORY.

Clianthus puniceus.—Although this fine plant can be successfully grown in pots, it is seen at its best when planted out in a cool greenhouse, trained up a pillar or back wall. C. puniceus can be either propagated by means of cuttings or seed, the latter method being best. If seed is sown at this time quite good plants may be obtained for next year. Germinate the seed in heat, but the subsequent cultivation should be carried out in a cool greenhouse. This plant is somewhat subject to attacks by red spider, which, however, can be held in check by regular syringing.

Clianthus Dampieri.—Commonly known as the Australian Glory Pea, this lovely plant has always, and not without reason, been regarded as difficult to cultivate successfully. Although one sometimes obtains good plants raised from seed and grown on their own roots, one is more likely to be successful if the plants are grafted on young seedling plants of Colutea arborescens (Bladder Senna). The operation should be carried out when bot-

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plants are in the young seedling stage. As the plants are so young and soft, great care is required. In performing the operation, the tip of the young seedling colutea should be cut out close down to the cotyledons and the soft skin then split downwards with a sharp knife. The young seedling clianthus should then be cut off near the ground line, trimmed to a wedge shape, and then inserted in the split stem of the colutea. Afterwards carefully bind it round with a strand of soft cotton. The young plants should then be stood in a close case or under a bell-glass. If the work is carefully done the young plants should unite in a few weeks, when they should be gradually accustomed to more air. As the season advances and the plants increase in size they should be grown in an ordinary greenhouse temperature. These plants are very impatient of disturbance at the root, thus great care should be taken when repotting. Perhaps the most effective way of growing these plants is to place several of them in a basket. Where it is desired to grow this fine plant from seed, the latter may be sown from now onward, it being an advantage if the seed pots can be stood in a warm propagating case until germination takes place. The plants grow quite well in any good potting compost, but the pots should be well drained and water carefully given at all times. Red spider should also be guarded against.

Tibouchina semidecandra, if planted out in the conservatory should now be pruned hard back, except where shoots are required for extension purposes. Some of the slender twiggy shoots may be used at this time for propagating purposes, as they root readily in a close case. Although seen at its best when planted out, this plant may be successfully grown in pots. Plants raised at this time will flower during autumn and winter. To keep them bushy and compact they should be pinched frequently during the growing season, and freely exposed to sun and air in a cool greenhouse.

Bouvardias.—Plants that have been at rest and kept dry and cool should now be started in a warm house. They should be shaken out and repotted into the smallest pots consistent with the size of the plants. If it is desired to increase the stock by means of root cuttings, some of the stoutest roots should now be secured from the older plants. Cut into pieces about one inch in length and dibble in pans containing sandy soil. Stand the pans in a warm propagating case. The variety Bridesmaid does not come true from root cuttings, always giving a proportion of Hogarth fl. pl. Later on the old plants will have made young shoots about three to four inches in length, which should be secured as cuttings. At this stage they root readily in a warm case. During their growing season bouvardias should be frequently pinched to induce a bushy habit, and if desired may be planted during the summer months. By this means fine large plants can be obtained.

Achimenes, are very useful for greenhouse decoration during the summer months. Some of the more slender varieties being very useful for filling baskets; in fact A. coccinea seems to succeed best when grown in baskets. The rhizomes should be laid out in leaf-soil and sand, and placed in a warm house. When they have made growth about two inches in length they should be placed in suitable sized pots, or pans, six-inch pots being large enough for the strongest-growing varieties. These plants enjoy a light rich compost with ample drainage. They are very subject to attacks by begonia mite and white fly. The former can easily be prevented by the use of the sulphur vaporiser, while the latter should be kept in check by fumigating with sodium cyanide or some other approved remedy.

Epacris as they pass out of flower should be cut back and stood in a house with a temperature of about 50°. At this stage they enjoy a higher temperature than Ericas. They should be encouraged to break into fresh growth by frequent spraying during bright weather. If repotting is necessary it should be done when they are starting into growth.

J. COUTTS.

Royal Botanic Gardens, Kew.

BOOK REVIEWS

STANDARDISED PLANT NAMES.

THE efforts over a period of five years of the American Joint Committee on Horticultural Nomenclature have culminated in an octavo book* of about 550 pages, which is supposed to be "a catalogue of approved scientific and common names of plants in American commerce." It is sincerely to be hoped that its publication may lead to the desired standardisation of names by American nurserymen, but for various reasons the writer thinks it doubtful. It does not seem feasible that a nurseryman, to please the Committee on Horticultural Nomenclature, will be willing to mislead his customers by listing Thuja occidentalis under that name and its weeping variety under the totally dissimilar description of American Weeping Arborvitæ. This is bad enough, but the purchaser would readily identify the plant offered, but what can one say for Robinson Anemone as an improvement on Anemone nemorosa Robinsoniana? One realises at once that the plant described in the old way—the way still current here—is a variety of the wood anemone, but only by consulting the "Standardized Plant Names" can one form any picture at all of the growth or stature of the Robinson Anemone. Moreover, what is to happen if and when some of the other numerous varieties of our wood anemone are introduced into American commerce? Presumably we shall have Allen Anemone, Purple Anemone and a host more, all without a label indicating their species.

Another drawback to the list is that it is not, unless one is greatly mistaken, complete. Can it be that no single species or variety of androsace is at present in American commerce? or that Viburnum Davidii and V. fragrans are as yet not on offer over the water? Should this latter be the case, it only shows how detrimental to American gardening are the foolish restrictions upon the importation of plants.

The Committee have, according to the introduction, taken especial pains with their standardised common names, but some of them are not unexceptionable, for example, European Cranberry Bush for the Guelder rose, Viburnum Opulus; our cranberry being, of course, Viburnum Oxycoccos. The Americans, however, seem to differentiate between "cranberry" and "cranberry bush."

The lists of dahlias, irises and gladioli seem more fortunate and useful than any other part of the book and will, it is to be hoped, be adopted by the American trade.

A list of standardised plant names is badly wanted in this country, but it is sincerely to be hoped that if and when it is undertaken the promoters will be less drastic and more practical in their recommendations. The American list could have been, in any case, of little use "on this side," because of the different and wider range of plants cultivated here. Almost the only use of the present issue in Britain—apart from the lists of gladioli, irises and dahlias—is in case one wishes to buy plants from the United States, and then only if the American horticultural trade adopts the nomenclature, which scarcely seems likely.—W.

* STANDARDIZED PLANT NAMES. Published by American Joint Committee on Horticultural Nomenclature, Salem, Mass., U.S.A. Price $5.00 net.

ANSWERS TO CORRESPONDENTS.

THE GREENHOUSE.

Geraniums Decaying in Greenhouse (A. L. M.).—The cause of the stems and leaves of the plants decaying is excessive atmospheric moisture. Our correspondent treated the plants correctly in the first instance and partly so in the present. The only thing to do now is to cut back the stems to the hard wood, place the plants in the warmest and driest position, and not apply water till new shoots begin to grow. In the meantime simply remove decaying leaves.

FLOWER GARDEN.

Daffodil Bulbs Unsatisfactory (F. G. L.).—We can find no organism or signs of the presence of any earlier attack in the bulbs sent for examination. We are of opinion that some condition in which the bulbs have been kept since last growing season has been detrimental to them.

FORTHCOMING EVENTS.

February 19.—Croydon Horticultural Society's Meeting.

February 20.—Glasgow and West of Scotland Horticultural Society's Meeting.

TRADE NOTE.

GARDEN ORNAMENTS.—A beautifully illustrated booklet of Garden Ornaments has just been published by Messrs. Sanders and Co., Garden Craftsmen, of Sundial House, 365, Euston Road, N.W.1, which will be sent post free on request. Many unique designs of both ancient and modern sundials, bird baths and vases are shown, with dimensions and prices. These are made in imperishable reinforced stone. Messrs. Sanders and Co. have made a speciality of the "Wycombe" bird bath. It is a very pretty and unique design, consisting as it does of a bath with a simple scroll pattern around the edge, standing on a graceful pedestal and base to a height of 2ft. 6ins., and the price is extremely moderate, viz., £3 18s. 6d. A bird bath of this nature placed in the centre of a lawn or other suitable part of the garden would be of great interest and usefuness all the year round.

South African Plants for Wembley.—By the steamer which left Capetown on February 7th there were shipped nearly two thousand specimens of South African native plants and bulbs which are to form a garden of exceptional interest at the British Empire Exhibition at Wembley. Not only are many of them curious and rare, but varieties will be shown which have only recently been discovered. All of them will repay the most careful attention and study. Once it is known what they are, perhaps the greatest interest will centre round what apparently looks like chips of stones scattered over the soil, for these are varieties of mesembryanthemums which in due time will burst forth into bloom. The whole exhibit owes its origin to the interest taken by Sir William Hoy, general manager of the South African Government Railways, in the beautifying not only of the more important stations, but those lonely wayside halts away on the desert Karroo and on the high veld. There, water cannot be had beyond the requirements of the resident staff, and this condition led to a systematic search for dryland plants which, with Sir William's facilities and energy, seems likely to develop into a service which will be of world-wide importance. Readers should make a note to examine this interesting collection.

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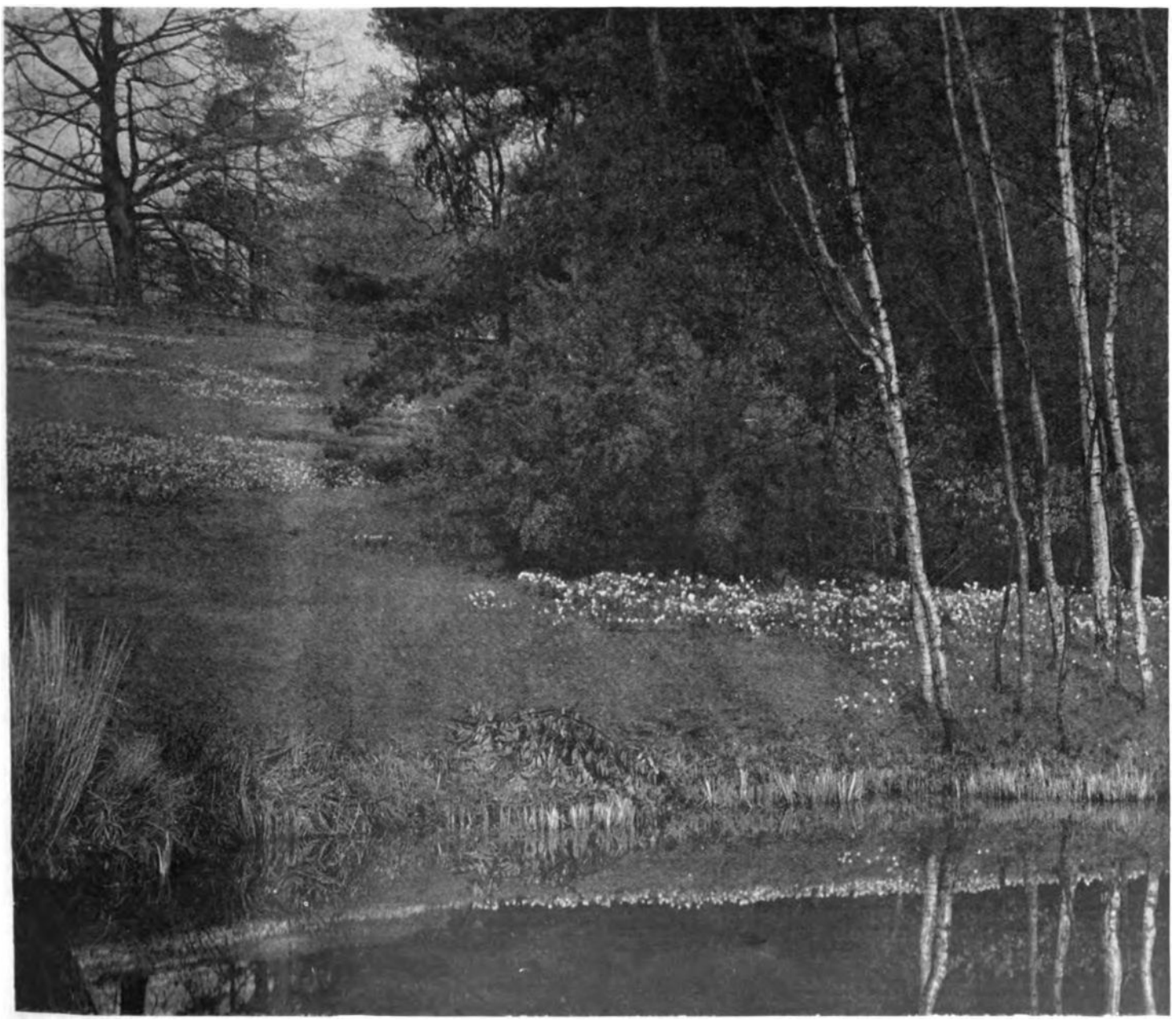

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GROW MORE FRUIT

WE are beginning, in this number, a series of articles by Mr. Hatton, Director of the East Malling Research Station on "Fruit Growing in Small Gardens." This is a subject which should be brought considerably more to the front, as the cultivation of dessert fruits in our gardens, with the exception of small fruits, is inclined to be relegated into the background. Our imports of apples from Canada and the U.S.A. alone totalled £5,823,864 during 1921. Statistics do not show what percentage of this figure consisted of dessert apples, but the amount must be large. It is this steady flow of fruit, of consistent good quality and attractively packed, that has brought about the decline in the cultivation of our own table fruits.

As Mr. Hatton points out, the demand of the jam makers and cooks has kept up the supply of cooking fruits and in that branch we are able to hold our own, but insufficient grading and careless packing have decreased to a minimum the demand for home-grown dessert fruits, so much so that those of first-class quality have become one of the most difficult commodities to obtain.

It is not with a view of teaching orchardists their business that these articles have been written, for the growth of fruit and its successful marketing are entirely separate. Taking into consideration our climate, as growers of suitable varieties of fruit, we are second to none, but our knowledge of successful marketing is almost negligible. The point, however, which Mr. Hatton does bring forward is that the owner of a garden, whether it be a six rod patch or a garden of several acres, is in a position to supply his household with a large proportion of the necessary table fruit throughout the year. It is true, that as a nation we eat more cooked fruit than the Americans; to them jam is a luxury and raw fruit a necessity, but even in this country the demand for raw fruit could soon be increased, for nothing is more palatable or better for the health than high-class dessert fruit. The Americans make a habit, almost unknown here, of beginning the day with an apple, an orange, a grapefruit, or with some stewed fruit, like apples or prunes. It is an excellent tonic and fruit might well become a general breakfast course in this country.

One of the usual arguments against growing fruit trees in the small garden is the question of space. It is frequently stated that apple and pear trees are picturesque but bulky, and they take up room which is more valuable for growing vegetables or flowers. In the second article of the series will be shown the plans of two small gardens, one badly designed and the other showing how fruit trees can become an integral part of a good garden. In the old days before the question of fruit stocks had been tackled by the scientist the argument about question of space was sound, but within the last few years it has been abundantly proved that a large and good crop in proportion to size can be obtained from an apple grown on a dwarfing stock. This means that they can be grown in a smaller space and that the shadow, owing to lesser height, is not of such a size that a disproportionate amount of ground around the tree is useless for growing other crops.

Probably, the main difficulty with the small grower is the choice of suitable varieties. The number of varieties now on the market is enormous and it is certainly a problem to find out which are the most suitable for your particular locality. The best advice that can be given is to make enquiries in your own neighbourhood as to the kinds which have proved themselves to be most satisfactory. Plant those which have been thoroughly tested in soils and conditions similar to yours and be satisfied with as few varieties as possible, provided that they give you a succession of ripe fruit and do not all come into condition at the same time. Do not be led astray by stories about a magnificent new apple, pear or plum which is sure to do well in your part of the country. If your own fruit trees are satisfactory and bear good eating fruit do not be influenced by a will-o'-the-wisp; let the man with the big garden do the experimenting. If he is a true member of the fraternity, he will realise that you have not the space for fruit trials and should be glad to give you all the information in his power.

Above all, make use of agricultural colleges which have a section devoted to fruit, and also of the Government experimental stations. There are many such institutions scattered throughout the country, as, for instance, the Wye College in Kent, the East Malling Research Station, and the fruit department of Bristol University. They are not there for their own amusement, but to help fruit-growing in this country. They are just as ready to help the small man as the orchardist with thirty acres. The pamphlets issued by the Ministry of Agriculture should also be better known. Your own bookseller is always able to obtain them through H. M. Stationery Office.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

NEW AND RARE CONIFERS, by E. H. Wilson of the Arnold Arboretum.

HERBACEOUS PÆONIES IN ENGLISH GARDENS, by Mrs. Edward Harding.

FLOWERING SHRUBS FOR A MODERATE-SIZED GARDEN, Part III, by W. J. Bean.

NOTES ON LACHENALIAS, by the Rev. Joseph Jacob.

RABBIT-PROOF PLANTS, by Sir Herbert Maxwell, Bt.

THE CULTIVATION OF FRUIT IN SMALL GARDENS, Part II, by Ronald G. Hatton, M.A.

GREENHOUSE CONSTRUCTION, by George Garner.

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FRUIT-GROWING IN SMALL GARDENS.—I

BY RONALD G. HATTON, M.A.,
OF THE EAST MALLING RESEARCH STATION.

THIS series of articles has been written in the hope of being able to give an indication to urban dwellers and to the gardener on a small scale that first-class fruit, both dessert and cooking, can be profitably grown in a small garden. I do not hesitate to say that, if the cultivator of the small garden would but pay attention to the knowledge that is being accumulated and the facts that are being published, he could grow more and better fruit in his garden. Now, by the small garden I do not only mean the acre, half acre or even quarter acre patch, but I am visualising as well the six, ten or twenty rod garden of the average town or village residence. Even the cultivator of larger gardens might take note to-day of some of the morals of fruit-growing in small gardens.

THE AIM OF THE SMALL GARDENER AS A FRUIT PRODUCER.

When the cultivator of the ten rod patch sees wonderful displays of British fruit, like those set before the public at such shows as the R.H.S., Imperial Fruit Shows, etc., he may have the feeling that with all this beautiful fruit available it is not worth trying to grow his own fruit in his own garden. Then his more practical wife reminds him that most of the fruit she buys does not approach in quality what she sees here, that she very often has to pay dear for inferior stuff and that there is nothing better for health or better to taste than really fresh fruit picked straight from the bush or tree.

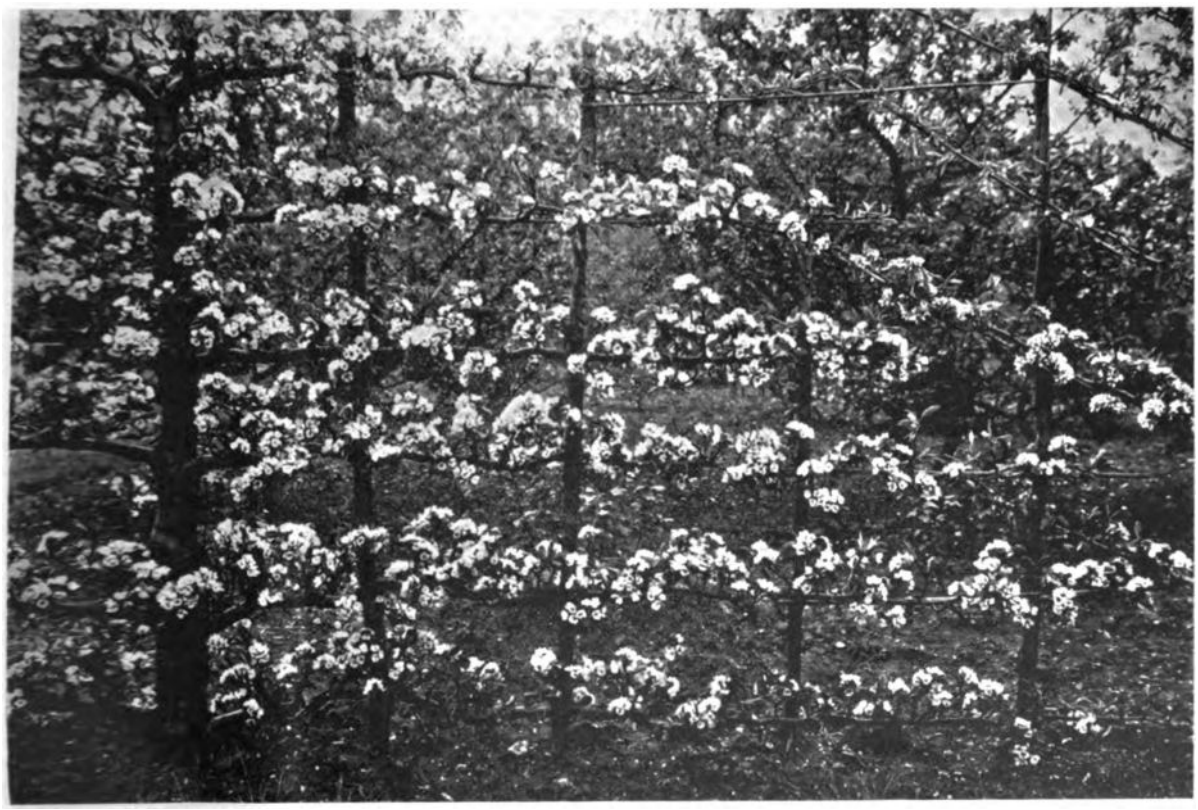
She can buy so-called "sweet eating" or "good cooking" apples, descriptions which may cover a multitude of sins, but who can guarantee her the genuine Cox's Orange or Ribston Pippin or the Royal Sovereign strawberry instead of Madame Kooi! She may even have suffered as I have, and wandered about a Kentish town and been offered only inferior Cox's Pomonas when I sought first-class Cox's Orange Pippins!

Now, the cultivator of the small garden usually has many claims on his limited space. As many vegetables as possible are required for the home, a few flowers must be there to brighten the house; perhaps, even, a corner has to be reserved for the poultry or rabbits. How can he hope to be his own supplier of fruit? Certainly if he expects to keep his family supplied with culinary and dessert fruits throughout the season he is an ambitious man. Rather he will be wiser to limit his scope. Only too often, I must confess, I think he does this in the wrong direction. He gives up the attempt to grow all those high quality, subtle flavoured and supremely health-giving raw fruits for the table, and he gets disheartened in the hopeless struggle to try to keep the kitchen in jam and cooking fruits, which is the main idea in the English household of fruit consumption.

Cooked fruits and jam are to be encouraged by all means, but in this country it is only a few who realise the benefit and enjoyment of delicate raw fruits on the table for every meal. They are looked upon as an impossible luxury or as an ornament for the sideboard. There is no need for this and it should not be. While we in England are not developing our taste and discrimination for such delicacies, we find every class of home or public restaurant in America supplying fruit with almost as much routine as they do bread or iced water. Enticing fruit is brought down the corridor of your train; it is awaiting you on every platform.

THE BEST AIM.

I want to persuade the average cultivator of the small garden to have a new ambition, namely, to supply his own table with a succession of fine dessert fruits, a series of wonderful surprises, and to persuade his wife that she can often buy to better advantage the class and bulk of fruit required for jams and pies. I would also like to have them believe there is really a special virtue in raw fruit, and a wonderful range of flavour to be discovered. It must be pointed out that a similar amount of discrimination should be used in choice of fruit for purposes of cooking and jam making. Good cooking fruits, however, are more readily obtainable than really good dessert fruits;



TRAINED TREES ARE JUST AS CAPABLE OF GIVING BEAUTIFUL EFFECTS AS STANDARDS, AND THEY SHADE YOUR GARDEN LESS.

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the jam manufacturers and the chefs have seen to that, but fruits of eating quality are not so easy to come by.

It is often said that Englishmen eat with their eyes. It is colour, shape and size which attracts, and so we give the buyer what he thinks he wants. But fine feathers do not always make fine birds and I would not mind guessing that at least 80 per cent. of our population have probably never sampled our best quality dessert fruits. It is the production of these that should be the aim of the small gardener and I assure him that given average conditions, provided he will apply ordinary intelligence to his experiment, many of these best varieties are well within reach of attainment.

THE PROBLEM OF FRUIT-GROWING IN THE SMALL GARDEN.

The problem is how to combine fruit, vegetables and flowers so that all have a fair chance, and the flowers and vegetables do not suffer through competition for sunlight and nourishment with the fruit, while the fruit is not robbed of nourishment by predaceous undercrops. There is also the problem of how to use to good effect trees and plants in our gardens, so as to make the small garden a garden beautiful, with its suggestions of space and mystery, things which are so essential to the pleasure of every gardener.

If one comes into occupation of a badly planned small garden, one must steel one's heart and be ruthless, but it is surprising how quickly evils can be redressed provided that action is taken.

The problem of fruit-growing in the small garden is merely one of arrangement of planting, of scheming, of insisting on an orderliness which in itself can be beautiful. It is merely a resolution to resist certain temptations, to look ahead, and avoid certain common pitfalls. These might almost be presented as a series of maxims.

INITIAL MAXIMS.

1. ON PLANNING.—Never overcrowd your garden with fruit trees or bushes. Plan beforehand and steadfastly refuse to find room for just one more tree presented by some kindly neighbour. Plan your whole fruit garden in advance and then accomplish the plan by degrees.

2. ON USE OF DWARF TREES AND NOT TOO VIGOROUS VARIETIES.—Never overshade your garden with fruit trees. Do not plant tall, vigorous standard trees in every odd corner. Insist on dwarf trees wherever possible for a small garden. If you require a tree to afford shade to sit under, select your variety carefully and choose a site where it will not keep all the sun off your garden.

3. ON TRAINED TREES.—Be persuaded that beauty does not always consist in picturesque untidiness, in sprawling trees and spreading branches. Trained trees are just as capable of arrangement to give beautiful effects of screening, distance, etc., and they shade your garden less. They are handsome both in flower and in fruit, while many a little alcove can be formed of espaliers even in the smallest garden, where a favourite plant can be sheltered, or tea drunk in warm weather. For the amount of room they take up, their bearing surface is greater than in the case of standards, and the fruit is more easily handled.

AN APPLE WHICH HAS BEEN TOO MUCH PRUNED. THERE WILL BE LITTLE OR NO FRUIT.

4. IMPORTANCE OF SUITABLE VARIETIES AND STOCKS.—Never plant a "fruit tree" or "bush" or "a raspberry," "currant" or "strawberry." Be certain what variety you are planting. Some varieties are quite unsuitable for gardens in general, others may be quite unsuited for your particular conditions. You cannot be too inquisitive about the name or about the root stock on which the tree is worked.

5. ON SPECIAL SUITABILITIES OF CERTAIN FRUITS AND SITUATIONS.—It is very little good trying to grow certain fruits by certain methods in the small garden. The single standard sweet cherry tree will be the property of the birds as well as a good look out post for them. Avoid filling your small wall space with such uncertain bearers as greengage, Kirke's Blue plums, or Doyenne du Comice pears. There are plenty of other good things that will crop more certainly and regularly. Yet you can make use of all your walls and fences, poles and arches on which to grow some kind of fruit. It is better to grow a few canes or bushes of a heavy cropping good thing than several rows of a poor cropping inferior one. Find out the good thing and be sure you get it.

6. ON PRUNING.—Do not illtreat your trees or bushes by too much attention with the knife. Remember the more you cut away in winter the more wood you will get next summer, and, generally speaking, less fruit.

7. ON KEEPING DOWN DISEASES AND PESTS.—Realise that you will be extremely lucky if you can grow good fruit regularly without attempting to control their diseases and pests. Like human beings trees want constant hygienic precautions and occasional doctoring.

8. ON MANURING.—You cannot continue to take good crops of fruit and vegetables off your land without putting something back. The latter is not so difficult as it sounds.

A TYPICAL OVERCROWDED GARDEN. IT AUTIFUL AND THE FRUIT
TREES ARE SO OVERGROWN THAT T DE THE VEGETABLES.

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GREENHOUSE CYCLAMENS

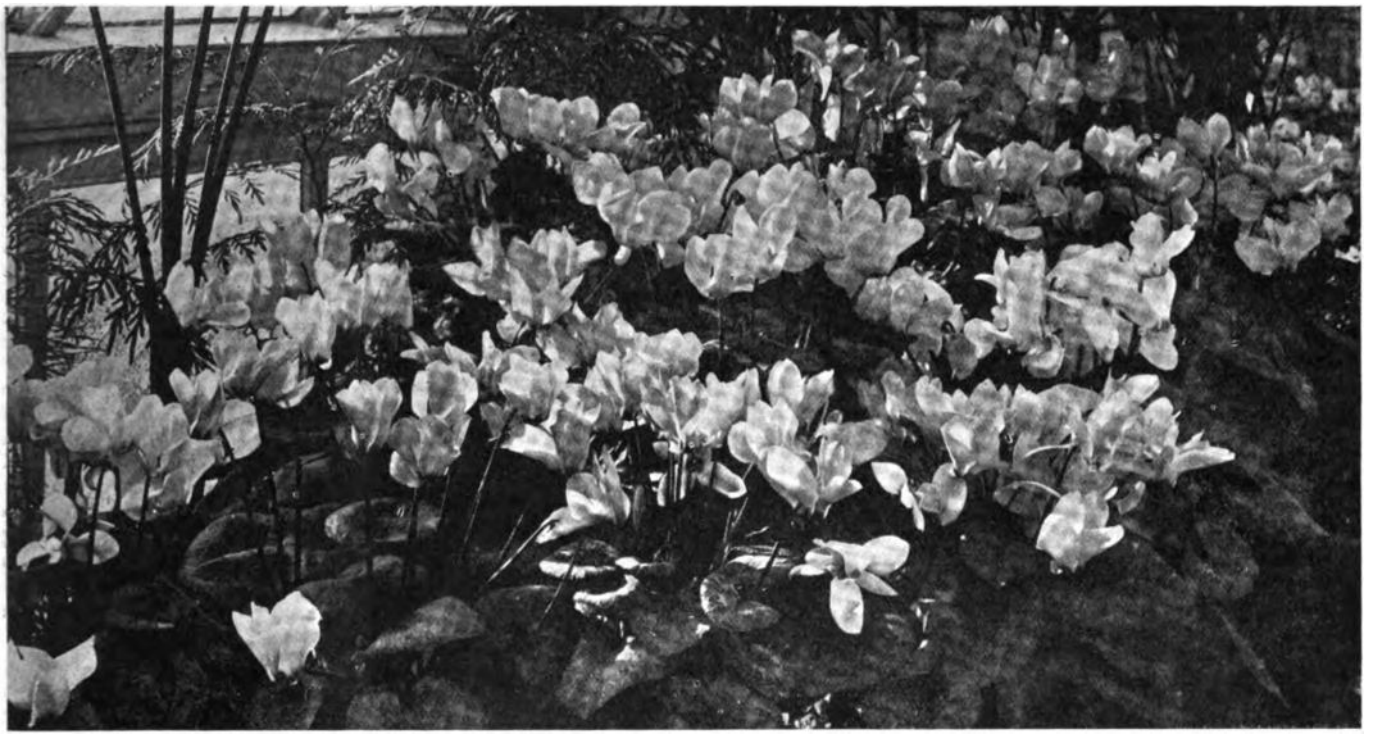
BY J. COUTTS.

CYCLAMENS in many beautiful varieties are more or less indispensable, not only for furnishing the stages in the greenhouse and conservatory, but also for house and table decoration. The cut flowers last for a long time in a fresh condition. Cyclamens belong to the Natural Order Primulaceæ; there seems to be some doubt as to the actual date of their introduction and cultivation. The many varieties cultivated at the present day have been obtained by seed selection.

Cyclamens are easily raised from seed, but it is very important that the latter be fresh. Old seed is often slow and uncertain in germination. It is the general practice to sow seed during August, the resulting plants flowering about fifteen months later. On the other hand, it is possible, with good cultivation, to flower the plants in twelve months from seed sowing. From seed sown at the end of December or the beginning of January I have frequently produced good flowering plants within twelve months. However, it should be remembered that such results are only possible out in the country where there is plenty of light during the winter. In the immediate neighbourhood of London and other large towns I would advise sowing about the middle of July. However, for general purposes it is best to sow seed about the middle of August. The compost for sowing should be light and open, consisting of a good medium loam, with the addition of some leaf-soil and enough silver sand or old mortar rubble to keep the whole open and porous. I advise the use of old mortar rubble in preference to sand at all stages of the plant's cultivation, as I consider that lime in some form is essential.

The compost in the seed-pans or boxes should be made fairly firm and the seeds sown singly about one inch apart and a quarter of an inch deep. As germination is usually irregular, this method allows of the more forward plants being taken out without unduly disturbing the others. The seed-pans should be well watered, covered with pieces of glass and kept shaded until germination takes place. The seeds may be germinated in an ordinary greenhouse, but it is an advantage if they can be placed in slight bottom heat, or at least in a warm moist house where a temperature of about 60° can be maintained. After the seeds have germinated, the seed-pans should be placed on a shelf well up to the roof glass.

About the beginning of November the bulk of the young seedlings should be ready for pricking off into pots, pans or boxes, according to the quantities required. At this stage some cultivators place the seedlings directly into thumb pots, but on the whole they are best pricked off into pans or boxes until January, when they may be potted off singly into pots. During the winter months they are best grown in a warm moist house where a temperature of 55° to 60° can be kept up. As they increase in size and the season advances they should be accustomed to cooler conditions, and during the summer months they are best grown in low pits or cold frames, where they can be kept well up to the roof glass. It is also an advantage if the frame lights can be pulled off, as towards the end of summer the plants benefit greatly by dews at night.



FOR PURITY OF COLOUR AND GRACE OF OUTLINE FEW GREENHOUSE PLANTS CAN EQUAL CYCLAMENS. THEIR FLOWERS LAST A LONG TIME IN BLOOM.

Towards the end of April or beginning of May the young plants should be ready for a shift into 3in. pots. For this and subsequent pottings a larger proportion of loam should be used, with the addition of a 6in. potful of bone-meal to every bushel of soil, or, where it can be obtained, some dried cow or sheep manure—rubbed through a fine sieve—may be used with advantage. The pots should always be clean and well drained Pot the plants fairly firm, keeping the young corms just on the surface of the soil. From the end of June to the middle of July the most forward plants should be ready for placing in their flowering pots (48's).

Careful watering and the maintenance of cool, moist atmospheric conditions are the essentials of success with cyclamens. Admit plenty of air on all favourable occasions; draughts, of course, should be guarded against. The bed on which the plants stand should be kept moist and the plants sprayed over during the morning. They should also be sprayed again during the afternoon, when the frames should be closed for an hour or so, afterwards giving a little air during the night or the lights may be removed altogether so that the plants get the benefit of the dew. The plants should, of course, be kept shaded during bright sunshine. When grown in frames

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A FINE SHOW OF THE BEST VARIETIES OF CYCLAMEN.

it is an advantage if cyclamens are stood on inverted pots, thus allowing the air to circulate freely among them.

Towards the end of September plants in cold frames should be removed to span-roofed pits or a cool, airy greenhouse, keeping them well up to the glass. When they have well filled their flowering pots with roots, they may be fed with diluted liquid cow manure and soot water. Sheep manure is also excellent for the same purpose.

If desired, some plants for early flowering may be brought on in a slightly warmer temperature, remembering, however, that the best results are obtained by cool treatment. Cyclamens can be grown on for several years, but at the present day it is usual to raise them from seed each year. If it is decided to grow some of the plants on, they should after flowering be stood in cold frames, watering them in the usual way. As the old foliage gradually dies off, the plants should be kept on the dry side for several weeks, and when they show signs of starting into fresh growth they should be turned out of their pots and all the soil shaken off the roots. Afterwards place them in as small pots as possible. After potting, stand the plants in a cold frame and water very carefully until some new roots are formed. When they have well filled their pots with roots they will require a shift into larger-sized pots, the cultural details being the same as that advised for the young plants.

Instead of potting off the old corms, some growers plant them out in a bed of rich soil in cold frames, or even outdoors, lifting them and placing them in pots during September.

With their beautiful marbled foliage and elegantly poised flowers cyclamens are ideal for decorative work, plants in cool rooms keeping in good condition for many weeks. Cut flowers are also excellent for decorating dinner-tables and for filling small vases. The flowers should be pulled out, not cut, as the decaying end is apt to affect the young buds, which are thickly clustered on the top of the corm. The hard end of the flower-stem should be cut off and the cut flowers placed at once in water, for if allowed to flag it is difficult to get them up again, especially so with the giant varieties. If flowers are sent for any distance, they should always be placed in water for several hours before packing. If some moist material is wrapped round the ends of the stems and the flowers packed tightly in tissue paper, I have always found them travel well. When unpacked, the stems should be split upwards for several inches and the flowers placed in water as soon as possible. The smaller-flowered varieties, I may say, generally carry best.

If cyclamens are kept too warm and in a dry atmosphere, aphis and thrips may prove troublesome. Fumigation will, however, prevent and hold them in check, but if correct cultural methods are followed these pests should not cause any trouble. Begonia mite, or so-called rust, is, however, much more serious, and although it may not appear during the summer when the plants are in cold frames, it often proves troublesome during the autumn and winter when the plants are growing in a warmer and drier atmosphere. This pest damages both the foliage and flower-buds, causing the latter to become deformed and marked with brown streaks. The best preventive and cure for this pest is the occasional use of Campbell's Sulphur Vaporiser. Where houses are infested with vine weevils their larvæ often prove very destructive, harbouring right under the cyclamen corms and feeding on the roots. All plants which suddenly flag without any apparent reason should be examined, and if larvæ are found, they should, of course, be destroyed. Again every opportunity should be taken to destroy as many weevils as possible. At night, plants should be shaken over a white sheet or tarred trays; houses should also be kept clear of all rubbish and broken walls repaired.

There are now many beautiful varieties of cyclamen which come true from seed. Messrs. Sutton and Sons of Reading have perfected many fine varieties. Their giant varieties in white, salmon, crimson, rose and pink being very fine. Their smaller-flowered Firefly received an award of merit in 1923 from the R.H.S. The silver-leaved salmon variety, too, is very beautiful and worth growing for its foliage alone. This firm also offer a sweet-scented strain. For lovers of the curious there are crested, frilled and fringed varieties These are, of course, interesting as showing the wide range of variation in this plant, but cannot for beauty of form and poise compare with the ordinary forms.

[*We are indebted to Messrs. Sutton and Sons for permission to use these pictures.*—ED.]

RHODODENDRON POISONING

THERE have been several letters in the papers lately about stock being poisoned by eating the leaves of R. ponticum, but there seems to be some doubt as to what extent rhododendrons are poisonous. The first mention of poisoning by rhododendrons is no doubt that in Xenophon's "Anabasis." We have not a copy of the book handy for reference, but as far as we can remember there is a passage where Xenophon states that during the return march of the "Ten Thousand" to the Black Sea many of the men were poisoned by eating honey made from rhododendrons.

Mr. H. C. Long in his monograph on "Plants Poisonous to Livestock," one of the Cambridge Agricultural Monographs, states that there is no doubt as to the poisonous character of a number of species; and, indeed, that many of them are suspect. Animals do not seem greatly addicted to eating them, but there are a sufficient number of records of stock having been poisoned, particularly by R. ponticum. Other species which are definitely stated as being poisonous are R. maximum, listed as one of the thirty most poisonous plants of the United States of America; R. ferrugineum, as having caused frequent poisoning of sheep and goats; R. californicum which is certainly poisonous to sheep in Oregon; and R. chrysanthum, which has caused poisoning in human beings, although the leaves are used in Russia as a cure for rheumatism. Hooker in his Himalayan Journals mentions goats as having been poisoned by R. cinnabarinum.

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Cases of human poisoning are not so common. Hooker mentions the poisonous character of honey collected when R. arboreum is in flower, but the most noticeable example is on the Burma-Chinese frontier where some of the tribes are very fond of honey and keep bees. They know enough to throw away the honey during the flowering season of the rhododendrons, but they make a kind of mead from their honey. They occasionally go on the rampage for several days with this liquor, and when their old stock is used up they become careless and make it from rhododendron honey, when the result is disastrous. As many as seven deaths have been recorded in one village as a result of a drinking bout.

On the other hand, all rhododendrons cannot have the same amount of poison, for the Chinese for many years have been accustomed to use rhododendron leaves for flavouring certain kinds of tea, although we believe that it is unknown what species they use. It is a possibility that the more aromatic a rhododendron the less poison it contains. Both leaves and flowers are toxic.

Several toxicologists have worked on rhododendron poisons, and they have found that the toxic principles are arbutin, ericolin, rhododendrin and andromedo-toxin, which are all glucosides. Arbutin contains glucose and hydroquinone, and occurs also in arctostaphylos and in all ericaceous plants. It is used in medicine and also as a vermifuge for dogs; ericolin is an inert glucoside which is also found in arctostaphylos. A German toxicologist states that both of these glucosides are cerebro-spinal poisons. About rhododendrin comparatively little is known.

Andromedo-toxin is, however, the most poisonous principle. It is a bitter glucoside and has been regarded as even more poisonous than aconitin, the poisonous principle of aconite.

Glucosides are especially active when a ferment is present as in the stomach. The symptoms of rhododendron poisoning in animals are diarrhœa, salivation, vomiting, trembling, spasms, vertigo, loss of power and death, while a reddish colour is imparted to milk.

Little work has been done on azaleas, but it is believed that pontica, indica, arborescens and nudiflora are poisonous to animals in the East. The active principles are said to be arbutin, ericolin and andromedo-toxin. Azaleas appear to be narcotic.

The chances of rhododendron poisoning in this country are slight. Rhododendrons are usually grown either in the garden or in woods, and stock, except an occasional stray beast, have few opportunities of eating them. The other danger, that of eating rhododendron honey, is not alarming. Several humans have eaten this and have suffered from colic as the result, but rhododendrons impart a bitter flavour to the honey and the taste is not attractive. It must also be remembered that in the East during the rhododendron flowering season the bees have great difficulty in finding anything else from which to collect honey, and this is not likely to be the case in this country.

ORNAMENTAL GOURDS

OWING TO THEIR WEIRD COLOURS ANDSHAPES THESE CURIOUS VEGETABLES ARE EXCEEDINGLY POPULAR IN FRENCH HOUSES WHERE THEY ARE USED AS WINTER DECORATION.

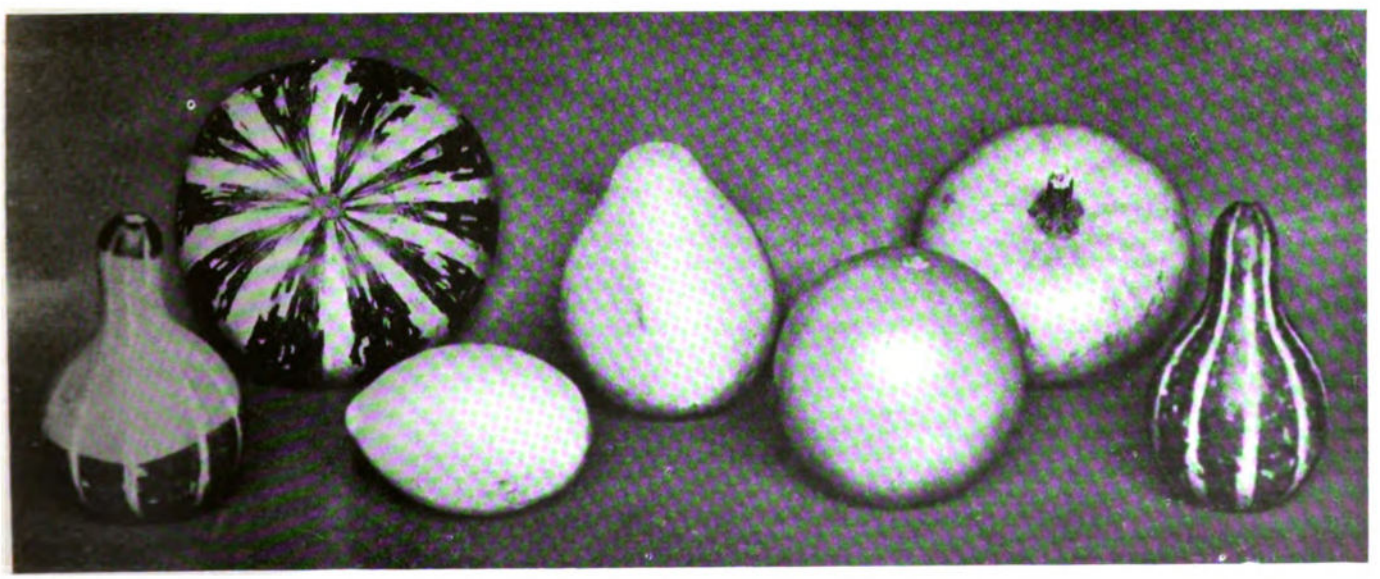
BY E. H. M. COX.

IT is many years since these curious members of the cucurbitaceæ have been popular in England, although they did have a slight measure of popularity about twenty years ago. Since then, by selection, the most extraordinary forms and shapes have been evolved in France, so much so that during the past two years a craze for these curious vegetables has arisen in Paris. They are used entirely for house decoration, for with the exception of one, the 'Patisson orange,' they are so uninteresting from the culinary point of view as to be unedible.

Incidentally, it seems to be extraordinary that the vegetable marrow has entirely ousted the pumpkin, another of the gourd family, from our list of vegetables; the latter has infinitely more flavour and is the basis of a most delectable dish, pumpkin pie. Vegetable marrow pie is unthinkable.

In France these ornamental gourds are considered to be easier to raise than melons and on the authority of M. Louis de Vilmorin I can state that they should be no more difficult to cultivate in England than in France. They are grown either on a hot bed inside a frame, in which case they are sown in March, or they are sown during April and May direct on a warm border, trenched and heavily manured. No doubt the former method will prove more satisfactory in England, where the sun heat is not so strong as in France.

The fruits mature in August and September. They should be picked when the weather is dry and stored in a warm, dry atmosphere where the air can circulate around them (a good plan is to hang them up), for a week or two, after which they should keep perfectly during the winter. If these simple



A COLLECTION OF "COLOQUANTES."
The "orange," is third from the right and is an exact facsimile of a real orange. The striped varieties are glossy green and palest citron.

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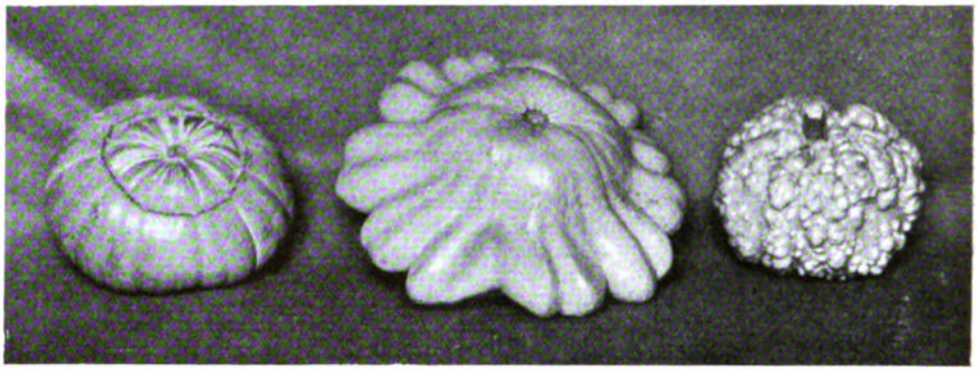
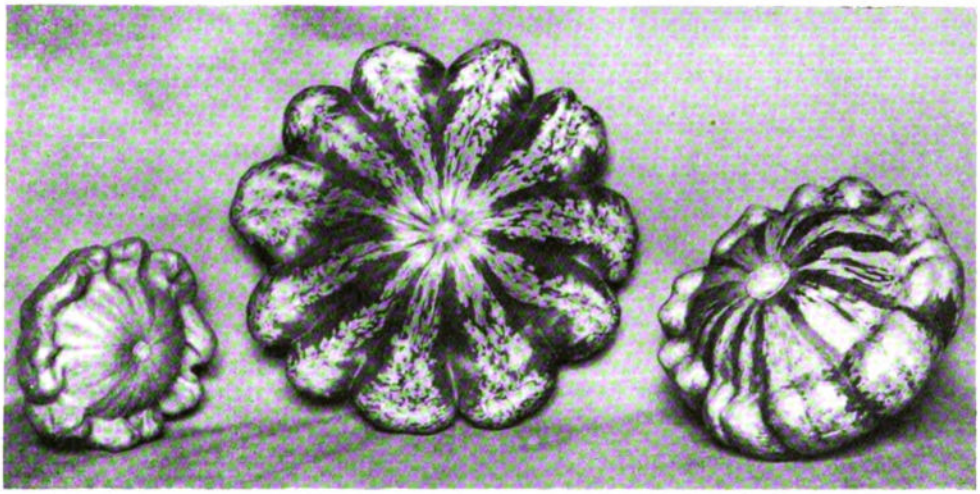
precautions are not taken, they may sweat and rot will set in.

Through the kindness of M. de Vilmorin I brought back with me to England the different specimens shown in the illustrations. The commonest kind in France, which you can buy anywhere for about 1½d. each, are those which they call "coloquantes." The varieties are numerous, brodée galense, plate rougée, orange, pomme, poire blanche, oviforme blanche, etc. They are all small, from two to three inches in length or in diameter. They are of all shapes, like an orange, a pear, an elongated fig, an egg and so on. The colour is usually pale lemon yellow or orange with a white stripe, or green with a citron stripe, or a combination of green and orange.



GIRAUMON PETIT DE CHINE ON THE LEFT PATISSON ORANGE IN CENTRE; THE FIRST IS VERMILION AND THE OTHER PUREST ORANGE.

The coloquante orange is a particularly good imitation of an orange and I was told of the story of an orange grove in the South of France in a popular holiday resort. There is an open air restaurant in the grove and the proprietor used to be annoyed at the idea of oranges hanging on the trees as decoration and not being a paying commodity. Now they are all harvested and sent to market and in their place he hangs up hundreds of coloquante oranges just out of reach of the guests. These are all grown in the back yard, and, although this plan has been in operation for several years, the change has never been noticed. Another attractive variety is that called Giraumon petit de Chine, which is vermilion in colour with darker stripes at the base. It is circular in shape and rather flattened at top and bottom; it is usually about six inches in diameter.



DIFFERENT FORMS OF PATISSON; THE COLOURS ARE GREEN AND CITRON. THE CENTRE ONE IS ELEVEN INCHES IN DIAMETER AND WEIGHS ABOUT FIVE POUNDS.

But the finest of all the ornamental gourds are those which the French call Patisson, or Bonnet d'electeur, or Artichaut de Jérusalem (why the last name?). They are in two forms, both like the head lamp of a motor car, with frilled edges, but in one the frills extend outwards and upwards, while in the other they curl in and fold round the base. Some of them are of enormous size and weigh twenty or more pounds, but the most convenient sizes are those which average eight to ten inches in diameter. In colour they are either primrose yellow, orange (a most brilliant colour) and panaché, a curious mixture of dark green and palest yellow stripes.

As decorations these gourds are most attractive. They last throughout the winter, indeed I have seen some three years old as fresh as if they were grown yesterday; they fill a bowl with rich colours when rich colours are hard to find and they are easy to grow. Why not give them a trial?

GARDENS OF INDIA

THE PEASANT GARDEN

BY SIR GEORGE WATT.

INDIA may be spoken of as one of the greatest agricultural countries of the world. Scattered over the plains of that vast country are clusters of houses which become hamlets, villages and towns, with the growth of population. As a rule the village sites are only very slightly raised above the level of the surrounding country, hence, in localities subject to heavy monsoonic rains, the plains become inundated and the villages are temporarily converted into islands. Intercommunication (for months on end) may thus have to be accomplished by boats (dug-outs) or by swimming with floats made of earthenware pots. And, since large tracts of the plains are below the level of the rivers, the rainwater has to be removed by evaporation. In course of time, however, the water gradually subsides and the country once more becomes dry and is seen to bear heavy crops.

THE SEASONS.—The periodic return of the rains divides the year into three seasons—the hot season, from April to June; the rainy season, from July to October; and the cold season, from November to March. But the seasons vary considerably with changes in latitude or altitude. So again the physical features of the soil exercise a marked influence on the distribution of plants. The extremes may be indicated by the rainfall of 500ins. a year, in the Khasia Hills, and from that through every gradation to the practical absence of rain in the deserts of Central India, Rajputana and Sind; or illustrated by the tropical plains of the lower Provinces to the arctic snows of the upper Himalaya.

THE CROPS.—Viewed from the standpoint of crops it may be said that at least two crops a year may be taken off the same soil, a fact sometimes spoken of as the vertical acreage. The crops of the rainy months of summer and autumn are known as *khariff*, and of the cold months, October to April, as *rabi*. The former are the tropical crops—the millets, rice, cotton, sugar-cane, indigo, etc.—and the latter the temperate—wheat, barley, pulses, mustard and rape, linseed, opium, tobacco and most of the garden crops. As illustrative of the diversity that prevails, it may be said that a visitor to India, were he able to travel from one end of the country to the other, in one day, might witness wheat-land being prepared, wheat being sown, see wheat half grown, wheat fully ripe, wheat being reaped, and, finally, wheat grain being brought into market.

THE PROFESSIONAL GARDENER.—With so great a diversity in climate, soil, crops, etc., it may readily be understood how difficult it must be to speak collectively on any aspect of Indian horticulture. But without fear of contradiction it may be said an Indian

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gentleman (the amateur) gardener—the person who takes pleasure in his plants and himself works in his garden, because of the healthful exercise it affords, is unknown in India. Horticulture is entirely in the hands of several castes, of whom the Mali and the Koiri or Kachi may be accepted as representative. By the European residents, every man who works in a garden is a mali. As a matter of fact the malis proper rarely, if ever, work in the gardens with their hands. Their chief occupation is the preparation and sale of the bunches of flowers, offered to the idols, and the manufacture of the wreaths and garlands employed at marriages and other ceremonies. They also do a large trade in supplying the Gandhi or perfume maker with the flowers he requires. In practically every village of India there is at least one mali. His services are as essential and technical as are those of the Brahman, than whom he is, by caste, only slightly inferior. The malis are, moreover, the chief owners or tenants of such garden lands as exist. They direct and control the actual workers, so that from time immemorial the traffic in votive offerings and ceremonial garlands has very largely guided operations in the floral gardens of India. Flowers that could be readily strung (corollifloral for choice), of a white colour and possessed of a penetrating odour, were preferred.

EUROPEAN INFLUENCE.—The arrival of the European gave a completely new turn to Indian gardening. The desire for diversity and novelty changed the character and composition of the gardens and it seems to have been early recognised that India might practically grow the plants of the world. Cultivation for a purely æsthetic purpose became a dominant feature. This is seen by the fact that the suburban villas erected by Europeans, during the sixteenth to the eighteenth centuries, were spoken of as "Gardens" both by the Natives and the Europeans—hence the suburb of Calcutta, known as Garden Reach. But let it be here added that the Europeans, in their desire for improvement, introduced into India many foreign plants and to such an extent was this carried that, perhaps, half the plants now under cultivation, as well as the weeds of waste places, have been introduced within historic times. Many of these have proved unquestionable boons, others have become a constant annoyance and offence. The Portuguese were the first great adventurers in acclimatisation, and many of the useful and ornamental plants now met with abundantly in India are due to the early traffic of that people between India and America.

CLASSIFICATION OF INDIAN GARDENS.—It may be said that in India to-day there are four distinct types of gardens :

(1) The indigenous peasant garden, which, in most cases, might perhaps more accurately be described as house-door cultivation, for it must not be forgotten that the bulk of the peasants of India have no gardens of any kind.
(2) The Native gentleman's garden.
(3) The village market garden.
(4) The European garden.

The third is by far the most important, since the extensive system of market gardens that prevails contributes, to a very large extent to the diversity of the minor products that constitute so striking a feature of India's modern trade and commerce. In fact, the transition from the market garden to the field is often inseparable and such articles as tobacco or opium may be field crops with one cultivator and market garden products with another.

THE PEASANT GARDEN.

Peasant gardens, in the majority of cases, are owned or worked by members of the gardener caste. But even in the better examples they consist of but a courtyard a few yards in length and breadth, enclosed by a fence which has the additional purpose of supporting climbing plants.

THE HEDGE.—The fence, therefore, calls for some consideration. It is constructed originally of dead thorn twigs, supported by certain hedge plants, such as the milk hedge (Euphorbia Tirucalli), or its cousin the *rangchitra* (Pedilanthus tithymaloides), an interesting plant with thick, fleshy leaves that appear subsequent to the pink slipper-like flowers. Both these plants have the merit that cattle will not touch them. But they are foreigners, the former having come from Africa and the latter from the West Indies. Very often two American plants form part of the hedge, namely, the so-called American aloe (Agave Cantula), and the *nág-phana* or prickly pear (Opuntia Dillenii). In Upper and Southern India the *henna* (Lawsonia alba) makes a hedge very much like privet and its leaves, dried and reduced to a powder, afford an orange-red cosmetic dye, in much demand by the ladies for colouring the finger-nails, the palms of the hands and the soles of the feet, and by the men for colouring the hair. Another hedge plant is almost cosmopolitan—the *kharata* (Dodonæa viscosa), a plant extensively employed because of its not being eaten by cattle or goats, a property very possibly due to the resinous exudation that forms on the leaves. As a bush it is wild both in the rainless deserts of Central India and in the excessively moist tracts near the sea shore, in the Sunderbunds.

THE TREES.—Much could be written on the plants used in India as hedges, for they are both extensive and varied, more so than in Europe. Within the hedge certain small trees are frequently grown, such as the *saina* (Moringa pterygosperma) or horse-radish-tree, and very useful it is since the leaves, flowers and pods may all be eaten and a valuable oil (*ben*) prepared from its seeds. Another small tree, fairly common, is the *bak* or *agusta* (Sesbania grandiflora), the tender leaves and superb red or white flowers (which look like gigantic sweet peas), as well as the green pods, may be eaten, but while they may not be offered to Vishnu, the *bak* flowers are sacred to Shiva. The *arnatto* (Bixa Orellana), a South American bush or small tree, is also common in the garden hedge, though apparently not introduced into India until shortly before 1833. It is a beautiful plant with curious echinate fruits and large white and pink flowers, clustering in terminal bunches, within the broad graceful leaves. The reddish pulp, formed around the seeds, yields a soft, orange-pink dye, largely employed as a temporary tinctorial agent at the festival of Krishna. Occasionally also it is used as a pigment with butter or cheese and other articles of food.

FLOWERING SHRUBS FOR A MODERATE SIZED GARDEN—II

BY W. J. BEAN.

PRUNUS.—Nearly all the species of prunus, including cherries, plums, peaches, almonds and apricots, are trees, and therefore out of the present discussion, but it may be said in passing that no garden can afford to be without one or more of the Japanese cherries now grouped under P. serrulata and P. Lannesiana. Nothing in the genus can compare with them. Some of these can be purchased in a small state, and if so desired can be kept dwarf by pruning back after flowering. The sloe, or blackthorn, is sometimes a small tree also, but more often it is a shrub. Its double-flowered form, P. spinosa fl. pl., possesses all the pure whiteness of the wild plant, and this purity is similarly enhanced by the dark wood, but it lasts longer in beauty. Of truly shrubby character are P. triloba fl. pl. and P. japonica fl. pl., both with blush tinted double flowers very freely borne, the former early in April, the latter a few weeks later. P. triloba fl. pl. is an excellent shrub for a south wall where all its shoots should be pruned back close to the old wood as soon as the blossom has faded.

BERBERIS JAPONICA.
A beautiful shrub with fragrant flowers and striking foliage.

Two of the quinces have to be mentioned. The well known Cydonia japonica (especially the var. cardinalis) is always worth growing for its early blood red flowers, especially if a place on a wall can be given it not that it is tender, but

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blooms better and earlier there. C. Maulei is dwarf, mostly under 3ft. in height, and its flowers are more orange-tinted or scarlet than the preceding. It flowers very freely if given a place in full sunshine. Osmanthus Delavayi is one of the very best of new Chinese shrubs, for it bears in April its pure fragrant flowers so abundantly as to envelop the shrub in white. Two shrubby amelanchiers are always worth their place: the American A. oblongifolia and the European A. vulgaris. The former increases by sucker growths from the base and in time forms a thicket of erect stems 6ft. high that carry numerous racemes of white flowers in April. A. vulgaris is even more beautiful, its pure white blossoms being the largest in the genus. Of the flowering currants I would recommend two: Ribes sanguineum, which has several forms, all good, but none perhaps better than the var. splendens with rich red flowers; and R. aureum with spicily fragrant, bright yellow blossom. Both flower in April, as does also a third species of Ribes (R. speciosum or fuchsioides) belonging to the gooseberry section; this is a singularly attractive shrub that produces its quite pendulous flowers in long rows beneath the branches; they are rich red with long exposed stamens and very much suggest small fuchsias. It is, however, better on a wall than in the open.

BARBERRIES.

Recent additions to the genus berberis have made it a very extensive one, and an ordinary garden can do no more than find room for a small section of it. B. stenophylla, a hybrid, is certainly indispensable; being, in the opinion of some people, the best of all evergreen shrubs. Forming a dark green, impenetrable bush, it is admirable as a wind-break and as a background, but although so dense in habit, it yet possesses great elegance by reason of the slender arching shoots, two feet or more long, it sends out each summer, which, the following April, are wreathed from end to end with golden yellow flowers. It is perfectly hardy and is worth planting in a group of a dozen or more plants.

B. Darwinii, one of the parents of stenophylla, is another fine evergreen of stiffer habit, its flowers rather larger, more orange in tint, and its leaves of the darkest glossiest green. B. Wilsonæ, one of the new Chinese introductions, is now well established in gardens and valued for its autumn beauty, made by clusters of coral red berries. It is, however, going to be surpassed by the hybrids or selected seedlings they have raised at Wisley. Two other Chinese species, distinct from any other, are B. verruculosa and B. candidula, evergreen bushes of neat habit with black-green shining leaves, glaucous underneath. A third is B. Gagnepainii, allied to the Himalayan B. Hookeri, but to be preferred to it. A dwarf seedling of B. stenophylla, called Irwinii, is remarkably profuse in bloom and is one of the very best of dwarf barberries.

Of deciduous barberries few, if any, surpass our native B. vulgaris either in beauty of flower or fruit, but it may perhaps be considered too common to be included among the elect. B. polyantha, from China, is most prolific in blossom and berry, perhaps, of all those coming from that country; B. Thunbergii from Japan may be grown for its lovely autumn tints; and B. aristata from the Himalaya for its fine foliage, flower-clusters and blue-white berries. For a small garden this last may be considered too vigorous; I have known it 15ft. to 20ft. in diameter.

PRUNUS JAPONICA FLORE PLENO WITH BLUSH FLOWERS.

The Mahonia group of barberries can be represented by three species: B. Aquifolium, so useful for furnishing semi-shaded places, and always pleasing for its lustrous, dark green foliage (purple-tinged in winter), its erect panicles of yellow blossom, and its plum-coloured berries. By the use of the knife it can be kept at any height between two and six feet, and altogether is a most useful, accommodating, as well as ornamental shrub, really essential to any garden. Another species would be B. pinnata (or fascicularis), a taller-growing sort reaching sometimes 15ft. to 20ft. in height, its foliage dull green, its flowers very fragrant. The third is B. japonica, of which Bealei, hyemalis and intermedia are forms, all very beautiful and fragrant in flower and striking in foliage, the large pinnate leaves, sometimes 1½ft. long, being made up of large, spiny-toothed black green leaflets.

While, when very old, the snowdrop or silver bell tree (Halesia carolina) justifies its popular name and is really a tree—Sargent describes it as sometimes 80ft. to 90ft. high—it is as a shrub we usually know and grow it. It is undoubtedly one of the most fascinating of them all, and it is difficult to conceive any shrub more beautiful than a bush crowded, as it always is in May, with the pure white, snowdrop-like blossoms.

COTONEASTERS AND PYRACANTHAS.

Our conception of cotoneaster, like that of berberis, has been much enlarged by recent exploration in China and from that country three species at least of the large number introduced must be included in the present enumeration. For these I would select C. Henryana, C. salicifolia, both evergreen and bearing red fruits and of charmingly graceful habit, and C. bullata, a deciduous species with enormous crops of brilliant red fruits. The best of the older species come from the Himalaya and none yet from any part of the world surpasses C. frigida, a deciduous red-fruited shrub of large size, which may, by keeping it to a single stem when young and pruning away lower branches, be made to form a small tree. At Aldenham and some other places is grown a specially fine form called Vicarii. Another Himalayan species, C. rotundifolia, semi-evergreen, should be grown for its red fruits, which persist on the branches till March, long after the others have shed them. C. microphylla with its close evergreen habit and depressed branches, its innumerable tiny glossy leaves, is admirable for clothing a steep bank or for planting at the top of a supporting wall over which it can be allowed to hang. C. horizontalis, a deciduous species, is, on the other hand, useful for planting at the base of such a wall, for, although naturally low and flat-growing, it will in such a position grow erect and flatten itself against it. Its fruit is red, and in autumn a proportion of its leaves dying off in orange and red add to its attractions.

PYRACANTHAS.—Their close relationship to the cotoneasters suggests mention of the pyracanthas here. P. coccinea, the old "fire-thorn," cultivated in England now for close on three centuries, is still the best. It is usually grown against a wall, for which it makes at all times a pleasing evergreen cover, but in autumn acquires much brilliance by its great crops of scarlet berries. It is perfectly hardy and equally beautiful in the open ground, where, nevertheless, it is rarely given a place. The newer kinds, Gibbsii and yunnanensis

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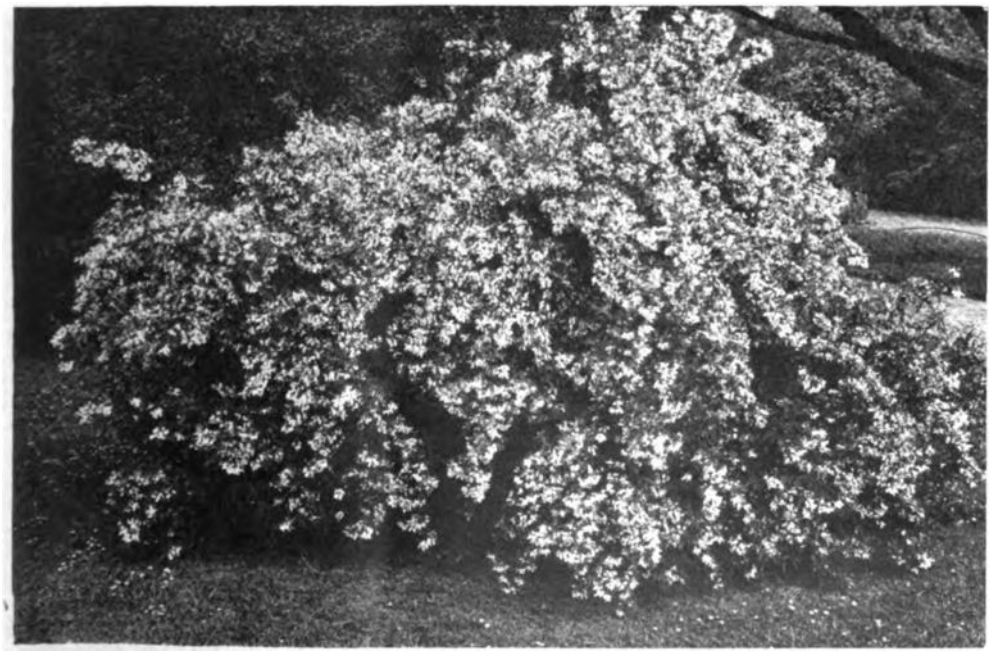
have bigger leaves and a more open habit, and retain their fruits longer than coccinea does through their not being so attractive to birds. P. Rogersiana is an elegant evergreen with smaller leaves than any other pyracanth, but I have not seen it as yet bearing fruit very freely.

There are, no doubt, some good things among the new dwarf thorns from America, but the genus crataegus as a whole is made up of trees. There is, however, a remarkable dwarf form of the common hawthorn, C. monogyna semperflorens, which flowers more or less continuously from June to August. It is so slow-growing that bushes twenty years old may be only 3ft. high.

THE DOUBLE BLACKTHORN, PRUNUS SPINOSA FLORE PLENO.

BROOMS, GORSE, ETC.

What we commonly term "brooms" are shrubs belonging to cytisus, genista and spartium, a large group confined, in nature, to Europe and North Africa, from which I select the following: Cytisus albus, the only really hardy white broom we have and a first-class shrub, either planted in a group or in a shrubbery among lowish evergreens, which it will soon overtop, yet not unduly rob or shade; C. purpureus, a dwarf purple-flowered kind very attractive in May and unique in colour among the brooms; C. kewensis, a low prostrate plant of hybrid origin with creamy yellow flowers and excellent for planting on a rocky ledge over which its branches may hang; C. scoparius Andreanus, the remarkable form of common broom with brownish crimson wing petals; C. nigricans, an elegant shrub with erect, slender racemes of yellow blossom terminating the shoots and opening from July onwards; Genista ætnensis, the Mount Etna broom, a tall shrub of thin, spare, yet not inelegant habit, with wiry leafless branches producing a wealth of golden yellow flowers in July; Genista virgata, also tall, but more bushy and leafy, and flowering in June and July; G. hispanica, one of the best of all shrubs for a warm, sunny, well drained spot, rarely exceeding 2ft. in height, close and dense in habit and, when in bloom, covered with its rich golden yellow flowers. Spartium junceum is worth growing for the lateness of its large yellow blossoms and the length of time during which they continue to expand—from late June to September. For a hot sunny slope or poor gravelly or sandy soil the double-flowered form of common gorse is very valuable.



SOPHORA VICIIFOLIA, A PLEASANT PLANT WITH BLUE WHITE PETALS AND A BLUE CALYX.

I may mention here a few other shrubs belonging to the same family as the brooms and gorse. Sophora viciifolia is one of the pleasantest of newer Chinese shrubs, bearing as it does in May and June a profusion of flowers with blue-white petals and a blue calyx, and being also particularly elegant in foliage and very hardy; Robinia hispida var. macrophylla (or inermis) is a shrub usually grafted on a short standard to make it a low tree and one of the loveliest of its tribe, with racemes of deep rosy flowers; Wistaria chinensis, although a climber not exceeded in vigour and size by any hardy one if subjected to no restraint, may yet, where there is no accommodation for it as a climber, be kept by pruning as a bush a few feet high, yielding every year a rich crop of blossom. Plants of this type are sent over from Japan in pots and frequently exhibited.

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SOME HINTS FOR THE MANURING OF SOILS DURING SPRING

BY E. T. ELLIS.

IT is a generally accepted theory that manuring of soils can only profitably be done in the early autumn and winter, and that the spring, for some unexplainable reason, is an unsuitable period for carrying out the work. Nothing could be farther from the truth, because, if the question is carefully studied from the practical point of view and is followed up by careful experiments with suitable control plots, it will be found that better results are obtained by manuring in the spring than at almost any other period of the year.

A striking instance of this was afforded in a horticultural competition which was organised over a period of several years during the war. The best crops were obtained by manuring in the spring even on the heavy soils, and in almost every instance a poor and indifferent return was noted on ground that had had natural or artificial manures bestowed upon it in the autumn and winter—this being most pronounced in the case of the lighter sandy loams. I do not mean to imply that manure should never be used in the autumn or early winter, as, of course, there are certain artificial fertilisers which only dissolve very slowly in the soil—basic slag being probably the most important of these. If this and other comparatively inactive materials are applied to the land in the spring, no advantage is gained from their application, as the fertilising elements they contain have not yet come into solution. Further than that, in breaking up clay land for a vegetable garden for the first time, it is most advisable to apply manure in the autumn; the coarser and more strawy this is, the better. The object, however, is not to supply the soil with plant food, but to improve the mechanical condition of the soil, and, if the best results are to be obtained, further manure will have to be used the following spring.

With these and a few other exceptions of comparative unimportance it may be said that the best results are obtained by supplying plant-food shortly before the plants will require it.

It is doubtful, from experiments that have been made, whether the usual method of manuring soils, namely, to dig in organic manures before planting, is really the best way of going to work. Take potatoes, for instance: better results have been obtained by putting the manure in the trenches for these at planting time than by planting them on land which has been manured even as recently as February. It is recognised now, that the best crops of celery and leeks are obtained by growing them in generously manured trenches, which are only prepared a week or two before planting. Again, far better crops of peas and beans can be produced by sowing in trenches with a good thick layer of plant food at the bottom than in the case of plants grown on ground which has been dug over in the usual way. On sandy soils it is specially important to apply the manure without wastage. Thus, if any digging-in of manure is to be done in the spring let this be of the coarser material, strawy stable manure, half-rotted leaves and vegetable refuse in a semi-decomposed condition. Save the actual manure, to be used either at planting time or as a mulch. Better results will be obtained if this is done, and the cost of manuring will be considerably cut down.

Manures are generally considered in several different groups. Farmyard manure, for example, is, as a rule, the best for the stronger land, although rotted vegetable refuse often gives excellent results. Cow manure and pig manure that have mellowed down for a few months on the other hand are first-rate for the lighter loams and sandy soils. These two manures hold the water better than farmyard manure. Leaves seem to have great moisture-holding capacity and hence are valuable on light soils; while lawn mowings are a splendid medium either as a mulch or as a manure for these soils.

After natural manures, artificials must be considered, and it is, of course, now generally recognised that they are not substitutes for any of the materials already mentioned. Most artificials are stimulants of one kind or another, supplying either one distinct kind of plant food or several kinds. Nitrate of soda and sulphate of ammonia, containing as they do a comparatively high percentage of active nitrogen, stimulate leaf production, and are generally used during the growing season for this purpose. Potash manures, such as sulphate of potash, increase both the quality and the quantity of the crop. They appear to be specially necessary for root vegetables, such as parsnips, carrots, salsafy, beet-roots and potatoes. Superphosphate and other phosphatic fertilisers have a peculiar action which should be taken full advantage of. These fertilisers hasten the maturity of the crops, often to a surprising extent, rendering it possible to produce profitable crops late in the season before they are killed by frost.

With the exception of the first group, namely, the nitrogenous fertilisers, artificials are, as will be seen, unsuitable for application in the spring, and it is, therefore, not permissible to deal with them in greater detail in these notes. Sulphate of ammonia and nitrate of soda, however, must have a word or two more, as they often prove the means of saving a crop which might be ruined by an early attack by pests. If, on examination, it is found that one's rows of carrots and other similar root crops are not making the good progress they should, a light dusting of one of these fertilisers should be given along the rows—this to be either hoed or watered in. It is very seldom necessary to repeat this dressing, as its effect is generally all that is desired.

Between artificials and natural manures there is an intermediate class known as "animal products," for want of a better name. Horn dust, poultry manure, and ground fish meal are three of the principal ones, all of which are suitable for application during the spring if used carefully. Poultry manure contains a good deal of soluble nitrogen, and hence can be used for stimulating growth instead of nitrate of soda or sulphate of ammonia, when neither of these is available. Horn dust and fish manure, both of which are not very rapid in their action, may be used shortly before planting time, and are generally hoed into the surface at the rate of a few ounces per square yard. Both horn and ivory dust give extraordinarily good results with potatoes, but should not be used on land which has been liberally manured, or too much top growth will, generally, be obtained.

It is not, as a rule, my custom to refer to proprietary articles by name, but one so often receives enquiries as to a good substitute for farmyard manure where the latter is unobtainable, that I am going to do so with regard to it. Wakeley's Hop Manure is one of the very best substitutes I know of, and can be used with every confidence. It is, of course, much more concentrated than even the best farmyard manure, and hence much less need be used. In addition to this it is obtainable almost everywhere, and considering its food value is not at all expensive.

There are, as almost every reader knows, any number of patent fertilisers now on the market, which claim to suit every crop and to supply the needs of every garden. My own experience with very many of these has been very disappointing, and published analyses have shown that in the majority of instances they are sold at prices far exceeding their worth. One cannot, therefore, advise their application as a general rule, although it must be admitted that some of them are exceedingly convenient. If patent fertilisers are to be used at all, distinct brands for distinct flowers and vegetables should be obtained from firms of standing. It is far cheaper to make up one's own fertilisers, although it is more trouble to do so. Very little knowledge of chemistry is required, although many statements have been made to the contrary, and the results obtained from carefully prepared home-made mixtures are in nearly every case exceedingly good.

FORTHCOMING EVENTS.

February 26th.—Royal Horticultural Society's Fortnightly Meeting. Lecture at 4 p.m. by Mr. A. J. Cobb on "The Value of the Modern Dahlia for the Garden and for Cutting."

February 27th.—Wimbledon Gardeners' Society's Meeting.

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GREENHOUSE FLOWERS AT VINCENT SQUARE

ALTHOUGH many of the flowers on view were normally hardy, it was really "Greenhouse Day" at the Royal Horticultural Society's Hall, Vincent Square, Westminster, on February 12th, for most of them were grown under glass. Chief among the warm greenhouse flowers were the magnificent cyclamens from Reading; while the unheated greenhouse produced a great variety of alpines. Among the latter were many pans of excellent saxifrages, crocuses, bulbocodiums and other genera, shown by Mr. M. Fenwick, Stowe-on-the-Wold.

As we have already indicated, the outstanding exhibit was the collection of greenhouse cyclamens by Messrs. Sutton and Sons; its excellence may be gauged by the fact that a gold medal was awarded. A great number of plants, in distinct colour masses, were employed, and each was a specimen of the highest cultural skill, as well as illustrating a first-class strain of seeds.

In the Orchid Annexe, Mrs. O'Hea, Barford, Warwick, had an admirable exhibit of greenhouse cyclamens. The position did not permit of any novel manner of arrangement, but the many plants were of a high standard of excellence. These plants had stood the long journey from Warwick very well indeed. Along the end tabling Mrs. O'Hea's gardener had grouped many large plants of an excellent white variety, while the side tabling contained an equally extensive collection of these plants in mixed colours.

Another exhibit of much interest was that of hippeastrums, by Baron Schröder. There were twin groups of this well known greenhouse bulbous plant, edged with Lachenalia Nelsoni.

Cinerarias of the best Covent Garden Market type were staged in quantity by Messrs. Cragg, Harrison and Cragg. The Hounslow growers have for some time past paid special attention to blue and deep rose pink cinerarias of the stellata type, and have evolved splendid strains of both colours. Their plants are comparatively dwarf, sturdy, and bear large shapely heads of beautifully coloured flowers.

The graceful and highly decorative little varieties of Primula malacoides were again exhibited by Messrs. Carter and Co. in round baskets, and they also included good pot plants of hyacinths, tulips and crocuses, making a very artistic show.

A collection of greenhouse cyclamens was staged by the Hon. Vicary Gibbs. These were floriferous plants in 5in. pots.

Mr. L. R. Russell had a bright show of Azalea indica, with prunuses and Tillandsia Lindeni bearing its uncommon blue flowers. Messrs. Stuart Low and Co. showed mimosas, fibrous-rooted begonias and many perpetual-flowering carnations. Messrs. Allwood Brothers, Messrs. Keith Luxford and Co. and Mr. C. Engelmann contributed their customary collections of excellent carnations. The first named included especially good blooms of their new perpetual-flowering border varieties and a collection of Dianthus Allwoodii.

Many Freesias, yielding more fragrance than usual were associated with hyacinths and tulips in Messrs. R. and C. Cuthbert's exhibit. Violets of good quality were again shown by the Misses Allen-Brown and Miss Heathcote.

The quality of the pans of alpines exhibited by Mr. Mark Fenwick may be gauged by the fact that three of them received cards of cultural commendation. These were splendid examples of Saxifraga Irvingii, S. Faldonside and S. Burseriana Gloria. A large pot of the mealy Primula Winteri and a pan of Cyclamen Atkinsii rubra also evoked much admiration. Hardy cyclamens in many varieties were also shown by Messrs. Carter Page and Co.; Messrs. Waterer, Sons and Crisp, who included various saxifrages and irises; Messrs. M. Prichard and Son, in whose collection there were also some good blue primroses and many excellent saxifrages.

A GIANT WINTER ACONITE, ERANTHIS × TUBERGENII.

The earliest daffodils, shown by Messrs. Barr and Sons, seemed to fascinate many visitors with their tiny daintiness, and served to draw attention to the many other useful hardy border and alpine flowers, particularly to Petasites fragrans and some pure white hellebores. Among the many varieties of saxifrages, shown in small pots by Messrs. R. Tucker and Son there was an extra good batch of Saxifraga Brookside.

The large collection of polyanthuses and primroses contributed by Mr. G. W. Miller made a bright show, and he had some plants of the old-fashioned hepaticas. Primrose Pompadour along with Saxifraga Irvingii and S. Burseriana Gloria were prominently shown by Mr. F. J. Wood, while Mr. G. Reuthe included the uncommon Primula megasæfolia in his collection of shrubs and alpines.

Several nurserymen made low rockeries of moderate dimensions and utilised them to illustrate various plants. Messrs. William Cutbush and Sons had in their background a well grown little bush of Garrya elliptica bearing plenty of long catkins. Messrs. Pulham and Son, Messrs. Bakers Limited, Messrs. Skelton and Kirby, the Misses Hopkins and Messrs. J. Cheal and Sons also had informal rock gardens.

A number of shapely little conifers of the type valued for planting in the rock garden were contributed by Mr. G. G. Whitelegg and the Orpington Nurseries Company. A splendid bush of Berberis japonica Bealei bearing large numbers of its fragrant flowers was shown by the Hon. Vicary Gibbs, and Mr. Leonard Sutton sent from his private garden several plants of Primula calciphila with good spikes of lovely silvery lilac flowers.

Among the fruit exhibits the large pot plants of various citruses sent by Messrs. T. Rivers and Sons attracted much attention. These well fruited specimens included St. Michael's orange, large fruits of the citron of Paradise, Imperial lemon and several Japanese varieties of orange. A small collection of apples from Messrs. G. Bunyard and Co. were particularly firm and fresh, while most were of brilliant

MESSRS. RIVERS' ATTRACTIVE EXHIBIT OF CITRUSES.

Royal Horticultural Society Library

colour. The chief sorts were Sir John Thornycroft, Braddick's Nonpariel, Ballinora and Mannington Pearmain. Messrs. Shearns had quite a fruiterer's and florist's shop where they displayed high-class produce most attractively set out.

The only vegetables were one of the splendid collections which Messrs. Sutton and Sons set up so well. It contained practically every seasonable vegetable and salad of the highest merit. The most attractive seemed to be the Chinese rose-coloured radish, the variegated kales and the snow-white broccolis. The last named were compact heads of most tempting appearance, and the sorts were Sutton's Superb Early White, Christmas White and Winter Mammoth.

NEW AND RARE PLANTS.

COTONEASTER LACTEA.—In many ways this hardy evergreen shrub might be termed a more graceful Cotoneaster frigida bearing smaller, rounder and more brightly coloured berries. It is a useful addition to the berried shrubs in general use which continue to be ornamental throughout the whole of the winter. Award of merit. Shown by Mr. M. F. Stern.

CROCUS CHRYSANTHA BULLFINCH.—The flowers of this variety were somewhat squat, but this habit may be due to the cold weather. The broad cream-coloured segments make up a round flower which has a distinct orange centre and pale yellow filaments. Award of merit. Shown by Mr. E. A. Bowles.

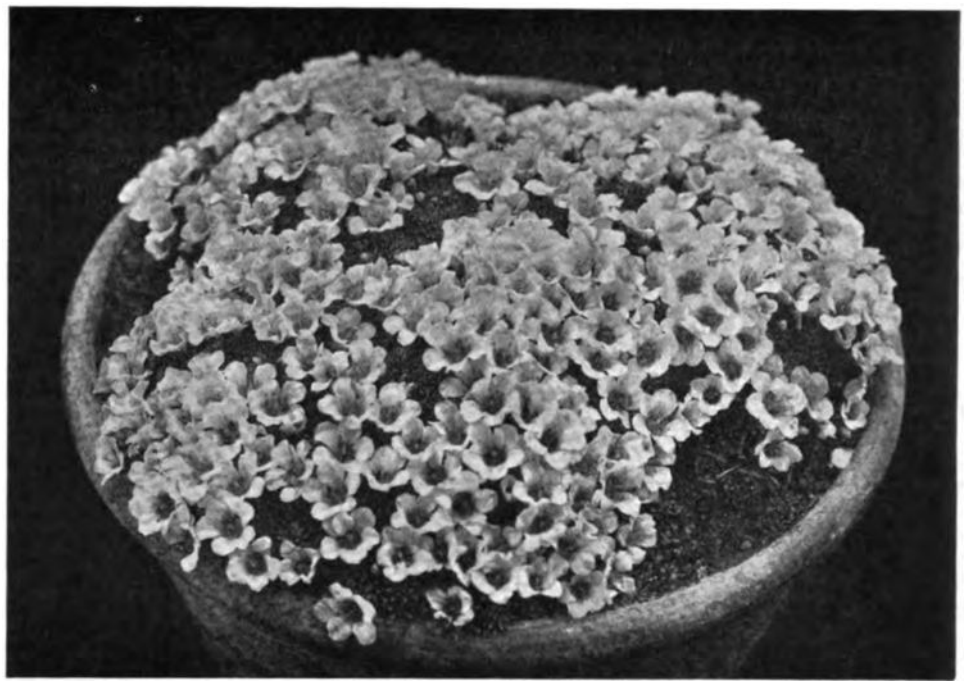
CROCUS C. MOONLIGHT.—The flowers of this variety were also short, but they were large and of a beautiful soft yellow colour stippled with brown on the back of each segment. Award of merit. Shown by Mr. E. A. Bowles.

CROCUS SIEBERI HUBERT EDELSTEN.—This is an exceedingly beautiful crocus and decidedly taller than the two previous varieties. The interior of the flower is lightly flushed, while the exterior is heavily stained with bright bluish purple. First-class certificate. Shown by Mr. E. A. Bowles.

ERANTHIS × TUBERGENII.—A giant among the winter aconites. The very large flowers are brightly coloured and in every way it is a highly desirable variety. Award of merit. Shown by Sir William Lawrence.

PRIMULA ROSSMARY BEAUTY.—This greenhouse primula is one of the nearest approaches to the old double white variety which thirty and more years ago was common in our greenhouses, though it now seems to have passed out of cultivation. The flowers were rather larger, not so double or so freely produced, but it is a very vigorous plant. Shown by Major-General Sir C. F. Hadden.

RHODODENDRON MUCRONULATUM.—Award of merit. Shown by the Director, Royal Botanic Gardens, Kew. [This is figured in our correspondence.—ED.]



A SPLENDID PAN OF SAXIFRAGA IRVINGII.

ORCHIDS.

AWARDS OF MERIT.

CYMBIDIUM CURLEW WESTONBIRT VAR. (Butterfly × Alexanderi), from Lieutenant-Colonel Sir George Holford, K.C.V.O., Westonbirt (gardener, Mr. H. G. Alexander). This plant carried an arching spike of seven flowers of greenish gold colour, the labellum having the side lobes and the apical area blotched with bright reddish crimson.

MILTONIA WILLIAM PITT VAR. THE PRINCE (Isabel Sander × Bleuana var. Reine Elizabeth), from Messrs. Charlesworth and Co., Haywards Heath. A handsome hybrid bearing a couple of large flowers, the segments flatly displayed and richly marked with crimson-rose.

ODONTOGLOSSUM XANTHIMUM (ardentissimum xanthotes × luteo-purpureum Vuylstekeanum), from Messrs. Charlesworth and Co. A very effective hybrid in which the semi-erect spike carried fifteen flowers, all the segments being marked with bright yellow blotches and spots.

CULTURAL COMMENDATIONS.

To Mr. Lewis Smith for a fine specimen of Cœlogyne cristata carrying no fewer than sixty-four sprays of flowers. This plant was one of fifteen almost similar specimens exhibited by Captain Maldwin Drummond, Cadland Park, Southampton, and to whom a silver-gilt Banksian medal was awarded.

To Mr. Macdonald, gardener to Sir George Kendrick, Whetstone, Edgbaston, Birmingham, for a superb example of Dendrobium Leeanum imported from Northern Australia.

THE QUESTION OF THE INBREEDING OF RHODODENDRONS

BY DR. R. J. D. GRAHAM.

THE extract which your correspondent quotes from Messrs. Standish and Noble's contribution to the Journal of the Horticultural Society for 1850 deals exclusively with hybrid rhododendrons. It is important to note that the observations were confined to hybrids and that the authors' subsequent remarks, including their warning, is derived from experience when inbreeding hybrids. They find on inbreeding a hybrid, caucasicum album, that in the third generation the progeny differ markedly both in stature and in ease of cultivation from the original hybrid. In particular, the inbred offspring are stated to lack constitution, and to this cause they attribute their failure to grow any of the plants to maturity. Judging from the fact that the inbred plants lived from two to eighteen months, may we not lay the reason for failure to faulty cultivation? One other important fact deserves notice. One good inbred plant, The Bride, resulted. What, then, is the evidence provided and the conclusion to be drawn from it? Surely, that inbreeding a hybrid results in a mixture of offspring which may differ both among themselves and from the parents. There was one plant that could be cultivated, The Bride, and many which could not be grown under existing conditions. Such occurrences happen daily in plant-breeding work. The reason for the phenomenon is that the original hybrid is a mixture of two species and their characters. Inbreed this hybrid and the mixture of characters asserts itself in various arrangements or shuffling of the characters, as in a whist-hand, among the offspring. So these experimenters found some of the progeny could be cultivated in the old way, others could not.

Often, in crossing peat-loving rhododendrons, the inbred offspring change in such a way that they become intolerant of peat. The direction of the change cannot be foretold, and must be determined for each individual by experiment. Further, each plant will not be alike. Some may take after the parents and prefer the old method of cultivation, and it was thus that Standish and Noble secured The Bride.

A further practical point may be mentioned here. The most difficult hybrids to raise and grow, frequently provide the best coloured and most

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floriferous plants, thus repaying the extra attention demanded and expended on them. No textbook offers an explanation of this fact, and growers, according to their disposition, attribute it to contrariness of things in general or to the fact that virtue meets its own reward.

Turning now to the introduction of new species of rhododendrons from those floral paradises made familiar to many by the wonderful photographs and beautiful word pictures of Farrer, Wilson and Forrest, we have an entirely different proposition. Mark, in the first place, that we are dealing with species, not with hybrids. Let us, further, accept your correspondent's statement that the seed of these species is secured from naturally self-pollinated plants. These seeds will carry only the characters of the species, not a mixture of the characters of two species as in the hybrid, and, consequently, they will breed true to type. There is no mixture of characters to sort out in the first generation raised in this country, nor on inbreeding will there be any change, however long the process continues. Wheat has been inbred itself for countless generations and still remains the same. Rarely, a reshuffling of the characters may occur, and, possibly, this is one of the ways in which, during the ages, the different races of wheat have arisen.

Many of Forrest's new rhododendrons have been raised from seed in the Royal Botanic Garden, Edinburgh, and the fact that, when these flowered, they resembled closely the herbarium sheets is ground for confidence that the plants raised are true to type. These flowers have been inbred in Edinburgh and the progeny are as vigorous as their parents. There is nothing here to warrant the fears of your correspondent, nor is there in the history of the tried favourites among the species which have been in cultivation for over a century. Reference need only be directed to Moore's eulogy of ponticum, which has been grown from selfed seed since the latter half of the eighteenth century.

One further point perhaps deserves a word, namely, will the raising of a few plants in any way affect the issue? Many times the gathering of seed must be small and the number of plants raised in this country limited in number. In view of the above discussion the number of plants raised has, obviously, no bearing on the stability of the species either in nature or under cultivation. From a single seed of a species, or from a hundred seeds, the same general uniformity of character will result. Consider the introduction of an alien plant to a flora. In most cases the introduction is on a slender basis, but, provided the conditions are favourable, the alien has multiplied and has maintained its character. Consider the colonisation of an ocean island. The ocean-borne seeds arrived singly in many cases, certainly not in bushels, but the lonely arrival neither impaired the success nor the character of the species. Turn to de Vries and his work on mutations. His facts that the new forms arose in small numbers but were stable from the start may be accepted, whatever opinion one may hold regarding his deduction from the facts.

Even if, occasionally, seed of a natural hybrid, supposing such to occur, should find its way to this country in the collections, is there cause for despair? The betting, to follow your correspondent's phraseology, is evens on a good form resulting. There is an equal chance of the hybrid being good or bad. On inbreeding the hybrid again there is once more an equal chance of the progeny turning out well; but all the progeny demand equal attention, especially the weakly ones, if the best forms are to be secured. Forrest has remarked on one or two rhododendrons raised from seed sent by him to Edinburgh that he has not seen the plant in China. The origin of the new form is open to speculation. It may be a natural cross or it may have been a stray seed. The main point is that the plant is good.

To sum up, the evidence from growing rhododendrons shows that, as in the majority of species, inbreeding results in the production of as desirable forms from a horticultural viewpoint as was the parent. Inbreeding hybrids, on the contrary, results in the production of a multiplicity of forms, some of which are good, some not. The facts further show no loss of constitution as such, but indicate that the hybrid progeny when inbred require special cultivation, the nature of which can only be determined by experiment.

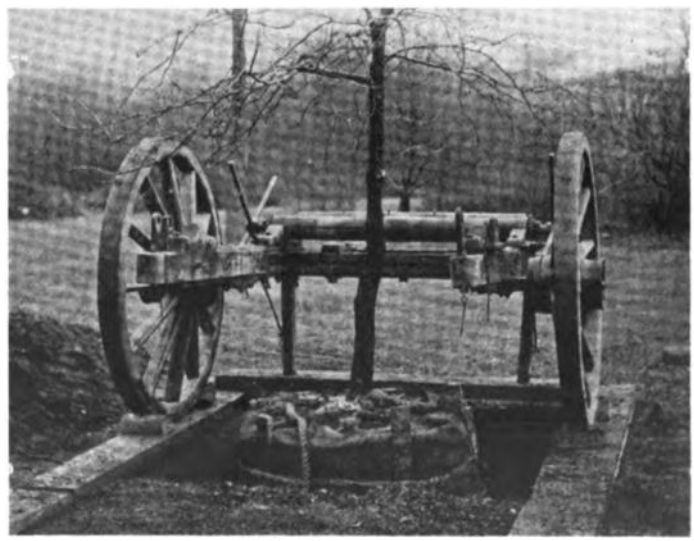
TRANSPLANTING TREES AND SHRUBS

BY A. OSBORN.

THE removal of trees and shrubs with soil attached to the roots is a common operation in the pleasure grounds and shrubbery borders. On the success or otherwise of this operation largely depends the future welfare of the tree or bush. Exactly how the mass of earth or ball of soil is dealt with depends on its size, and if large, the appliances and labour available for the work. In a general way the soil will vary from a few pounds in weight up to ten to fifteen hundredweights, or possibly a ton. It is only in exceptional cases that heavier masses of earth have to be dealt with.

To one of two reasons can usually be assigned the need for transplanting: (*a*) the tree or shrub has outgrown its position,

THE TREE ALREADY PREPARED FOR TRANS PLANTING TO ITS NEW QUARTERS.



PLACING THE TRANSPLANTING MACHINE IN POSITION FOR LIFTING - THE FRONT ROLLERS REMOVED.

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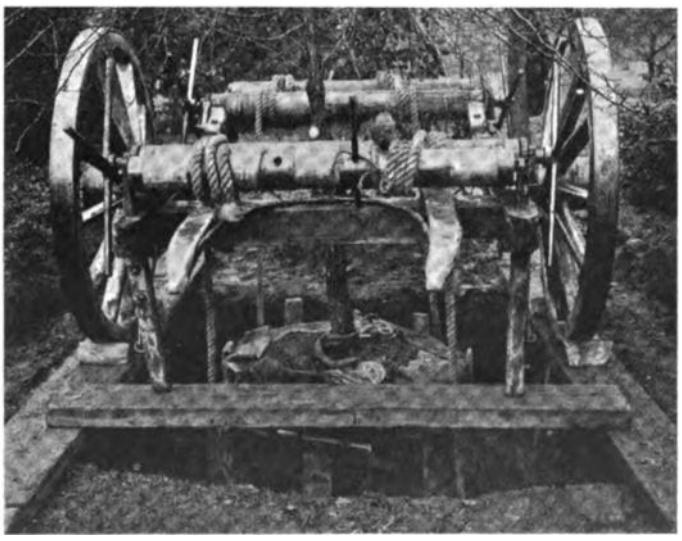
or (*b*) alterations in progress make it desirable to obtain an immediate effect, hence the moving of large specimens.

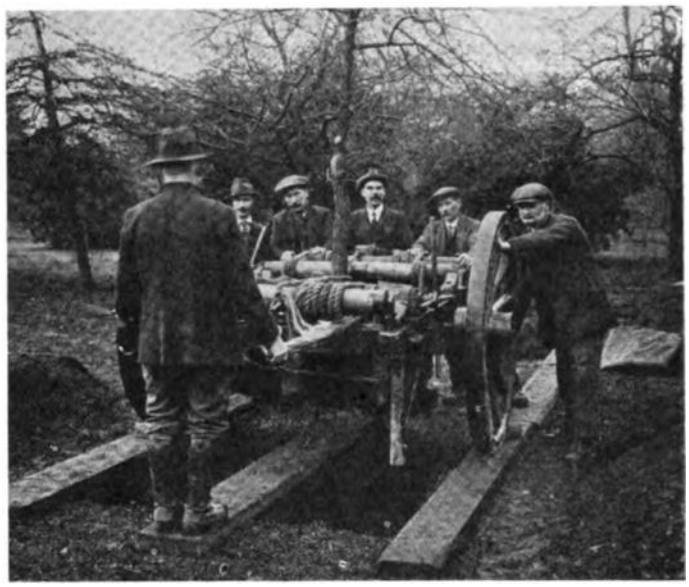
The best time for transplanting requires consideration, but when the specimens are moved with ample soil attached to the roots it gives the operator more latitude in his choice of time for the work, especially with evergreens. With deciduous plants it is desirable to limit removal between the falling of the leaves in autumn and about the end of March. There are exceptions: magnolias and hamamelis for example, transplant successfully during April and May. With evergreens, which are admittedly more difficult, it is a great help to be in a position to move them with ample soil and their root system practically intact. The normal, or shall we say the best, seasons for planting evergreen trees and shrubs are September or early October, and late April or May. With a machine such as the one illustrated, or some other method by which good balls of soil are transferred, such work can be safely carried on throughout the winter, and in exceptional circumstances during the summer. The rhododendron is perhaps the best example of all to quote as an easy evergreen to transplant with a good ball of soil in summer. We have, when occasion required, successfully moved plants in bud or flower with balls of earth weighing ten hundredweights and more. A very good example of moving hollies in midwinter successfully with a transplanting machine was seen at Kew during the winter of 1922–23. Of fifty specimens moved weighing from five to twenty hundredweights not one failed to grow.

Having decided on the plants for transplanting and selected their new stations, the first item of importance is to tie up the branches, if spreading. This will facilitate removal and prevent damage to the twigs during transport. The next business is to fix the size of the mass of earth to be moved with the plant. The hole illustrated is 6ft. square, the proposed ball is first marked out at 5ft. square. The intervening 1ft. of soil is then dug out all round to the depth of the roots, which will vary probably from 1ft. 6ins. to 2ft. 6ins. Next proceed to fork away the soil at the corners and gradually reduce the size required, making the ball round eventually, and if for a machine similar to the one illustrated it should not be more than 4ft. in diameter, this being the inside measurement of the frame. The careful forking away of the soil permits of the saving of the fibrous roots even beyond the actual diameter of the ball. Sometimes a thick root is unearthed, and this should be carefully cut off and the wound (cut surface) dressed with tar. Follow up this work by surrounding the ball with a thick canvas, fastening this round with two ropes,



ROPES FIXED IN POSITION READY FOR LIFTING.

one towards the top and the other round the bottom half. Between the canvas and ropes place five or six pieces of board, 2ins. to 3ins. wide, round the ball at equal distances to prevent the ropes cutting into the soil. To tighten up the ropes place a short stick in each and twist up, forming a tourniquet, holding firm by tying with string. The next process is to undermine the ball. When moderate in size a piece of stout canvas or matting may be used to transport it on. Gradually work the soil from beneath one side of the ball. When about halfway under, roll half of the canvas up and pull it under the centre of the ball. Next commence undermining the opposite side,



BRINGING THE MACHINE INTO POSITION OVER THE NEW PIT.

tip back the mass of soil on to the half of the open canvas and unroll the other half from the centre. Whether the plant is lifted out of the hole or drawn out on a plank depends on the weight. Details will vary considerably according to the actual work contemplated and the appliances available. I will explain the process necessary when moving trees and shrubs with the machine illustrated, leaving readers to vary the details to suit local conditions.

One item of importance is that the depth of the new hole should be several inches less than the old one to allow for wastage of soil from the bottom of the ball.

Several reasons can be advanced why good balls of soil should be moved instead of forking out the roots, as is done with nursery trees often larger than the one illustrated with the machine. Nursery trees are frequently transplanted, hence should have plenty of fibrous roots. To my knowledge the cratægus depicted in the illustration had not been moved for fifteen years. Thorns at this age are not among the easiest trees to transplant successfully. Many specimens we move with the machine would no doubt live if forked free from soil, but by using the machine the plants suffer little, if any, check, while without it they would take two or three years to recover. Commence by undermining the ball at the back and front until there is sufficient space to place two stout boards well under the ball and long enough to project several inches on either side. Round the ends strong ropes are passed connected with rollers on the framework of the machine above. Worked with cog-wheels, rollers and catches, the ball is gradually raised high enough in the transplanting machine to travel to the new position. Planks should be used for the wheels when moving the machine over lawns and cultivated ground. A small machine can be manipulated by four men, but for a machine lifting balls of soil weighing from seven or eight hundredweights upwards a minimum of six men is required, increased in proportion to the extra weight of the masses of earth to be transported.

Few private estates and public gardens have, perhaps, a sufficiently extensive collection of trees and shrubs to justify the purchase of a machine, but when extensive alterations are in progress the hiring of a machine will be found a great boon and add very considerably to the ultimate success in the growth of the specimens moved.

Failing a machine, two or three handy men with a few pieces of sacking or canvas, ropes, planks, levers, rollers, a jack and a low trolley can undertake a considerable amount of useful transplanting work.

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CORRESPONDENCE

LIST OF PLANTS FROM WISLEY.

A VERY large number of your readers who are Fellows of the Royal Horticultural Society, will have just received the "List of plants and seeds for distribution," and will be making their hopeful choice of the many rare and beautiful things that it contains, but—should you consider the subject of sufficient general interest—may I be allowed to voice what I know to be the criticism of many of the Fellows?

Besides the desirable plants that are not, for one reason or another, easily obtainable, the list includes many others, such as Alyssum saxatile, Campanula persicifolia, Dianthus Mrs. Sinkins, Lupinus polyphyllus, Nepeta Mussini, etc., which can be had, mostly for sixpence apiece from any nurseryman, if they cannot be begged from a neighbour's garden, and moreover, are not very useful as single specimens. Could not such plants be omitted from the list without regret and their place taken by others, not necessarily of recent introduction, but such as are not easily procurable through the ordinary trade channels?

Very tentatively, the more tractable species of meconopsis, the species rosa and perhaps also the various species of crocus (that do so well at Wisley), might be suggested as examples, but no doubt Fellows of the Society would be willing to add others, perhaps more feasible and generally desired.—F. A. HAMPTON.

A NEW HEDGE PLANT.

THERE can be no doubt about the value of Lonicera nitida as a hedge plant. Apart from its utility, it is one of the most graceful shrubs that could be used for such purpose. Mr. H. Avray Tipping has done a good service in calling attention to this fine plant. Visitors to the Empire Exhibition at Wembley will see Lonicera nitida used as a hedge round the rose garden of Messrs. Dobbie and Co., Limited, of Edinburgh. An idea can be formed there of the grace and beauty of this lonicera when used as a garden hedge.—GEORGE M. TAYLOR, *Edinburgh*.

THE LABURNUM AND RABBITS.

THE statement made by Sir Herbert Maxwell (page 49) that rabbits devour young trees of laburnum and gnaw the bark of old trees is perfectly true. Early in the last century this was pointed out by J. C. Loudon, who stated that "hares and rabbits being remarkably fond of the bark of the laburnum, it has been suggested to sow laburnum seeds, in order to produce an undergrowth in plantations liable to be infested with these animals; for, though the plants are eaten to the ground every winter, yet they will spring up again the next season and thus yield a regular supply of winter's food for these kinds of game." This fact does not seem to have been acted upon to any great extent. On one game-preserving estate I have seen a wood underplanted with spruces, and not a head was left after the first snowstorm. In another rabbit warren I have seen the old beech trees painted with tar from the base for three feet upwards. The Scotch laburnum (Laburnum alpinum) used to be extensively grown in Scotland as timber for the turners and cabinet-makers before the art of staining wood was so well understood as at the present day. I have seen it in flower in the grounds of the Chelsea Hospital at the end of May, but that rarely happens, and even in that case the common laburnum maintained its priority and was quite out of bloom.—J. F.

RHODODENDRON MUCRONULATUM.

THIS is one of the most beautiful "heralds of spring" among the early-flowering rhododendrons. It is a close ally of R. dauricum, some authorities describing the plant as a variety of that species. For garden decoration R. mucronulatum is a superior plant, being more vigorous in growth, and having larger flowers. The leaves are less coriaceous than those of R. dauricum, up to about 3ins. long and 1¼ins. wide, approximately double the size of normal R. dauricum. The flowers are 1½ins. to 1⅝ins. in diameter.

R. mucronulatum is a native of Manchuria, North China, Korea and Japan. The first record of the plant is specimens collected by Dr. Kirilow near Peking about 1835. To Dr. Bretschneider belongs the credit of first introducing the plant to cultivation, he having sent seeds to the Arnold Arboretum in 1882. The group of plants illustrated are growing at Kew, and were raised from seeds received in 1904 from St. Petersburg (Petrograd) Botanic Gardens and Messrs. Regel and Kesselring in 1908. They range from 4ft. to 6ft. in height. In Korea where this species is very abundant, Mr. E. H. Wilson records plants 10ft. high. There is considerable variation in the colouring, from pale rosy-pink to a rich rosy-purple. A valuable character is that the flowers stand several degrees of frost. The ground was white with frost two mornings last week, but the flowers of R. mucronulatum suffered little if any damage. January and early February is the normal season of flowering. This year, in common with most early-flowering plants, it is ten days or a fortnight later than last year. There is scarcely need to suggest planting this useful rhododendron in a position sheltered from the east; the group illustrated is well protected from the east and south-east by a belt of arbutus.

RHODODENDRON MUCRONULATUM AT KEW. PHOTOGRAPHED FEB. 9.

While seeds form a ready method of propagation, the forms with rich rosy-purple blossoms are better increased by cuttings made of half-ripe shoots, which root readily about midsummer in a close propagating frame with slight bottom heat.

Exhibited by the Director, Royal Botanic Gardens, Kew, the Floral Committee gave this very useful early-flowering rhododendron an award of merit at the R.H.S. meeting on February 12th.—A. O.

WHY DELPHINIUMS?

THERE is an inexhaustible mine of legendary and historical buried treasure beneath many of our plant names. Those who have never undertaken any digging and delving below the surface have no idea of the interest and pleasure that such work provides. I wish every

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had a sufficiency of books, or lived near enough to a large library, to undertake it in a serious way. Delphinium is a case in point. How came those beautiful blue blooms—which we know so well on their tall towering spikes, or when delicately poised on the low-branched stem of the lowly "Butterfly" race—to have had this name given them? There are two or three explanations abroad, the generally accepted one being that described by Gerard in his Herbal: "for (he says) the flowers, and especially before they be perfected, have a certain shewe and likeness of those Dolphines, which old pictures and armes of certaine ancient families, have expressed with a crooked or bending figure or shape; by which signe also the heavenly Dolphin is set foorth." They are going in very strongly for delphiniums in America. A quarterly (?) paper has been started at San Rafael, California, called *For Better Delphiniums*. The first number was issued in June, 1923, and the second in October, 1923. The delphinium is considered from a pictorial, mythological, historical, decorative, cultivational and imaginative point of view. It is all very interesting. We like to know something about what is taking place on the other side of the Atlantic; of the Vanderbilt hybrids; of Toole's Whites; of Hoodacres' splendid "Seedling 320"; then something about their ideals, "stately, slender, beautiful, with Pastel colouring"; then something about their trials and worries, and so on.

In the first number there is a long, unsigned "Ancient Note," in which the writer delves into the past and finds an entirely new derivation for the family name. Put shortly, it is that in Athens in ancient days there was a yearly festival of Apollo Delphinios, which took place at the time when the delphinium flowered, that is, on April 6th. It began by a procession, in which the Grecian maidens "adorned themselves with garlands of flowers of the favourite (deep blue) 'colour of the gods' (undoubtedly delphiniums at that period of the year) and with supplicating branches (olive) in their hands, formed a reverent and ceremonial procession to the temple 'Delphinion' in propitiation to Apollo on behalf of the seamen about to depart on the year trade cruises."

I have no book in my little library which throws any light upon the subject, but will not someone who knows Greece and who is well up in ancient Grecian history tell us if there is anything in the unknown writer's facts and deductions? The idea and derivation are new to me and may be new to others, and we would like information.

The only break-away from the orthodox explanations that I have found occurs in that curious book of quaint made-up moral tales which at once are explanatory fables and sermons, "The Compleat Florist," by the Sieur Louis Liger D'Auxerre (1706). My translation is bound up with the "Solitary Gardener" ("Le Jardinier Solitaire") which was "written in French by Francis Gentil . . . above thirty years Gardener to the Charter-House in Paris." This is the tale there: "Lark's Spur was a young Man of Portugal" who was keen on hunting and fishing. One day he fell in the sea and a dolphin saw him and rescued him. Some time after he saw that his friend the dolphin was very likely to be caught by fishermen in their nets. He managed to baulk their design, which so enraged them that they threw him into the sea. The dolphin when it saw his danger, popped him on its back and carried him to land. It was too late, the man was dead. He then asked Neptune, who in turn asked Flora, to turn him into a flower "which in some measure should resemble a dolphin." Hence delphinium.—JOSEPH JACOB.

NOTES FROM FRANCE.

OLD gardeners, in France, used to make great use of stevias. Now, however, as elsewhere, these plants seem to have dropped into unwarranted neglect.

They are mostly natives of Mexico and can be treated either as annuals or perennials. As annuals they come most readily from seed sown in gentle heat or in a cold frame in early spring and flower profusely the next summer and autumn. As perennials they require a slight shelter of dry material in severe winters and then make fine large bushes, flowering somewhat earlier than when grown from seed. All varieties are particularly useful for cutting purposes.

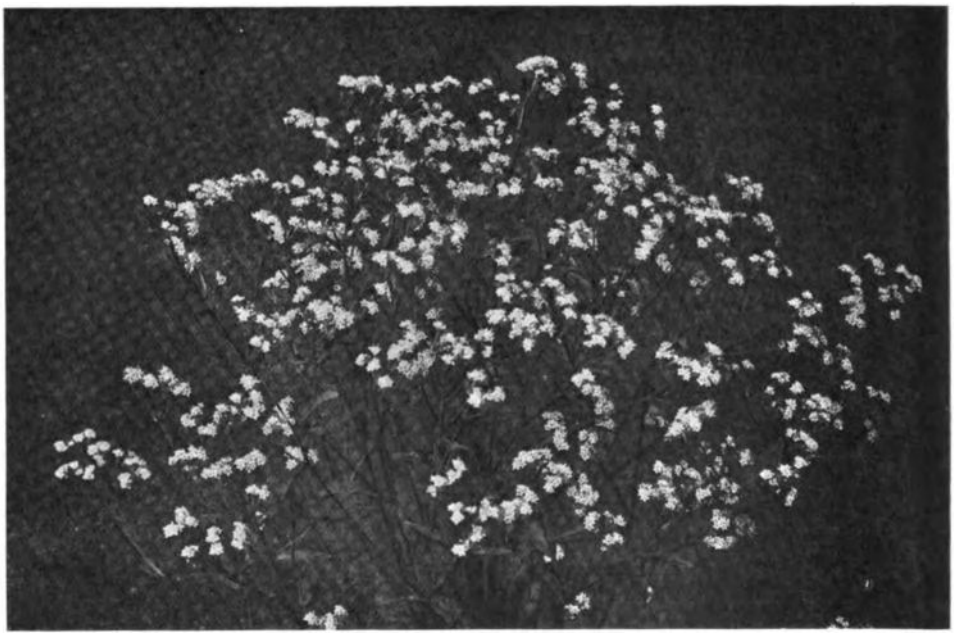
The growth of the plants is mostly rounded. The stems are erect or slightly curving on the sides, numerous and graceful, and bear, as the illustration shows, numerous small flowers, which continue over a very long period. These flowers are sweetly, though slightly scented. This perfume is, perhaps, not very appreciable at first, but if the flowers are cut and put into a room, the gentle, insinuating fragrance will be fully appreciated.

Two varieties of stevia are worth cultivating. Stevia purpurea, as its name implies, has purple lilac flowers. It grows to a height of about two feet. But the more interesting species is S. serrata, a white-flowered variety, reaching to about two feet. It is a strong grower and very free-flowering, invaluable for borders and decorative purposes of all kinds. In August and September, when the graceful and useful Gypsophila paniculata is over, the florist can use it as a substitute in all kinds of floral designs. As a flowering bush, it is a plant of perfect *tenue* that will give every satisfaction to anyone who tries it. It ought to be found in every garden, large or small.

Stevias grow in moderately rich soil. It is always advisable to give them plenty of room, in open and sunny positions.—CH. LERAY, *Paris*.

ASPARAGUS PLUMOSUS OUTDOORS

IN your issue dated February 9th, page 72, there is a letter on Asparagus plumosus as a window plant. My experience with it may be of interest to "C. T." and other readers.



STEVIA SERRATA A WHITE FLOWERED MEMBER OF THE COMPOSITÆ FROM MEXICO.

Some sixteen years ago I had a three-quarter lean-to house against a garden wall, part of which was kept as a stove and part as a greenhouse. In the warm division were several plants of Asparagus plumosus, and in the cooler some of A. Sprengeri. Having decided to discard artificial heat, the asparagus plants were bedded out at the foot of the wall. All were cut to the ground by frost, A. Sprengeri being killed. In the spring A. plumosus came up very strongly and did well year after year, the growths being often over 6ft. in height.

The only disadvantage caused by lack of heat being that each autumn very strong growths were pushed up which were unable to mature. I believe it would be worth while to try the experiment of growing this plant in a sheltered position out-of-doors, with some protection in winter.—R. C. BAYNE.

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SOME OUT OF-THE WAY VEGETABLES

BY GEORGE GARNER.

IF cultivators who make a point of growing vegetables most commonly used for the table will add to their list some of the little known kinds, their interest and pleasure in vegetable cultivation will be increased.

There is, in the majority of gardens, small plots that should be devoted to the more rarely-grown kinds. But I would urge the necessity for good culture. The same high and generous cultivation should be applied to these as to the standard kinds, as without it success cannot be looked for.

THE CHINESE ARTICHOKE. — This vegetable will grow and increase freely in any ordinary soil, but the largest tubers are the result of good cultivation. The tubers are spiral in form, fully grown ones measuring about three inches in length and nearly one inch across the central or widest part. The tubers should be planted in March in well prepared soil moderately enriched with rotted manure. Plant them 1ft. apart in single rows, allowing 2ft. from row to row and cover with 3ins. of soil. The summer treatment is simple, the occasional hoeing of the soil between the rows being sufficient.

In October the tubers will be ready for cooking; they are best lifted from the ground as required. They should be boiled for twenty minutes, then fried in boiling fat till brown, carefully drained, and dusted with grated cheese. The correct name for this vegetable is Stachys tuberifera.

SPINACH BEET.—This is also called perpetual spinach. The roots are not used, but the leaves are available in late summer and early autumn. As fine, succulent leaves are the object of the cultivator the ground should be well enriched before the seeds are sown, first, early in March, then early in May, and about mid-July for the final sowing. The rows should be 1ft. apart and the resultant plants thinned to 9ins. asunder. When the leaves are fit to gather they should be cut off regularly, then more will grow and maintain a succession.

SILVER BEET.—A rich rooting-medium is essential to success and, in addition, some feeding will prove beneficial. Sow seeds in April in rows at least 18ins. apart and thin out the seedlings freely. The mid-rib is used, the leaves being pulled, not cut. The mid-ribs, carefully boiled, without soda in the water, are a very good substitute for asparagus.

CARDOON.—Rich soil is necessary and it should be deeply dug. In the case of light soils shallow trenches should be made, but level ground planting is best where heavy, retentive soils occur. Sow the seeds early in April in light soils and about the middle of the month in those of a clayey nature. The rows should be 3ft. distant and the seeds sown at 9ins. apart, finally to be thinned to 15ins. The summer treatment should be generous as regards feeding. The blanching process should begin at the end of August and may be carried out by wrapping stiff paper round each plant and earthing up. Straw or hay-bands serve the same purpose. The stalks of the inside leaves are the ones to use, either for stewing or for salads.

KOHL RABI.—Garden turnips are generally grown indifferently in some very dry soils. In such cases kohl rabi should be grown instead, as the roots of the later penetrate deeply into the soil. The cultivation is similar to that of the turnips; either the white, green or purple variety is of really good flavour. Although suitable for dry soils the plants grow splendidly in heavy ones. April is a good time in which to sow the seeds.

MAIZE.—The seeds in the form of green cobs are cooked and treated for table in the same manner as is asparagus. The essentials to success in its cultivation are a deeply dug, rich soil, and a sunny situation sheltered from strong winds. It is almost useless to attempt to grow fine plants and cobs in shallow soils and exposed places. In southern counties the seeds should be sown about the middle of April, and early in May in the northern. The rows should be 2ft. apart—6ins. more if there is room—and the seeds sown very thinly; the final thinning being done so as to leave the strongest plants not closer than 18ins. Water in dry weather and also apply a substantial mulch of littery manure.

SCORZONERA. — Cultivators possessing a poor shallow soil should not attempt to grow this vegetable, as poor specimens would result from ordinary treatment. Very fine roots may be grown in a deep loam. The best way to prepare the ground is to trench it two spits deep; add rotted manure to the lower portion of soil but none to the top. Sow the seeds in March and treat the resultant plants similarly to parsnips. Frequent surface hoeing during the summer months will help to stimulate growth.

The roots are ready for use early in the autumn. Before cooking, first place them in cold water for twenty minutes, squeeze in a few drops of lemon juice, then boil sufficiently and serve with white sauce. They are very palatable sliced when cold and fried in butter till nicely browned.

NEW ZEALAND SPINACH.—This is a true hot weather vegetable and may be grown very successfully in hot, light soils and in very warm positions. In the south sow the seeds early in May; in the north about May 20th. Deeply dig and enrich the soil with rotted manure. Where very clayey soil sobtain it is a good plan to use a peck or so of old potting or similar compost, to each plant to encourage early and free growth. Drop a few seeds 4ft. apart in the prepared soil and afterwards keep the ground clean. The habit of the plant is similar to that of the vegetable marrow; the leaves are almost of the same shape as those of the summer spinach, but much more succulent. Do not stop the rambling stems, but gather the largest leaves first from the base of each. Healthy plants grow rapidly and yield much produce.

SALADINGS.

In addition to those plants that are very substantial in the salad bowl, such, for example, as the tomato and lettuce, there are many more that are much appreciated when used simply to impart some variety to the flavour. Salads, in themselves, on account of the salts they contain, are very beneficial to all who eat them.

CORN SALAD.—Another name for this plant is Lamb's lettuce, and on account of its rapid growth in spring is valuable as a substitute for lettuce at that period. Plants may be grown in the summer, but the most satisfactory plan is to sow seeds in August in rather dry soil and to winter the plants after thinning them out to 9ins. apart and so have good leaves available early in the New Year.

CURLED CHERVIL.—Sow the seeds in spring in rich soil, not large breadths, but small ones. Make a sowing about every six weeks. The soil should be deeply dug and the plants watered well in dry weather. Thin out the seedlings as strong plants do not "bolt" to seed as quickly as overcrowded ones.

DANDELION.—When properly grown and blanched this salad plant is much appreciated. The soil intended for the crop should not be manured and the position should be a dry, sunny one. The young plants are difficult to transplant successfully so it is best to sow sufficient seeds in May in rows 18ins. apart and to thin out the resultant seedlings to 1ft. in the rows. The object is to secure strong roots and, like other root crops, summer cleanliness and frequent hoeing of the soil has a beneficial effect. In the autumn and winter the roots should be very carefully lifted—not pulled up—packed fairly closely together in deep boxes or pots, surrounded with fine soil and watered. Any cellar or darkened shed will answer the purpose for blanching. From February onwards, blanching may be done by covering the plants, where grown, with dry straw. In all cases the blanching should be well done.

NASTURTIUM.—The flowers of these plants are sometimes added to the other contents of the salad bowl, and the pods pickled like those of the radish.

SALSAFY.—A deep soil inclined to lightness is an ideal one for this crop. The ground should be well prepared before the seeds are sown so that there will not be any necessity for more disturbance of it in the summer time than that entailed in the destruction of weeds by hoeing. Manure the lower portion of soil, not the top. Sow the seeds in April in drills 18ins. apart and thin the seedlings to 1ft. distant. The roots, if lifted in November and December, should be stored in sand. The tender shoots, or chards, produced in spring from plants left in the ground throughout the winter are very nice and are cooked in the same way as asparagus.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Potatoes.—In sheltered gardens a small quantity of tubers may be planted which will, if all goes well, furnish an early supply. Choose mild weather for the operation and when the soil is fairly dry on the surface. Shallow trenches should be prepared 18ins. apart, and the tubers set out at intervals of 1ft. Cover them with old potting compost, leaf-mould, or any light dry soil that is available. An early variety should be selected and, if possible, the tubers sprouted.

Mushrooms.—Continue to collect material for another bed, and when sufficient is at hand it should be made up. The horse-droppings will need turning a few times to allow rank steam to escape; at the same time, remove all the straw possible. The bed should be from 18ins. to 2ft. deep at the back and about 15ins. at the front. Tread the manure firmly, and when the bed reaches a temperature of 80° Fahr. or so it may be spawned. The brick of spawn should be broken into pieces about the size of a hen's egg and placed in the manure at intervals of 9ins. or 10ins. It should be only just covered. A thin layer of sifted loam should be spread over the bed and made firm with the back of a spade. An old shed or stable where it is dark will be found suitable for mushrooms. During cold weather a load or two of long manure, which will be similar to a hot-bed, will maintain the required temperature of 60° Fahr. When water is required it should be warm and applied through a fine rose.

Winter Onions may now be planted out in lines 1ft. apart. See that the plants are made firm and not planted too deeply. Onions pay for generous treatment, so they should be given a well prepared piece of the garden. A dressing of soot on the surface will prevent worms from pulling the plants into the soil, and it will also be beneficial to the crop.

Jerusalem Artichokes should be planted at once in a well tilled plot, as they enjoy a long season of growth. They should be set in rows 2ft. to 3ft. apart and 1ft. between the plants.

THE FLOWER GARDEN.

Preparations for Bedding.—Having ascertained the number of plants required for the various beds, the work of propagation may be proceeded with. Heliotrope will root freely if given slight bottom heat, and the same remark applies to iresine, marguerites, salvias, ageratum and similar plants. Pelargoniums, if the stock is low, can also be increased by cuttings, and the rooted plants should be potted off singly, giving them every encouragement to make large healthy plants. The double forms of the blue lobelia can also be propagated by cuttings and division of the stock plants. Full use ought to be made of the propagating frames during the next few weeks.

THE HARDY FRUIT GARDEN.

General Work.—The propagation of bush fruit by means of cuttings should be completed at an early date, and the pruning of all kinds of trees brought to a conclusion. Directly the work is completed, collect the prunings and burn them, carefully going over the fruit quarters and digging up all deep-rooting weeds, such as dandelions, etc. Afterwards lightly fork between the trees and bushes, and make the whole as tidy as possible. Young trees in grass orchards may also receive attention.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Carrots.—For sowing now, on the open border early varieties should be chosen, such as French Scarlet Horn or Early Scarlet Horn. Select a sheltered position on a south border, and take out rows 12ins. apart and 6ins. deep, with a spade. Fill the rows with sand before sowing the seed. By doing this a crop of nice clean roots should be obtained.

Celery.—Where quantities of this vegetable are in demand, the main sowing should be made in boxes filled with prepared soil, and germinated in heat.

French Beans.—To have a prolonged supply of this vegetable it is necessary to grow one or more batches of plants under glass. Prepare 8in. pots by crocking and filling them with good potting soil. Five or six plants are quite sufficient to grow in each pot, but it is better to insert rather more than that number of seeds in each pot. Set the pots in a warm temperature. I have found Canadian Wonder a very good cropping variety.

Jerusalem Artichokes.—This vegetable is a species of sunflower, and sends up tall stems from the edible tubers; on this account the plants are often used as a screen or shelter for other plants. But, like most vegetables, they respond to good treatment. The two varieties in cultivation are known by their tubers, which are purple and white. These should be planted 6ins. deep and 12ins. apart in rows 2½ft. distant.

Peas.—Further sowings of the Pilot and Gradus varieties should be made.

Potatoes.—On a border with a south exposure and fairly light soil, rows should be taken out 2ft. apart and the sets—or tubers—placed in these 9ins. distant from each other. Leave all growths on the sets, as the young haulms when above ground are sometimes damaged by frosts. We grow first early potatoes between the lines of early peas. In the past we have found Epicure a reliable variety, and one from which tubers may be obtained early in June.

Turnips.—A few drills should be drawn out 1in. or so deep and 1ft. apart—on the same border as used for early carrots—and seed of Early White Dutch or Extra Early Milan sown therein.

THE FLOWER GARDEN.

Chrysanthemums.—These gay and decorative border plants repay, by their beauty and wealth of bloom, all who grow them. Where old shoots have been wintered under glass, cuttings from these should now be obtainable. These should be detached and dibbled into boxes filled with sandy soil made firm. Place the boxes in a moderate temperature and well water. Keep the cuttings shaded from bright sunshine until rooted.

Commelina cœlestis.—Blue-flowered plants are usually much appreciated, and the commelina, although not gaudy, is attractive, with its blue flowers and somewhat peculiar growth formation. If roots were kept throughout the winter they should be brought on in moderate warmth; seed, too, may be sown in heat, and the plants, when large enough, set out in the open when all danger from frost has gone. There is also a white-flowered variety of this plant.

Sweet Peas.—Plants raised from seed sown in boxes last autumn should be set out on a sunny border. After planting, dust the ground along each line of plants with lime or soot; this will help to ward off slugs.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Gebera Jamesoni, and the many beautiful hybrids and varieties originating from this species, are worthy of more general cultivation by every lover of choice plants. In the south and west, gerberas may be successfully grown in dry, warm borders at the foot of a wall, with a sunny exposure, but over the greater part of the country they must be regarded as greenhouse plants. A stock of plants is easily raised from seed sown at this time, and with good cultivation they should produce a few flowers during the autumn. However, they should be at their best the second and third year from seed. In fact, when planted out they last for quite a number of years. Their successful cultivation in pots is by no means easy. To grow them well they require large pots; pots out of all proportion to the size of the plants. Thus I advise anyone who wishes to grow them in quantity for a supply of cut flowers, to plant them out in a raised bed in a sunny, airy greenhouse. The bed should be well drained and filled with about 15ins. of sandy loam, to which a little fibrous peat or good flaky leaf-soil may be added, with enough clean coarse sand or old mortar rubble to keep the whole open and porous. Under such conditions they should grow and flower freely. White fly proves rather troublesome, and should be kept in check by some approved remedy. Aphis sometimes infests the flowers, but frequent light fumigations should prevent any trouble from this pest.

Ericas and other Hard-Wooded Plants. Where cuttings of these plants were put in last August and September, many of them should now be well rooted and ready for potting off. This should be very carefully done as their fine roots are so easily injured. The compost at this stage should consist of fine sandy peat, while thumb pots should be large enough for them at this time.

Forcing Plants.—Wistarias should never be given high temperatures or else the buds will drop. Viburnum Carlesii is best brought on in an ordinary greenhouse temperature. Crocuses should be grown perfectly cool or else they go blind. Most varieties of narcissi used for this purpose force readily, but tulips are by no means so easily managed, especially the Darwin varieties. Failure is generally due to using unsuitable varieties, and by placing them in too high a temperature. The large-flowered varieties of the Ghent azaleas are very popular for forcing. Their flowers, however, drop off very quickly, but this fault can readily be overcome by placing a drop of floral gum at the base of each flower. By this means it is surprising how long the flowers remain fresh on the plants. While most shrubby plants may be lifted from the open ground during the autumn and potted up, with more or less successful results, it is always best if such plants are pot grown. For example, a pot grown lilac will keep fresh for several weeks in a cool conservatory, while one lifted from the open ground will only last about a week. Plants, like rhododendrons, that have a fine root system may be lifted from the ground at any time and be successfully forced; varieties that flower early naturally being best for this purpose.

Jacaranda ovalifolia (syn. J. mimosæfolia).—This plant with its light elegant foliage is very useful for decorative work, and for grouping with other plants in the conservatory. It is easily raised from seed sown at this time in a warm house. Although generally used in the young state for decorative work it is worth planting out in a bed in the conservatory in hopes that it may produce its beautiful blue flowers.

J. COUTTS.
Royal Botanic Gardens, Kew.

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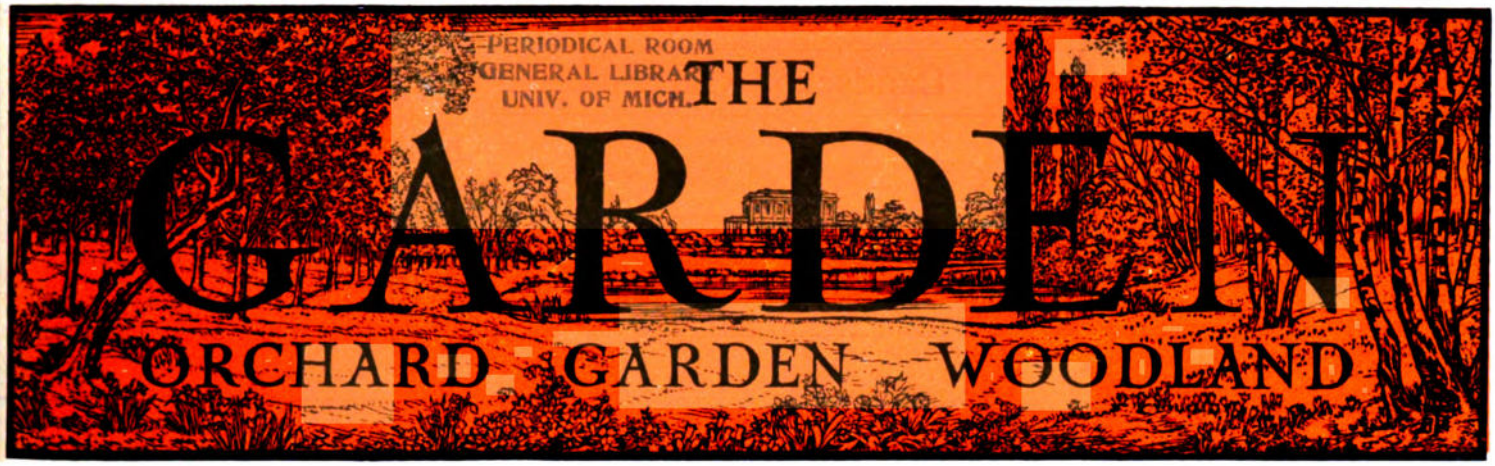

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THE GARDEN

VOL. LXXXVIII.—No. 2728. MARCH 1, 1924

IN AN OLD WALLED GARDEN. THE GARDEN HOUSE AND BRICK WALL MAKE AN EXCELLENT BACKGROUND FOR THE BLAZE OF COLOUR IN A LATE SUMMER BORDER. PREPARATIONS SHOULD NOW BE WELL ADVANCED FOR AUTUMN ADORNMENT.

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THE GARDEN

MARCH 1, 1924.

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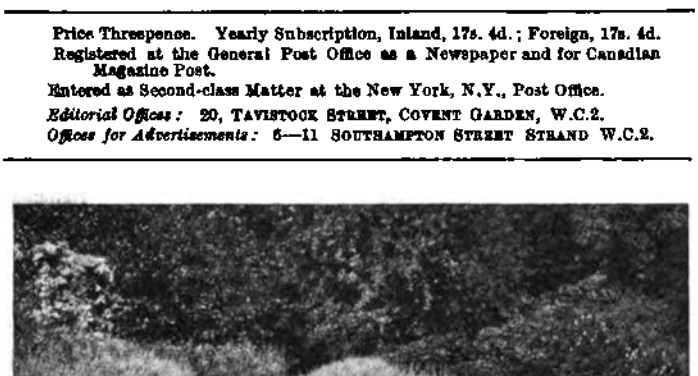

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PEONIES

ON the opposite page will be found an article by Mrs. Edward Harding on the subject of Peonies in the British Isles. Mrs. Harding is one of the greatest of experts on this fascinating subject. In the United States, where she lives, she has made practically a life's work of the introduction and the popularisation of the peony. As she also has an extensive knowledge of English gardens, she writes with authority on the question of their cultivation on this side of the water.

On reading her article it will be noticed that she emphasises one point: surprise that the peony is not more popular in the British Isles. This is true, and all the more remarkable owing to the constant mention of the peony in old MSS. and printed herbals, which prove over and over again that it was in common cultivation in this country in very early times. Miss Rohde in her book on "The Old English Herbals," says that the peony throughout the Middle Ages was held in high esteem for its protective powers, and that even during the closing years of the last century country folk hung beads of its roots round children's necks. Gerard also states that "The black grains to the number of fifteene taken in wine or mead is a speciall remedie for those that are troubled in the night with the disease called the Night Mare, which is as though a heavy burthen were laid upon them and they oppressed therewith, as if they were overcome with their enemies, or overprest with some great weight or burth and they are also good against melancholie dreams." Probal peonies were only grown for their supposed magical and me cinal properties, but many of our finest garden plants start from the same humble beginnings.

There are several other curious points about this lack interest. Peonies may be classed as large herbaceous plan along with delphiniums, gladioli and hollyhocks, and ov all these plants there is great enthusiasm in this countr New delphiniums of the most brilliant shades come alo with amazing rapidity; gladioli are much sought after f delicacy of colour; hollyhocks increase in stature and br liance every year. Yet if peonies are mentioned, it is on to say that there are a few in the garden, usually not named varieties, and that they make a fair show; but that all; there is little or no enthusiasm.

Apparently there is no reason for it; they are perfect hardy and certainly as easy to cultivate in this country as the United States and Canada, where they are among the mo popular of garden plants. For richness of growth and conto and for magnificence of colouring there are few plants to equ them.

It is rather sad that there is little literature in the Britis Isles on the subject of peonies, and that we have to go America for our information.

Mrs. Harding has written an admirable book on th subject—"Peonies in the Little Garden," published b the *Atlantic Monthly* Press, Boston. Although short— it is only ninety pages—it covers the subject from A to Z It goes into varieties, French, American, and English, locatio and soil, planting and fertilising, root division and seedling and peony diseases. She knows how to temper her enthusiasm and her criticisms of different varieties are remarkably fran and just. Even without illustrations it is easy to judge c the value of a particular variety from her descriptions. Th only criticism that can be made of her book is that it doe not go far enough. There are no descriptions of any of th peony species which interest many people and, althoug not so brilliant in colouring, are often more graceful in growth She also leaves out mention of tree peonies, which appear t be more popular in this country than in America. As ha already been announced in the horticultural Press and in th R.H.S. notices, Mrs. Harding is presenting a silver cup durin 1924, 1925 and 1926 for the best exhibit by an amateur o three flowers each of six varieties of peony. This year th award will be given on June 11th. The conditions are no severe, and it is hoped that many amateurs will exhibit. A any rate, we have to thank Mrs. Harding for a much-needed fillip to the cultivation of the peony in the British Isles.

THE NEXT IS OUR SPRING NUMBER
AND AMONG ITS CONTENTS WILL BE:

GLADIOLI, by Major Churcher.

NEW AND RARE CONIFERS, by E. H. Wilson of the Arnold Arboretum.

SWEET PEA CULTURE, by Donald Allan.

THE ART OF BUDDING, by L. B. Stewart.

FLOWERING SHRUBS FOR A MODERATE-SIZED GARDEN.—Part IV, by W. J. Bean.

CULTIVATION OF DELPHINIUMS, by J. Fraser.

RETURFING A LAWN, by A. Osborn.

THE CULTIVATION OF FRUIT IN SMALL GARDENS.—Part III, by Ronald G. Hatton, M.A.

A SELECTION OF GARDENING TOOLS, by R. V. Giffard Woolley.

VEGETABLE NOTES, by George Garner.

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HERBACEOUS PEONIES IN ENGLISH GARDENS

BY MRS. EDWARD HARDING.
AUTHOR OF "THE BOOK OF THE PEONY" AND "PEONIES IN THE LITTLE GARDEN."

"CANON ELLACOMBE held that no garden could flourish which was not constantly giving." The quotation is from the delightful memoir of Henry Nicholson Ellacombe, published by *Country Life* in 1919. Although in this particular instance Canon Ellacombe clearly had in mind the gift of plants, he undoubtedly meant also the gift and exchange of thoughts and experience. "Gladly wolde he lerne, and gladly teche." His whole gardening life was an example of both.

To these ideas every true gardener will cordially subscribe. Despite governmental quarantines and official difficulties imposed these days upon the import and export of plants, there are, happily, no limitations upon the exchange of reports and ideas.

As each of us could ill spare the wealth of help and inspiration contained in the world's horticultural magazines, so, instinctively, each one of us searches therein for the record of his own especial favourites—their behaviour, their successes, and their failures—in other gardens than his own. On looking over the index of THE GARDEN for last year I find that only one article on the peony was printed. That article was on the tree peony.

It has always surprised and puzzled me that the beautiful modern hybrids of P. albiflora are so little grown in the land of famous gardens. The marvels developed by the French growers are at England's door, to be secured with far greater ease of transportation, and because of that and various other reasons, at a far more modest price than we have to pay for them in America.

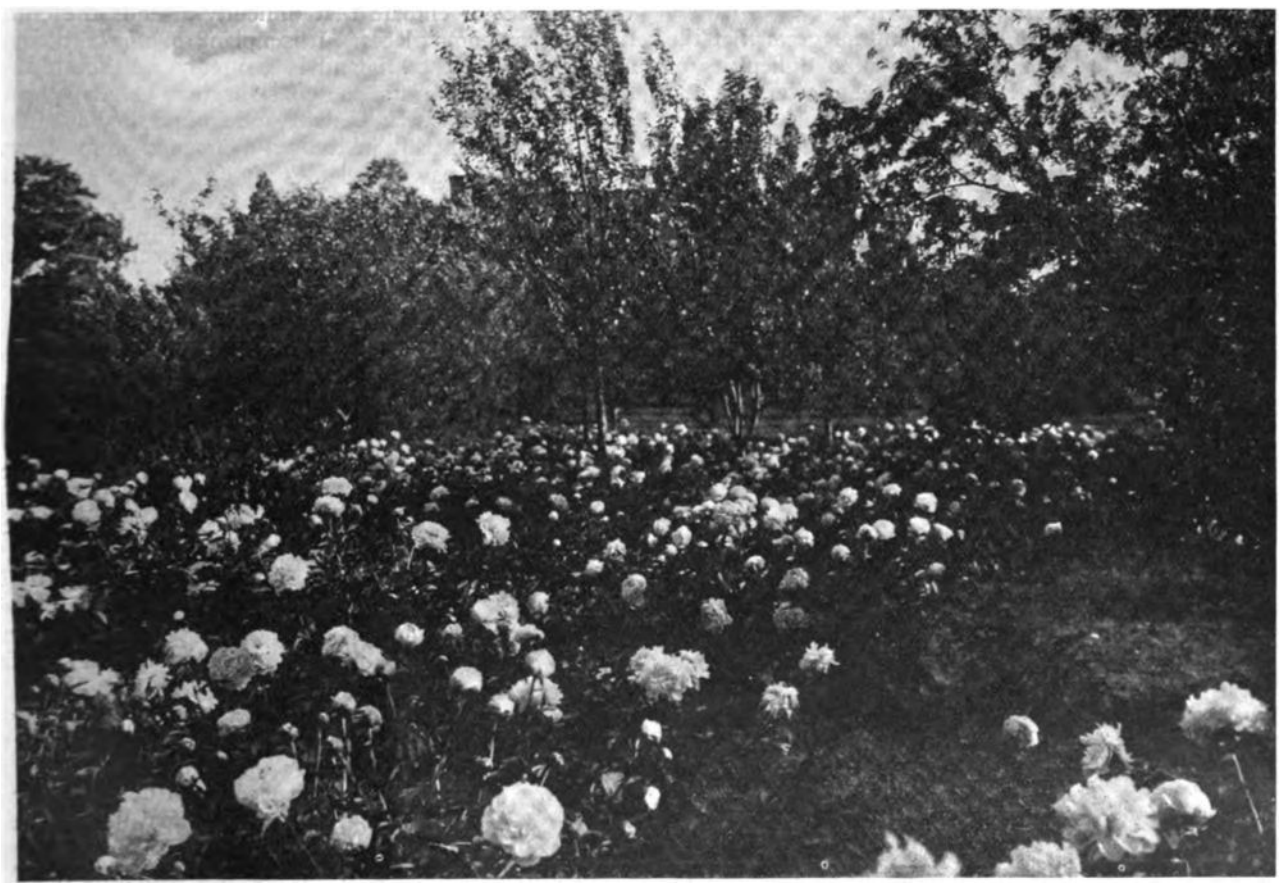
Nevertheless, few are to be found in English gardens. The varieties advertised by English nurserymen are usually limited in number. When in 1921, inspired by my enthusiasm for this flower, I offered three cups to the Royal Horticultural Society to be given as prizes for exhibits of peonies grown by amateurs, the Committee in charge asked me whether I would not prefer to give them for the iris instead. The Committee were of the opinion that there would not be enough peonies available to make a showing.

Yet the peony has a place in English horticultural history as in English literature. It was known in England earlier than the fourteenth century and must have been familiar to and grown by even the very humble. In Langland's "Vision of Piers Plowman," written about 1375, a poor woman is asked by a priest:

> "Hast thou ought in they purs," quod he,
> "any hote spices?"
> "I have pepper and piones" (peonies) quod she,
> "and a pound garlike,
> "A ferthyn worth of fenel seed for fasting days."

Who knows but what the poor woman had bits of P. corallina, that peony once reputed to be native of England in the valley of the Severn! The many allusions to P. officinalis in the old herbals show that there was some general knowledge of the peony at an early date. The materia medica of the Middle Ages included P. officinalis as a cure for many ailments.

On through succeeding centuries, under quaint folk-names, such as pie nanny, nan pie, chesses and hundred bladed rose, the peony held its place in English borders or "knottes." The most enchanting popular name of all was "sheep-shearing rose"—the peony bloomed at or near the time when the sheep were sheared. Not only the humble cared for it, but those of higher rank had an interest in it.



PEONIES IN MRS. HARDING'S GARDEN AT PLAINFIELD, NEW JERSEY.

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The Earl of Danby, Sir Joseph Banks and the Earl of Sandwich, held it in sufficient esteem to place it in a botanical collection, to inspire a world-wide search for it, and to plant it in a famous private garden.

But to-day, alas, most of England's gardens know not the modern herbaceous peony. Perhaps we, who are so deeply indebted to England for her fine examples of good gardening, may yet happily and in turn inspire our English fellow gardeners with the love of this flower. The country that gave the rose her radiance—so that the very word rose means England—the country at whose feet we sit to learn of rock gardening, of the secrets of lily culture, of the mysteries of her contributions to the wonderful iris of to-day, may then share our delight in this joyous bloom.

A FINE SINGLE PEONY, P. ALBIFLORA THE BRIDE.

In the United States our great enthusiasm for the peony is manifested in various ways. There are many fine private collections, a large number of them embracing well over a hundred varieties of the species P. albiflora. Each year there are exhibitions given over entirely to the peony. Some of the horticultural magazines devote regularly a certain amount of space to peony news. And to supply the material for all this interest there is an ever increasing number of nurserymen and dealers who grow and sell only this especial plant.

In a recent letter to me, Mr. Dykes said that " gardeners in the States seem to be much more enthusiastic than the majority of people in this country " (England). Perhaps we do flame into enthusiasm more quickly—but I think that we American gardeners share the Anglo-Saxon trait of tenacity of purpose, and that we shall have as lasting a love for the peony as the English people have for the rose.

A recent letter from an English friend suggests that the expense of the plants as well as the supposed difficulties of cultivation make a two-fold reason for the neglect of the peony.

In the matter of expense, it may be pointed out that it is only the first step that costs. After that, the natural increase is so steady that visions of unlimited barter and exchange arise. Indeed, the peony may be regarded as a good investment and reliable source of garden income, not for a brief time only, but for years. So hardy that it is not easily killed save by positive abuse, a properly tended plant may bear interest in the form of new iris, choice dahlias, rare and coveted bits of plants not to be bought by mere money, but gladly given in exchange for the peony's beauty; while, with every division of the plant, one's own garden is extended and beautified.

The cultivation is a simple matter if a few fundamental rules are observed. In the United States we have such a wide variety of climate that difficulty attends the culture of the peony in some places. It is a plant for northern countries, and in this respect England is assuredly well located. Even the fogs, if they are not too constant, may be advantageous.

In New Brunswick, Canada, and around the Bay of Funday, peonies grow superbly in the sea-dampened atmosphere. On the Sussex Downs of England they do extremely well in spite of the excessive lime in the soil.

LADY ALEXANDRA DUFF, BEAUTIFUL IN SHAPE AND COLOUR AND SWEETLY SCENTED.

I have never had personal experience in growing peonies in England, but in this country I have learned that they require sunlight for at least a part of the day. For that reason I am at a loss to understand the advice of some English books and periodicals to plant peonies in a shady place. Is it not possible that the results of such advice have done something to discourage the gardeners? With enough sunlight, good drainage and a little attention to the composition of the soil, it would seem that the peony should bloom gloriously in England, and add to gardens already full of charm and dignity the distinction of its frankly exuberant gaiety.

The well known devotion of the Englishman to his roses and his rock garden sometimes gives rise to amusing misconceptions of his interest in other plants. A few days ago a vivacious friend dropped in to see me. " What are you doing now," she enquired plaintively, gazing at my desk.

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"Come out and play." "I cannot," I replied virtuously. "Many moons ago I promised THE GARDEN that I would write a few words on peonies in English gardens, and at last I am fulfilling that promise."

"Peonies in English gardens!" she exclaimed. "Why, my dear, they will never be grown there. The Englishman cannot raise his eyes above his precious rock garden long enough to *see* a peony or any other flower!" "But you will admit that he raises roses with devotion and success," I protested. "Ah, roses, yes," she replied, "but there you go beyond gardening. You enter the realm of history, of inheritance, of civic decency and national pride. The rose is more than a flower in England. It is a symbol, a fetish, an idol, a legend and a religion!"

Notwithstanding that half-laughing and half-serious prophecy, I still wish so keenly to share my pleasure in the peony that part of the yearly overflow of my garden goes often to gardens abroad as well as at home. To England I have already sent many of these flower ambassadors charged with the duty of obtaining closer horticultural relations and understandings between the gardeners of the two countries. Wisley has a small foundation collection which I sent in 1921. It should be in good flowering condition this year. Last autumn I sent roots to Shakespeare's birthplace, Stratford-on-Avon, and to the Royal Botanic Gardens at Edinburgh. At Chertsey, Surrey, Frank Galsworthy, the artist, has some of the peony roots from my garden. When the plants are sufficiently established to bear typical flowers of full beauty Mr. Galsworthy will put their loveliness into enduring form.

I would like to see our finest American peony, Walter Faxon, in every English garden. There, too, I would like to see many of the other peonies for which we Americans have a passionate admiration: Lemoine's Solange, Le Cygne, Mme. Emile Lemoine and Primevere; Dessert's Souvenir de Louis Bigot, Mme. Jules Dessert, Suzette and Therese; Crousse's Asa Gray, Marie Crousse, Albert Crousse and Avalanche. Many, many others are worthy of a place. In Somerset, Kelway has three of the world's choicest varieties—Lady Alexandra Duff, Kelway's Glorious and Kelway's Queen. I would like to see the wonderful gardeners of Great Britain take the peony whole-heartedly into their lives. And after they had lived with it a while, I think they would agree with me that the modern herbaceous peony is indeed—

Beauty's child, which Nature gat,
For men to see, and, seeing, wonder at.

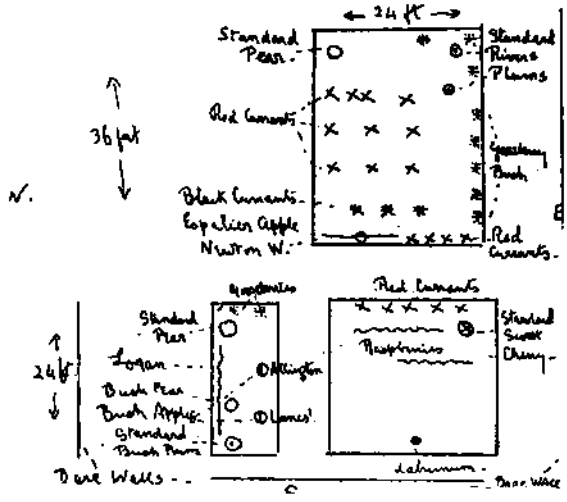
FRUIT-GROWING IN SMALL GARDENS.—II

BY RONALD G. HATTON, M.A.,
OF THE EAST MALLING RESEARCH STATION.

I NOW want to develop more fully by illustrations my eight maxims.

BAD PLANNING.

It is impossible to give an ideal plan for fruit growing in a small garden, because the shape and dimensions of the small garden vary so greatly, but it is possible to enunciate certain general principles of planning and planting, and there is no better way of doing this than by illustrating two actual gardens in close proximity in the same small town and much about the same size, some six rods apiece, by means of ground plans.

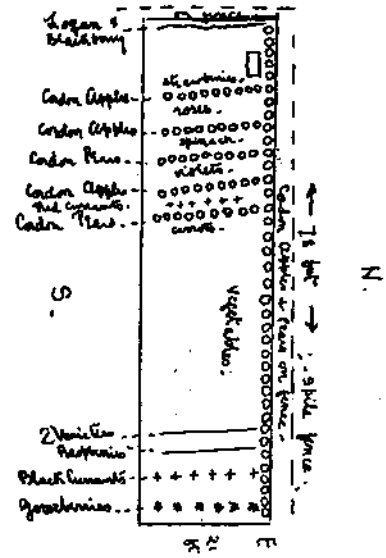


A BADLY PLANNED FRUIT AND VEGETABLE GARDEN.

The first will show you what I call the typically badly planned garden—or rather the garden without plan. The fruit trees have been dotted about here and there without forethought as to ground space or aspect. The result is that there is only one small patch in the garden that will grow good vegetables in freedom, light and sunshine. Elsewhere the vegetable crops are drawn up, spindly and pallid, decreasing in size and vigour as they step in serried rows within the root-range and branch shade of the trees.

The varieties in this garden are badly chosen and, with three possible exceptions are of an unsuitable variety, unsuitably grown. Just pass under review the list:

Two standard River's Early Prolific plums, one of which, if it were a regular cropper, would supply all the early plums



A GARDEN WHICH UTILISES ALL AVAILABLE SPACE TO GOOD ADVANTAGE.

required, but these two trees have only too often raised expectations in vain.

One standard Kent Bush plum, poor in quality, very vigorous and thick in growth—a typical pirate which the commercial grower relegates to the windbreaks. In this garden it holds the strategic position to the south, and glories in the sun bath of which it robs its neighbours.

One standard sweet cherry—probably Kent Bigarreau—spreading its handsome wide arms and still wider roots over a patch of ground 24ft. square. Even in orchards its neighbours give it a wider berth. It contains a perfect feast for the birds and is a grand rendezvous for further depredations upon the struggling vegetable and small fruit crops.

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One standard Pitmaston Duchess pear. True, a fruit to attract the greedy eye by its size, but mediocre in quality, strong in growth and a bearer only when it approves of its situation.

One standard Doyenne du Comice pear. What can one say before this queen of fruits, except that it requires the courtship of special mates, from which it is here exiled, and that it is most illusive in its favours and fickle in constitution?

These six standard trees would all necessitate the hire of a twenty-stave ladder for a considerable portion of the year to harvest the crop and thin the branches. If they needed spraying, they could not be dealt with effectually without a power machine!

One espalier-trained Newton Wonder apple stands ostentatiously spreading limbs against the sun to screen an otherwise eligible piece of vegetative ground. It is proud to be the only representative garden tree amid such a motley crowd, but is somewhat impatient of its training, for it is in a soil and probably on a root stock on which it resents restrictions.

Two bush apples, Lane's Prince Albert and Allington Pippin, both of which should find a proper place in the small garden, struggle with a bush William's Bon Chrétien pear on a patch of ground 9ft. by 24ft., already occupied by two standard fruit trees! Moreover, these bushes are of the old type with branches radiating from the ground level, thus challenging all attempts at cultivation.

It is impossible to describe the planting of the small fruits, though they are like the youngsters among a crowd of elders, jostling on the kerbstone, peering between their legs and arms at some passing pageant. What a motley crowd of rag-a-muffins!

Three black currants, fifteen red currants and thirteen old gooseberries all of single variety, two invading rows of blatant Red Cane raspberry (Bath's Perfection), that noted cane-maker and bearer of fruit fit only for the whosesale jam boiler! Bindweed and water grass are curling round the old gooseberries grown as stools. Red and black currants alike knew little pruning until recently.

Finally, this garden is walled on three sides, there is a north wall, an east wall, and a west wall—bare but for one bemildewed rambler rose and the tentacles of a neighbourly but inquisitive virginia creeper.

GOOD PLANNING

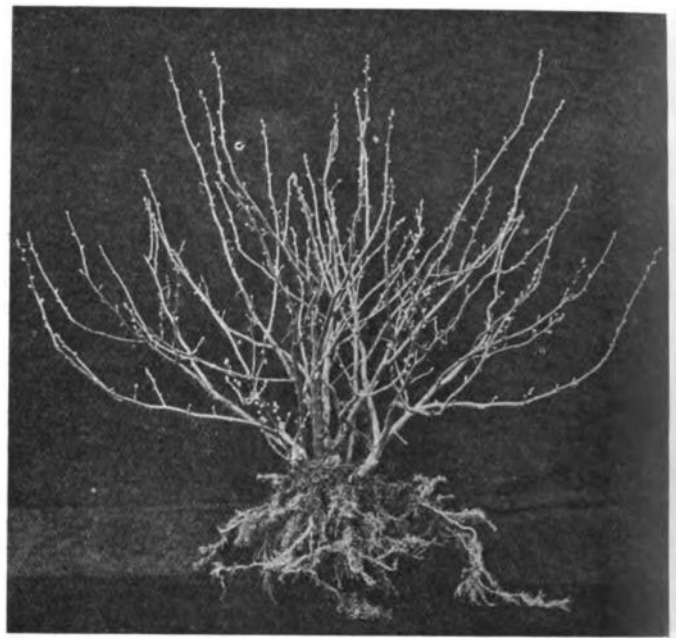
Let us now take the second garden, although not ideally planned in every detail, yet it is well thought out in principle. Along a spile fence to the north, sloping cordon apples and pears, at 3ft. apart, are trained. They help to break the winds for the more tender crops in front, and, in blossom and fruiting time, form a picturesque screen.

To the east end, where the house throws some slight shade, are relegated in neat rows, running south and north, six black currants, six gooseberries and two rows of raspberries. The gooseberries are chosen sorts, two May Dukes for picking early green or ripening red, two Lancashire Lads mid-season reds, Leveller, a large dessert yellow, and White Lion, a later and large dessert white. These latter are cautiously thinned as soon as the fruits are sizable for cooking. All of their type are chosen for compactness, and are grown on a short leg. These bushes are capable of yielding an average of 5lb. or 6lb. apiece and should supply all the household needs. The six black currants are of two varieties, planted two and one, four of the dwarf heavy-cropping Baldwin type, suitable for puddings and jam, two of the erect Goliath breed, with fruits extra large, and sweet enough to tempt the thirsty on a hot July day. The sprawling uncertain Boskoop Giant, and the jam makers' acid French varieties are wisely avoided.

Next come two rows of raspberries. One is Pyne's Royal, sturdy, but not profuse of cane, bearing a magnificent show fruit of superlative type. The other row is Norwich Wonder, again none too rank of cane, but in this garden ground thriving and justifying its place by flavour. Note how these small fruits are concentrated together within reach of the house and easy of protection from birds.

Beyond this, an open space is left for general vegetable culture. The southern boundary of the garden lies open to the sun with narrow flower border, but no sheltering trees.

Towards the western end of the garden, rows of trained cordons are planted, running south and north, so that the sun beats down the rows. These make a mystery of

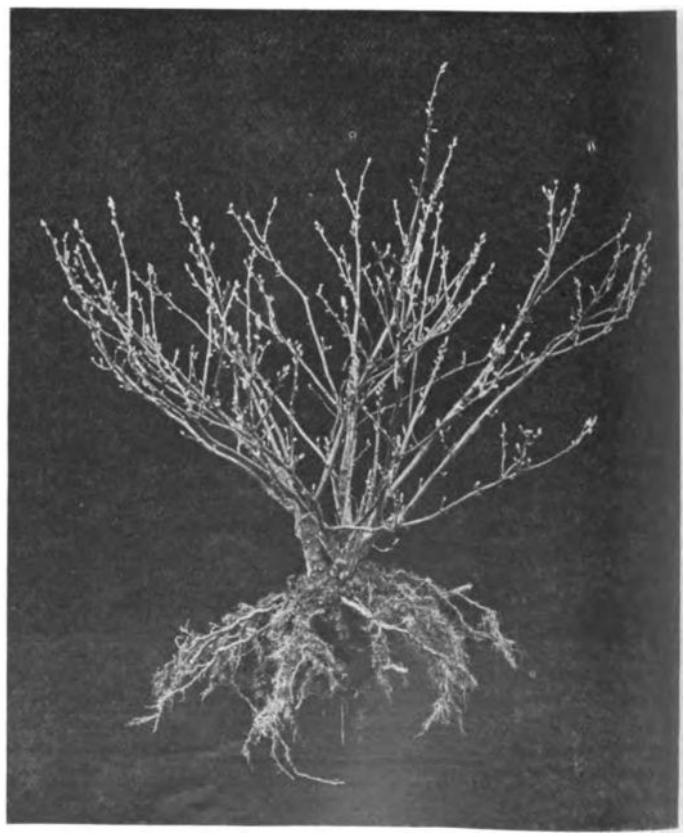


THE SPRAWLING, UNCERTAIN BOSKOOP BLACK CURRANT.

garden ends, indeed suggest that there is no ending, and, as one glances latitudinally down the neat rows, they give a pleasurable effect of vista in a breadth of but twenty or so feet!

Between the rows of trees, 2ft. by 5ft., are here a wonderful assortment of small crops. Carrots, violets, spinach, dwarf roses, strawberries, and here a row of red currants, three dwarf heavy cropping compact Fay's Prolific, and three Laxton's Perfection, a recent and choice contribution.

Pursue the garden to the end; beyond the cordons is a warm corner for the never sightly forcing frame, and, on the western fence, the profuse-caned logan and Laciniatus (cut-leaved blackberry) entwine their branches in a leafy screen.



THE COMPACT, HEAVY CROPPING BALDWIN BLACK CURRANT.

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NOTES ON LACHENALIAS

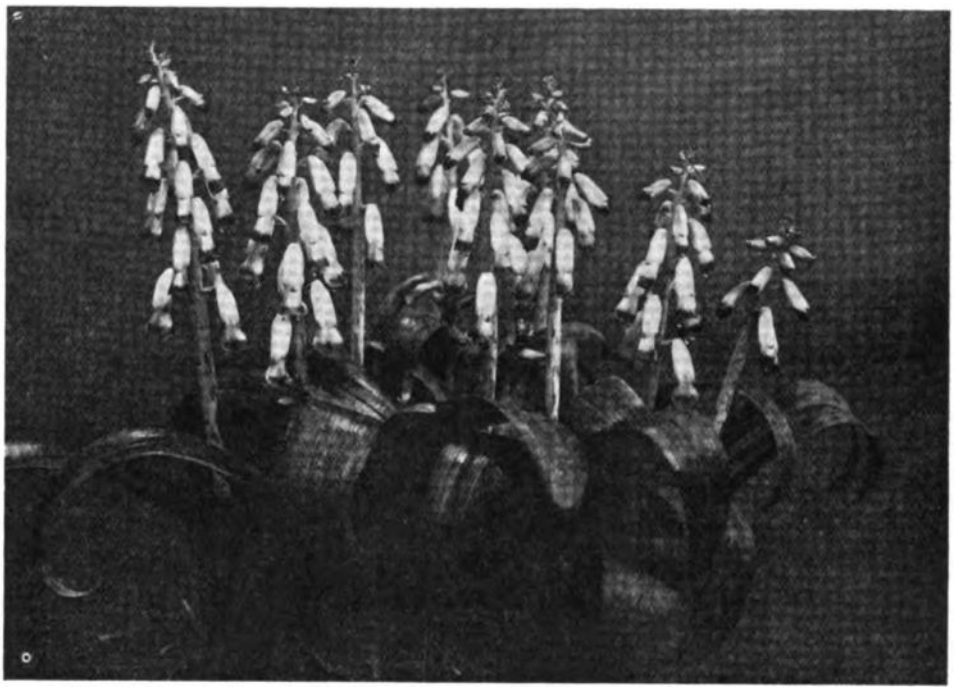
BY THE REV. JOSEPH JACOB.

SURELY one of these days lachenalias will wake up and find themselves famous. Might I have added "again"? This I do not know. I have no data to tell me whether the many pictures of different species that appeared in various botanical and garden publications of the early part of last century were an index of a widespread popularity; or if the new hybrids of Nelson and Moore of a much later period ever caught on to any appreciable extent, with the sole exception of the beautiful yellow Nelsoni, which in these present days may be termed the show child of the family. There have been times when lachenalias were grown in gardens here and there, where homes were found for the out of the way and the interesting in contradistinction to the brighter-looking and more ordinary flowers. But "As good be out of the world as out of fashion"; and so it has been with lachenalias.

Thanks to the advice of my good friend Sir Frederick Moore, who furnished me with the greater part of my first stock-in-trade from his collection at Glasnevin, I have been engaged for a number of years in raising seedlings, and although it was with the greatest difficulty I got through the trying times of the great war, I think I may say I am getting into my stride again. It must be at least ten years since I sent a box of blooms to Lady Moore to ask her opinion and got as answer back the greatest compliment a worker could have had paid him, "Never, Mr. Jacob, come to Glasnevin again for lachenalias; we are coming to you." I am better now than I was then. I have got more substance, size, strength and strangeness of colouring into many of my latest varieties. Hence I ventured upon my opening remark, "One of these days lachenalias may find themselves famous." *But more workers are wanted.* I see visions of future developments which, if they could be proved possible, would revolutionise everything. What, I wonder, would happen if the sweetness of glaucina or the even greater sweetness of the newly baptised convallariodora (*Botanical Magazine*, New Series, Plate 8955) could be given to my beautiful Siam—for whose character I refer readers to Mr. William Mauger of Guernsey—or, even better still, to what might so easily be a favourite Christmas stand-by: the red pendula? Suppose someone were to work on L. pendula alone or (as I find I did) in conjuction with aureliana, which is said to have been found growing wild in Provence (*Revue Horticole*, 1890, p. 396), but which is in all probability just a seminal variety of pendula? There are great possibilities, as Mr. "Capability" Brown would doubtless have said, had he seen, as I did, a second generation brought to its flowering. Or, again, Marvel's Mower* notwithstanding, suppose a cross could be made between a lachenalia and some near relation, say, a veltheimia, what then?

Lachenalias should always be exhibited in a growing state in their pots, but how seldom do we come across them like this. Even if we do, are we looking at the stumpy prehistoric forms that might have passed muster in the days of the ancient Mower about 1650, but which are back numbers according to the taste of 1924?

Lachenalias are the very plants for a *cool* greenhouse. Bob Short, the tabloid rule-maker, might sum up their requirements thus: No frost, no cold draughts, no hard forcing, plenty of air, light rich soil, August potting, thorough ripening, cool growing. We start our bulbs about mid-August. They begin life in a coldhouse or frame and are given all the air possible. When frost comes they are brought into a greenhouse and sufficient fire is provided to keep a minimum night temperature of 35°. We give them doses of "Clays" and weak soot water once a week from about January onwards until the foliage turns yellow, just omitting the period when they are in flower, which with our cool-house treatment is February and March. After flowering, the plants receive the same attention as they had before that time, until the yellowing of the foliage shows that their period of rest is coming on. This will probably be about the middle of May. From this time onwards the bulbs should be kept dust dry in their pots and baked until starting time comes round once more. I strongly advise pans or low flower-pots to be used. In these we put six bulbs in a 5in., seven or eight in a 6in., and fourteen or fifteen in a 9in.



LACHENALIA ROSEMARY, YELLOW BELLS WITH DEEP CLARET EDGES

SEED SAVING.—Hand fertilisation is necessary. The anthers should be taken away before the flower is really open, as they dehisce in an early stage. Seed should be sown *very* thinly in pans in August—½in. between each seed is about right. The pans should be put in a coldhouse. Germination takes place in five or six weeks. The young seedlings are grown on exactly like the old bulbs, and with them are turned out in July and put in small paper bags ready to be graded and potted in August. Some of the larger ones will bloom the following year. All will flower the year after that. Thus, some seedlings from seed sown in 1924 will bloom in 1926 and all in 1927.

Lachenalias follow a very general rule. The nearer the seed stage, the stronger the plant. Eight or nine inch pans full of first-time flowering seedlings are enough to melt the hardest heart and to convert the most obdurate. There is no fear of any jarring of colours. Pendula seedlings excepted, all the others harmonise with one another. They will be all of them of some shade of yellow or orange, with or without claret-coloured edgings to the petals, and with yellow, orange or red tops to the spikes. These are the colour notes with which the floral harmonies of all lachenalias are composed, with the exception of certain species like racemosus, glaucina and convallariodora.

* The pink grew then as double as his mind,
The nutriment did change the kind;
With strange perfumes the roses he did taint;
And flowers themselves were taught to paint.
—"The Mower Against Gardens," by Andrew Marvel.

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NEW AND RARE CONIFERS

BY E. H. WILSON,
OF THE ARNOLD ARBORETUM.

[We have received from Mr. Wilson notes on a few rare conifers which have come into cultivation within the past few years. All the photographs have been taken by Mr. Wilson, and it is the first time that these trees have been illustrated in any periodical.—ED.]

AMONG the many surprises of the Chinese flora not the least is its richness in conifers. A large number of species of picea and abies have been described in recent years and many are now in cultivation in America and Europe. I have introduced some thirteen species and two varieties of picea and seven species of abies, all considered new. Patience is very necessary in raising conifers from seeds, and still greater patience in waiting until they develop their true character and prove their value as garden plants. In 1902, and again in 1904, I secured seeds of a few species for Messrs. Veitch, but it was not until 1910 that I made a real haul of seeds. The fruiting of picea and abies is intermittent, and depends very largely on weather conditions in the spring when the flowers are open. A late frost may ruin everything. In 1910 the fates were propitious and the conifers of western Szechuan fruited abundantly. These seeds were sent to the Arnold Arboretum and by that institution distributed widely in Europe as well as in the United States. They germinated freely, and now, after thirteen years, it is possible to tell a little about the plants.

The climate of Massachusetts is both rigorous and changeable, and plants—evergreens especially—have to be tough in constitution to withstand its severities. This will be better understood in England when I say that none of the conifers of western North America—that is, the region west of the Rocky Mountains—can be grown in the Arnold Arboretum. The form of Douglas fir grown here is that from Colorado and that of the giant thuya (Thuya plicata) from Idaho. Of the firs from China, Abies Fargesii, A. chensiensis and A. recurvata promise to be hardy and useful species in the Arnold Arboretum. The spruces, with the exception of the flat-leaf species, have proved even more adaptable, for all introduced are thriving and it appears probable that several will be of great value to the gardens of New England and elsewhere. There are three very promising new species, Picea Balfouriana, P. Wilsonii and P. asperata. The appearance of P. Balfouriana, when 6ft. tall, may be gauged from the accompanying illustration.

PICEA BALFOURIANA IN WESTERN SZECHUAN.

A SIX-FOOT SEEDLING OF P. BALFOURIANA AT THE ARNOLD ARBORETUM.

PICEA BALFOURIANA.

As we know it under cultivation, Picea Balfouriana is dense in habit, with arching, overlapping branches and acute, dull green ½in. long leaves, pointing forward and downward with prominent stomatic lines on the under surface. The shoots are slender, pale grey and pubescent; the winterbuds chestnut brown, ovoid, non-resinous, with closely imbricated, puberulous bud-scales. In its adult stage this spruce is a tree upwards of 100ft. high and among the tallest of the Chinese species. The trunk is mast-like, with short, spreading branches which give a spire-like appearance to the tree. It has grey, deeply furrowed bark and handsome, violet-purple cones with membranous, flexible cone-scales, undulate and laciniate at their

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apices. The wood is resinous, close-grained and easily worked, and the timber is valued for general construction purposes.

This species is a common constituent of the high-level forests of the Chino-Tibetan borderland between elevations of 10,000ft. and 12,500ft., and is the most alpine of the Chinese spruces. It was discovered and introduced by me in 1910 and is named after Mr. F. R. S. Balfour of Dawyck, Peeblesshire, a lover and enthusiastic planter of trees.

(To be continued.)

FLOWERING SHRUBS FOR A MODERATE-SIZED GARDEN.—III

BY W. J. BEAN.

CISTUS AND HELIANTHEMUM.

FOR a sunny spot or a hot gravelly slope the rock roses or cistuses are very well adapted. The genus is a large one, but, unfortunately, the great majority of the species are not hardy with us. I would recommend the following: Cistus cyprius, a hybrid and the finest of the tall kinds, hardy, and inheriting much of its beauty from C. ladaniferus (one of its parents), its blossoms having the same white petals with a crimson blotch at the base of each; C. Loreti, another hybrid from ladaniferus, with flowers 2½ins. wide, white, similarly crimson blotched; C. corbariensis, a very hardy sort, also a hybrid, growing 2ft. or 3ft. high, very bushy and leafy, flowers pure white except for a yellow stain at the base. C. purpureus is a singularly beautiful plant with reddish purple blossoms conspicuously blotched at the base with dark red, but it is too tender to be relied on near London.

The sun roses, or helianthemums, are closely related to the cistuses and also like full exposure to sunlight. If restricted to one species, I would grow H. formosum, a low, spreading shrub, very hardy, whose brilliant yellow flowers have brown-purple stains near the centre. All these cistuses and helianthemums are easily propagated by summer cuttings. Their flowers see the sun rise once only and usually fall soon after midday, but Cistus Loreti keeps them open a few hours later.

SPIRÆAS constitute a large group and they have hybridised so much that they have become rather bewildering. One section of the genus has pinnate leaves and large panicles of small white flowers borne at the end of the current season's leafy shoots. Spiræa Aitchisoni and the new S. arborea from China may be selected to represent it. Another section of the genus bears small, flattish or rounded corymbs of white flowers, and of this section I would grow SS. canescens, Veitchii and Van Houttei. S. discolor is a very graceful shrub up to 10ft. or 12ft. high, producing large panicles of creamy white blossom in July. S. arguta, one of the very best, has pure white flowers clustered on its leafless twigs in April. Finally, there is the late-flowering group of which the flowers come in panicles or flattish trusses terminating the leafy shoots from June to August; one of the best is Anthony Waterer, a form of S. Bumalda with bright rose flowers; another is S. Menziesii triumphans with reddish purple ones. These few species will represent a large genus in most of its sections.

THE JAPANESE SNOWBALL TREE, V. PLICATUM, STILL HOLDS FIRST PLACE AMONG VIBURNUMS FOR SHOWINESS.

CEANOTHUS.—Many of the ceanothuses are tender and need wall protection. If wall space can be spared, the evergreen CC. rigidus, papillosus and Veitchianus should be grown; while in the open, C. thyrsiflorus and the hybrid Gloire de Versailles may represent the genus. All these have bloom of some shade of blue, the most uncommon of all colours among trees and shrubs, but some hybrid ceanothuses like Ceres and Perle Rose have pink ones. Two other blue-flowered trailing shrubs may be mentioned here, Vinca major and V. minor, both evergreen and both useful as a ground cover and not averse to a moderate amount of shade.

ERICACEÆ.—I will not venture on the subject of rhododendrons here: like that of the roses, it is so big that it can only be treated separately; but there are a goodly number of shrubs belonging to the same family—the Ericaceæ—which should not be left out of any garden the soil of which is free from lime. The best of the ericas, or heaths, have already been referred to. The arbutuses are excellent evergreens, luxuriantly

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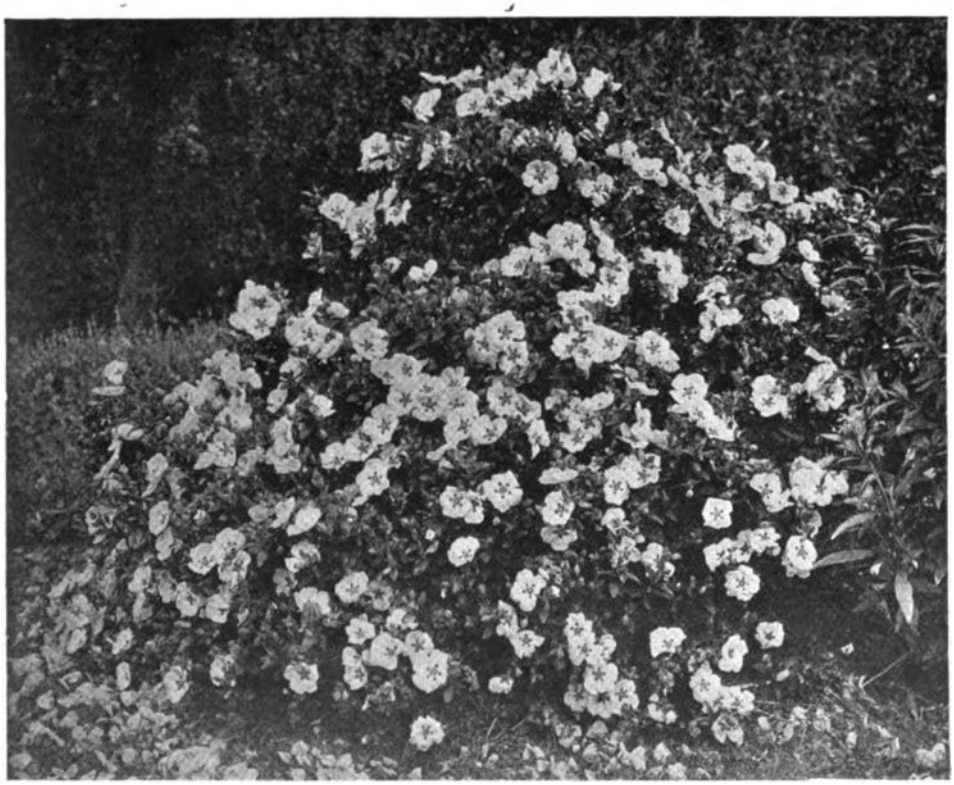
leafy, flowering in autumn and spring. A. Unedo, the strawberry tree, is also handsome for its crops of orange-red fruits. A. hybrida in numerous forms is useful for giving background and shelter, attractive also for its flowers and red-brown bark. A. Menziesii, the Madroña of the Californian woods, is rather difficult to obtain and requires care to establish, but if possible

SPIRÆA ARBOREA, A GIANT FROM CHINA.



CISTUS LORETI, WHITE WITH CRIMSON BLOTCHES.

it, too, should be grown for its cinnamon-coloured branches. It does not bear transplanting well and should be obtained from nurserymen in pots and put in its permanent place while still small. Two species of Kalmia, glauca and latifolia, are pleasing evergreens with more or less rose-coloured flowers; and so are the two commonly grown species of Pieris (or andromeda), japonica and floribunda, with white ones. Enkianthus campanulatus is deciduous, and besides the charm of its abundant bell-shaped blooms it is one of the most exquisitely coloured of all shrubs in autumn. Clethra alnifolia is also deciduous and valuable in blossoming as late as August; the white flowers are in erect racemes and spicily fragrant. For the beauty of its fruits late in the year—and they vary in colour from pure white to pink, lilac and crimson—Pernettya mucronata is always worth a place.

VIBURNUMS.—Chinese exploration has added much to the variety and interest of the viburnums, especially in regard to beauty of fruit. In this respect none surpasses V. betulifolium and V. lobophyllum, both of which carry heavy crops of bright red berries. For flowering I would still give first place to V. tomentosum, especially var. Mariesii and the sterile form, plicatum. The pink-tinted flowers of V. Carlesii are both beautiful and alluringly scented, but are too often spoiled by spring frosts in the open. The old guelder rose, V. Opulus, is still one of the best of viburnums for beauty of fruit, as its variety sterile, the snowball tree, is for beauty of blossom. V. Tinus, commonly known as laurustinus, is, and for centuries has been, one of the indispensable evergreens of gardens, belonging to the same useful class as Berberis stenophylla. Its dense habit and richly green foliage is admirable for shelter and as a screen or a background. It is always cheerful-looking, and flowering as it does at any time in winter and spring, as the weather goes, it is, on the whole, scarcely exceeded in value by any other shrub.

MOCK ORANGES (PHILADELPHUS).—So much alike are these that the names of the best will almost suffice without further remark. Of the true species I would select PP. latifolius, Lewisii and grandiflorus among the tall growers, and the richly fragrant P. microphyllus among the dwarf ones. From the last named, crossed with P. coronarius, was raised P. Lemoinei, one of the best of all hybrid shrubs. Of the other numerous hybrids, Virginal, Pavillon Blanc and Manteau d'Hermine are excellent. All are easily grown in rich loamy soil and easily propagated by cuttings.

LILACS.—A considerable number of lilacs have been added to our collections by recent collectors in China, and several of these new species are very handsome. Most of them, too, flower in June, a few weeks after the ordinary "lilac-time." One of the best is Syringa reflexa, very distinct in its cylindrical, pendulous or arching panicles, densely packed with purplish red blossom. But none of them can compete in attractiveness with the improved forms of the old, well loved, May-flowering, common lilac. The French nurserymen continue to send out new varieties of their own raising, but many of these it is difficult to distinguish from older ones. I would still grow Marie Legraye, Mme. Lemoine, Souvenir de Louis Späth, Ellen Willmott and Francisque Morel. Still full of charm, too, remain the old Persian and Rouen lilacs.

DIERVILLA (or "Weigela," as the genus is still often called) contains some splendid flowering shrubs, of which again the

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most ornamental are of hybrid or garden origin. Abel Carrière with rosy carmine flowers still holds its place, although raised a good many years ago. Mme. Lemoine, too, is good, with flowers at first white and then pale rose. A very distinct and handsome sort is Eva Rathke, its blossoms dark crimson. Of the true species D. florida (frequently called Weigela rosea) is, perhaps, the one to be relied on for good looks and happy disposition, just as its variety candida remains one of the best white-flowered sorts.

DEUTZIA.—Of deutzias a number of new species have recently come from China, and French nurserymen keep on sending out new hybrids. In both groups there are many undoubtedly beautiful things, although I am, perhaps, prejudiced against them through the flowers being almost invariably destroyed at Kew by spring frosts. There, however, the situation is low and flat and, in more favourable or elevated localities, the deutzias are well worth growing. D. longifolia, and more particularly its var. Veitchii, is in my experience the best of the new Chinese kinds, but none, I think, is on the whole so valuable as the old D. scabra (or crenata), introduced over one hundred years ago, especially the variety called "Pride of Rochester," of which the petals are suffused outside with rose, and the var. candidissima, with pure white flowers.

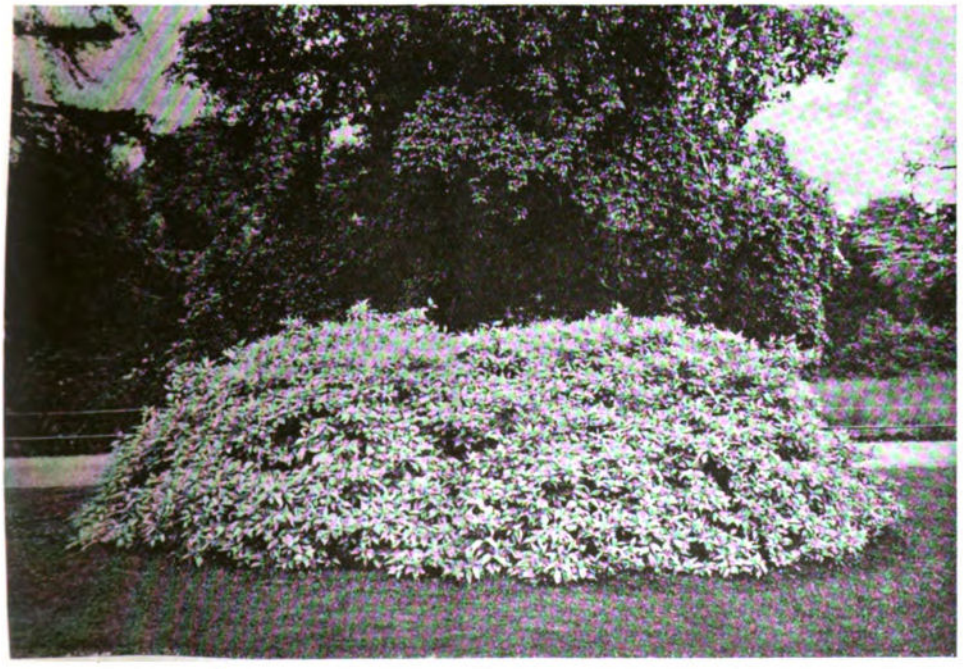
ARBUTUS UNEDO, THE STRAWBERRY TREE.

RABBIT-PROOF PLANTS

BY SIR HERBERT MAXWELL, BART.

THE following remarks must be taken subject to this limitation: they are founded on observation in a district where winters are usually very mild.

Seven-and-twenty years ago, thinking to render some slight service to fellow sufferers from these irrepressible rodents I published such a list in a volume of open air notes.* From that distant day to this present, correspondents, known and unknown, write to me expressing incredulity or indignation—sometimes both—describing how, relying on my warranty, they have planted this, that or the other, only to find it stripped and destroyed in a night or two. Yet methought that I had not written without good material for opinion. Many years ago my father made a resolute effort to put down rabbits upon that portion of his land on which he kept the shooting in his own hands, the remainder being let. The result was that, on 8,000 acres, 22,300 rabbits were killed in eight months, besides those—number unknown—killed by the tenant farmers. Rabbits have never been so numerous since; but it requires incessant attention to keep them within reasonable limits.



CORNUS ALBA SPAETHII, CONSIDERED TO BE RABBIT PROOF.

No doubt plants are more liable to suffer injury from rabbits in cold inland districts, or even on the east coast, where vegetation is less luxuriant than in the milder west where my experience has been gathered. But even here we have to protect many newly planted things which may safely be left unprotected after they have become established. A case in point occurred here last year. In a certain wood much frequented by rabbits there had grown for as long as I can remember (and that is a precious long time!) several large clumps of Turk's cap lilies—L. pyrenaicum. Even the most depraved or malignant rabbit never set tooth to them; they flowered and flourished luxuriantly, until the wood grew so thick—the shade so dark—that I had the bulbs lifted last spring and replanted in the open, never dreaming of protecting them with wire netting. They grew away freely until about a foot high, when almost every stem was stripped

* "Memories of the Months." First Series, pages 91–4. Second Series, pages 48–9, 293–5.

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of leaves, several stems being gnawed right through. Next spring I shall remove the wire netting which has been put round them, and shall be surprised if any notice is taken of the lilies, which by that time will have become thoroughly established.

Among forest trees there are only three species which we have found it quite safe to plant without protection, namely, Sitka spruce (Picea sitchensis), which defends itself by its armature of sharp needles; the monkey puzzle (Araucaria imbricata), which is effectively sheathed in plate armour; and the Corsican pine (Pinus Laricio). This pine presents a puzzling case. Most botanists regard it as being of the same species as the Austrian pine; yet Austrians will be devoured as fast as they are planted, whereas Corsicans are left severely alone. All deciduous forest trees invite, and usually suffer, attack when first planted, though I do not remember having seen alder or hawthorn disfigured; but three or four years' growth after planting renders all of them safe, except ash, holly and laburnum, which are often barked even after reaching maturity.

Now as to shrubs, we have found that the following species require no protection, except those marked with an asterisk, which should be guarded with wire-netting until well grown:

Rhododendrons (including azalea), all species and hybrids, except those with small leaves, such as RR. glaucum, Augustinii, præcox, etc., which should be wired in till well grown.

Kalmia latifolia.

Mexican orange (Choisya ternata).

Honeysuckle (Lonicera), all species, both bushes and climbers.

Butcher's Broom (Ruscus aculeatus).

Box (Buxus sempervirens).

Spurge laurel (Daphne Laureola).

Snowberry (Symphoricarpus racemosus).

St. John's wort (Hypericum), all species.

*Spindlewood (Euonymus europæus and E. latifolius).

Guelder rose (Viburnum Opulus, lantana and *Tinus).

Syringa (Philadelphus), all species.

Lilac (*Syringa), all species.

Fuchsia Riccartoni and F. globosa.

Dogwood (Cornus sanguinea, C. Kousa, etc.).

Sea buckthorn (Hippophæ rhamnoides).

Rose (Rosa), all species.

Spiræa, all shrubby species.

*Deutzia, all species.

*Staphylea colchica, S. holocarpa, etc.

Red-berried elder (Sambucus racemosa).

Rhus, all species.

Hydrangea hortensis, HH. paniculata and vestita.

Ribes, all species.

*Arbutus, all species.

*Escallonia, all species.

*Diplopappus (Cassinia) fulvida.

Bamboo (Arundinaria, Bambusa, Phyllostachys, etc.).

*Erica arborea, EE. alpina, lusitanica, etc.

All species of barberry, except those of the Mahonia section, are specially liable to be eaten when young, but are pretty safe when they have grown strong. Shrubby veronica, olearia and senecio are vulnerable at all ages.

PAMPAS GRASS WHICH IS TOO TOUGH FOR RABBITS.

Among herbs, we have found that most of the strong-growing Composites, such as aster, buphthalmum, inula, petasites, etc., can take care of themselves in the open. The milky juice of most of the bell-flowers (campanula) presents irresistible attraction to both rabbits and pheasants, yet the noble native C. latifolia and the Caucasian C. lactiflora spread freely from seed in our woods, although these are populated with ground game. All species of narcissus are immune from attack by browsing animals in virtue of the presence in their roots and leaves of innumerable bundles of crystallised calcium oxalate, technically known as Raphides. Snowdrops and snowflakes, also belonging to the Amaryllis Order, enjoy the same immunity, but I do not know whether that is owing to the presence of Raphides in their tissues. The crocus, belonging to the Iris Order, is destroyed at once if unprotected, while of the genus iris I have found that, while bulbous species are devoured by rabbits, the flag section is left alone. In the Lily Order most species are never attacked, colchicum, kniphofia, polygonatum, funkia, convallaria, scilla, trillium, asphodelus, hemerocallis, ornithogalum flourishing unhurt in our woods and lawns; but fritillaries, tulips and grape hyacinths are esteemed as delicacies by the furry foe. The dog-tooth violet (erythronium) may spread its beautiful mottled leaves with impunity; but if there are pheasants about they will not spare you a single bloom. Of the genus Lilium, LL. pardalinum, martagon, superbum, pyrenaicum, tigrinum and a few others are fairly safe in woodland when well established, but should be well protected when first planted. The great shining leaves of L. giganteum might be expected to attract rabbits, but I have never known them to be touched.

The following herbs may be pronounced safe from attack:

Periwinkle (Vinca), all species.

Gentian (Gentiana), all species, especially the willow gentian (G. asclepiadea), a fine plant for naturalising.

Mullein (Verbascum), probably all species.

Foxglove (Digitalis), all species.

Windflower (Anemone), all species, but pheasants destroy the leaves of garden varieties.

Primrose (Primula veris), but the coloured garden varieties are sure to be eaten down when first planted. PP. japonica, pulverulenta, helodoxa, etc., are easily naturalised, but sometimes suffer where rabbits are numerous.

Globe-flower (Trollius europæus). I have not tried the Asiatic species without protection.

Meadow-sweet (Spiræa), all herbaceous species.

Saxifrage (Saxifragas umbrosa, granulata and a few other species), but not the Megasea section.

Stonecrop (Sedum).

Monkshood (Aconitum Napellus and others).

Winter aconite (Eranthis hyemalis).

Pampas grass (Cortaderia).

Arundo (Arundo Donax and A. conspicua).

Zebra grass (Eulalia zebrina).

Crane's-bill (Geraniums phæum, pratense, armenum, etc.).

Orchis, all hardy terrestrial species.

New Zealand flax (Phormium tenax and P. Cookianum).

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PRUNING ROSES

BY HERBERT L. WETTERN.

So many books have been written on roses, each with at least a chapter on pruning, that there is apparently little to add to the prescribed formulæ and methods of operation, but *experientia docet*, and everyone's experience seems to differ in some respect—hence a few additional notes on HOW, WHEN and WHERE to prune our plants.

Some books tell you to prune hard "the first year after planting." This is not quite clear to the novice, and might be expanded so as to be self-explanatory. For example, roses which were planted last autumn and during this winter should be cut back very hard during this month. If, however, planting has been delayed until March itself—then prune immediately after planting.

This first pruning must really be very hard—almost down to the ground. The second year, that is after the first year's growth, is the critical time for the future of the plant as regards appearances and health. If the first good new shoots are not pruned sufficiently and thus left too long, the plant will probably and for ever after be leggy. Try, therefore, to keep a good bushy shape, and gradually build the plant up year by year, and then, when the older shoots are worn out with age, new shoots will have come forward and be undergoing similar treatment.

In pruning, take a good look at the plant before commencing operations, and deciding what to cut away, treat it individually and be sure of your objective before commencing. On no account start indiscriminate hacking off. You may find yourself at the finish with a ruined plant.

Cut out all dead wood first, then small thin growths which can never bear full-sized flowers. Also cut out ingrowing shoots, *i.e.*, shoots which have tended to grow across the centre of the plant, for rose trees grow better with open centres where light and air can get at them, just the same as fruit trees.

If any old wood is found discoloured brown in the centre, cut it clean away until normal colour is reached, for it is dead, even though the sap may continue to flow up to the new shooting buds. If there are black blotches on new wood, cut right back below them, for they indicate frost bite and cannot thrive. Perhaps some of the new shoots which came late last autumn have never ripened and appear soft and sappy; cut them also clean out to their bases.

You need not expect to find all these defects on one plant, but in the course of pruning a number of rose trees you will doubtless come across many examples of each type on which the knife must be used unsparingly. Having eliminated these, you should now only have the good growths to operate upon, which you will do "according to instructions."

Never do your pruning to mere mechanical measurements, but work to buds. The buds of Lady Plymouth sometimes run four inches apart, while those of Mme. Ravary average a half inch apart, so your pruning can only be according to the buds themselves; and always try to prune to buds pointing outwards.

A. A HYBRID TEA UNPRUNED.
B. OLD WOOD AND WEAK SHOOTS REMOVED.
C. PRUNING COMPLETED.

The late Mr. George Prince, the well known Oxford rose grower, used to tell of a lady who asked advice as to pruning, and was, unfortunately, instructed to "cut the plants down about two-thirds," so she promptly cut a new lot of *standards* down to about one-third their height from ground level!

Upon the ever vexed question of knife *v.* secateurs, the former undoubtedly makes a cleaner cut, and with pruning roses a clean cut is as essential as in a surgical operation; but for speed the secateurs are preferable, and provided they are sufficiently sharp to make a close cut, the risk of injury to the bark is negligible.

Here at Oxted we have to rely upon secateurs, for, with nearly ten thousand rose trees of all ages to operate upon, we could never complete our work in time. The expensive novelties are, however, treated to the more tender mercy of a razor blade.

With climbers, which throw new shoots from the base, such as the Wichuraianas, we find it best to cut out all the previous year's wood, provided, of course, there are new base shoots for the current year's flowering. Erect growers, such as Blush Rambler, American Pillar, etc., which throw new shoots from the base and from existing shoots, we cut back as hard as possible, *i.e.*, take away the old wood above such new lateral shoots.

Bear in mind that, in pruning, the same argument applies to such climbers as to dwarfs, namely that if you want good blooms or good trusses of bloom, you must prune reasonably hard. Look at the paltry blooms on an *unpruned* plant, say, of Dorothy Perkins as compared with the big trusses with long stems with which you are rewarded when the blooms are on new wood only.

We have never had the heart deliberately to prune the new wood of a Wichuraiana down to three or four feet, but a year or two ago, by accident, we broke a long new rod, with the result that the two feet which remained of it produced a few enormous trusses of bloom on long stems, which we exhibited at a suburban show. The raiser of the rose, who was present, remarked that he had never seen such wonderful trusses of bloom.

As to *when* to prune, this month of March is always reckoned the time for hybrid teas, etc., and early April for teas, but a good deal depends on the season.

Here, where we have in many cases thirty to forty plants of one variety in a bed, we never prune all at once, but spread the pruning over three or four weeks, with the idea of prolonging the first blooming season. In a normal year, without extremes of temperature, this plan is successful, but if the growing months

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continue cold, followed by a sudden rise in temperature in May, the sap rushes up and little advantage is gained in the way of prolongation of blooms.

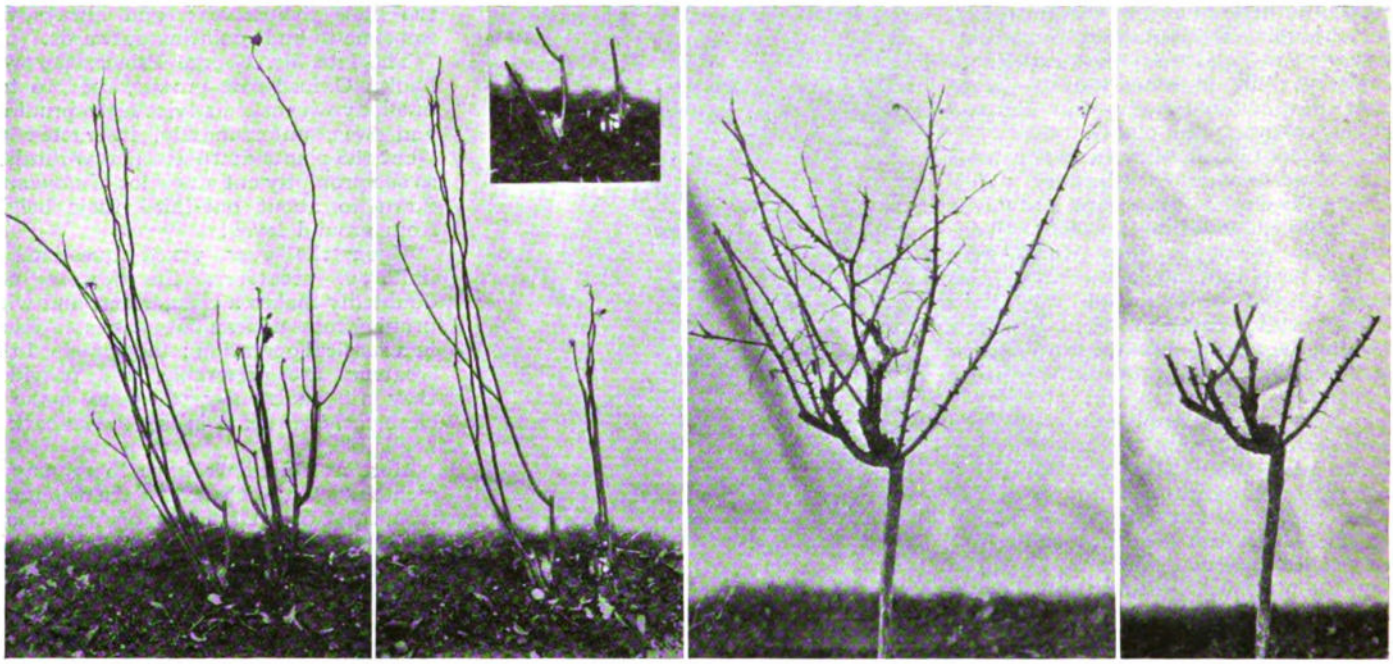
With exhibition roses we prune a few of each variety every week from the middle of February until about April 20th, to try to ensure having some blooms for all the shows from the middle of June to the middle of July.

Climbers, hedge and shrubbery roses we prune during the winter and spring as time and weather permit. By way of conclusion remember, when pruning, you "must be cruel to be kind." The golden rules must be evolved and framed by the individual gardener in the light of the results for which he is striving.

As an artist, handling the most wonderful colours of all Nature's palette, through her most glorious medium, the rose, he can work to his end either for masses and broad effects, or for "cameos of swooning beauty," but he must not hesitate.

To the rose lover the pruning knife is more than the surgeon's lancet, cutting not to cure, but to give life and health and beauty.

Remember, too, as you use this lancet, each plant has its individuality and a separate character, which should be studied, humoured and treated for this alone. So only shall you reap the full reward of your skill and labour.



From left to right: A HYBRID PERPETUAL UNPRUNED; AFTER FIRST THINNING; PRUNED FOR EXHIBITION BLOOMS; A HALF STANDARD UNPRUNED; PRUNING COMPLETED.

CORRESPONDENCE

ALPINES FROM THE PASS OF MONT CENIS.

RECENT articles by Mr. Lofthouse and Mr. E. Enever Todd on this subject have prompted me to reply, as the latter asks, regarding the Campanula linifolia found at Mont Cenis by the former, and he says that Flahaut gives C. linifolia as a species found in the Alps of France, and that the linifolia of Scopoli (C. carnica, Scheide) referred to by me as being found in Carinthia is an entirely different plant, though we both speak of something akin to C. rotundifolia. I have not Professor Flauhaut's small book by me, and except for the stated resemblance to the common harebell (doubtless a slip), I take it that Flahaut was speaking of C. linifolia of Lamarck as figured by the former and by Coste, and which Mr. Todd (page 73) rightly says is closely related to C. lanceolata, Lap. In my "Sub-Alpine Plants" I was more careful than in 1911 to add that C. linifolia, Scop., is not the plant of Lamarck ("*non* Lamk."), and in that volume I added Carniola to Carinthia. I now find it recorded also from Tyrol, the Trentino, Lombardy and Transylvania.

John Ball* gives "C. rotundifolia var. (C. carnica)" from his district 8: "Mont Cenis—Susa—Col de Clairée;" so it is quite possible Mr. Lofthouse found the same thing higher than Ball at Mont Cenis; or he may be referring to *C. linifolia*, Hake, which is given in Arcangeli's "Flora Italiana" as a form of the well known C. Scheuchzeri, which does grow at Mont Cenis and resembles a large-flowered harebell. The latter has a wide distribution at high altitudes from the Pyrenees to Arctic Russia, but it is rarely seen true in gardens. Arcangeli actually places C. linifolia, Lamk. as a variety of rotundifolia and, indeed, Grenier and Godron call it "Plante intermédiaire aux C. rotundifoliæ et rhomboidalis."

It is just possible Mr. Lofthouse saw at Mont Cenis the very different Campanula described and figured by Coste ("Flore de la France") as C. linifolia, Lamk., found in the Pyrenees and other mountains of France. I gathered this species 2ft. high in woods above Vernet in the Eastern Pyrenees at 3,000ft. altitude only. My specimens have thick fusiform roots. That there has been much confusion over these campanulas is evident.

Mr. Todd's recollection of Johns' comment on the specific name rotundifolia for the harebell as being a misnomer has some, but only slight, foundation; for in the first edition of Johns' "Flowers of the Field" in two little volumes (the only edition I have at present) he said: "The specific name . . . is far from being descriptive of the leaves which accompany the flower, as they are long and narrow, but is peculiarly applicable to the root-leaves as they appear in winter or early spring, at which season Linnæus is said to have first observed them on the steps of the University of Upsal." (sic.)

It may be mentioned here that the most comprehensive account of the flora of the Mont Cenis district was written by Professor Mattirolo of Turin under the title "La Flora Segusina, 1907." No fewer than 2,203 species and 279 varieties of Phanerogams and ferns were recorded from the district of Mont Cenis and Susa by April, 1907, and in July of that year I collected 180 of these growing above 8,000ft. or 2,440m. in a decidedly confined part of the district.

Should any reader be visiting Mont Cenis in the summer, he will be doing a service if he tries to find a small glabrous rose-coloured galium in a steep ravine or gully a few hundred feet above the Hotel de la Poste, because the only specimen which I got there in 1907 and which Dr. Briquet described as a new subsp. of G. asperum was divided between the herbaria at Geneva (Conservat. Bot.), British Museum and Edinburgh.

I am glad Mr. Lofthouse recommends for the garden the violet-blue flowered Scutellaria alpina and draws attention to the brilliant colour of the Calamintha alpina. I have repeatedly encouraged the cultivation of these two beautiful plants, and in *Journ. Bot.*, 1907, 345, I pointed out how very variable in colour the scutellaria often is particularly in the Mont Cenis district.

* "On the Distribution of Plants on the S. side of the Alps." Edited by Thiselton Dyer in Trans. Linn. Soc. 1896.

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One specimen was entirely a rich rose colour, with bracts of the same shade, and three large clumps had pure white flowers, all the bracts being a uniform pale green instead of the normal purplish green. Actually, the flowers vary from a light mauve or lilac through every shade of purple to a deep violet.

Among the attractive flowers at Mont Cenis there was little that seems to have escaped the notice of Mr. Lofthouse, unless, perhaps, it was the dusky Swertia perennis (?). As usual, it is very local there, but a fine colony adorns a damp slope on the French side of the Pass. He mentions the two very rare British plants, Lloydia serotina and Lychnis alpina. The latter is extremely uncommon in the Alps, and I never saw it growing so well as on the Italian frontier slope referred to by your correspondent, though even there it was somewhat confined.

Reference was made to Gentiana bavarica, "one of the most difficult moraine plants occurring here in very boggy ground." Actually, this superb and very common alpine gentian is hardly a plant for the moraine, for in nature it almost always thrives best in wet, boggy ground among plenty of short vegetation, but not among stones or gravel. On page 662, "G. bavarica, or more possibly its higher form, G. imbricata," was growing "on the moraine thrown up between two torrent beds," whereas "true G. bavarica was fairly plentiful down at the Mont Cenis Lake." That's just the difference! In the swamp by the Lake G. bavarica grows in the company of Carex microglochin, which was discovered last year in Scotland and is a species new to the British Isles.

The fine spikes of Campanula spicata I, unfortunately, did not see at Cenis. Might it not be more correct to speak of this as biennial than annual? The form of Silene acaulis with large flowers on lengthy stems and with a looser habit is the variety elongata *DC.* (S. elongata, Bellardi), and I think this was an extension eastward of its known distribution when I found it in the ravine above the Hotel de la Poste. I regret to read that this glorious hunting ground among the mountains is still desecrated on Sundays (or on any day) by motor enthusiasts from Susa. But we Britishers "must not cast stones"; nay, not even from the top of Cheddar Cliffs!—H. STUART THOMPSON.

CROCUS IMPERATI.

THIS charming crocus, the earliest of the race, is in full bloom early in February, and even here in Scotland flowers have often appeared on New Year's Day. Although a native of southern Italy, it is quite hardy, and seems to enjoy the light soil of the rock garden, where it blooms freely and increases fairly rapidly.

The photograph, taken on February 7th while the sky was overcast, shows the flower closed, and displays to advantage the beautiful feathery markings on the back of the outer petals; these three delicate veins are purple, and form a pleasant contrast to their soft buff-coloured background. The flowers, when opened wide, display their lovely lilac-purple lining and brilliant orange anthers. Crocus Imperati ought to be in every garden where early flowers are appreciated; its beauty, hardiness and delicate fragrance should ensure its welcome; and, as a further recommendation, its cost is moderate.—I. S. T.

THE BEAUTIFUL COROLLAS WITH THEIR FEATHERY MARKINGS OF C. IMPERATI.

PREPARED HYACINTHS.

FROM communications received, the article on "Prepared Hyacinths," which appeared in THE GARDEN for January 12th, has created considerable interest. A friend in Holland has written to say that although the experiment of sending bulbs to the south of France was tried when "preparing" was a new thing, no Dutch firms send any there now. They "prepare" their own. There are, it is true, firms in the south of France who offer much the same thing, but from lists which I have been permitted to see their bulbs are considerably dearer than those grown and prepared in Holland. The treatment of the bulbs in preparing will surprise many. No one in cold blood would imagine it would bring about the desired result. About six weeks before the usual time of ripening and while the foliage is still green, the bulbs are lifted and, when partly dried, are then put into a high temperature of between 70° and 80° Fahr. for five or six weeks to finish them off. This is, in a nutshell, the system of preparing. It was found out by mere chance. Some hyacinths which were planted in a hot, dry corner of a Dutch nursery were observed to dry off every year earlier than the others, and in the following spring to start growth and flower sooner than others. Experiments then took place after this hint, and finally the system described above was found out. As practice makes perfect, year by year the system has been organised, so that anyone buying "prepared" hyacinths now from reputable firms may be sure that they will flower at the time which is stated in the dealers' lists. It is up to the dealers to make it quite plain which are the hyacinths which are "prepared" and which are those ripened in the old ordinary way. I know from letters received that mistakes are made by purchasers. Cynthella hyacinths, except "*prepared*" *Cynthellas*, will not bloom earlier than ordinary hyacinths. "Prepared" are what should be asked for if flowers are wanted at Christmas time. Of course, larger-sized hyacinths do equally well if they have been "prepared"; but modern taste is, I feel, all in favour of the more graceful Cynthellas. For those who can command sufficient heat there is no need to bring the pots into a greenhouse as early as I do. If a bottom heat of about 70° Fahr. and an air temperature between 70° and 80° Fahr. can be continuously given, the pots may remain outside until the third week in November and good results be obtained for Christmas. I cannot give this heat in my houses, so I bring the bulbs in about a month earlier and put them on staging which is over the hot-water pipes, which is my best substitute for "bottom" heat.

I hope that this letter will supply the necessary information.—JOSEPH JACOB.

A GROUP OF "PREPARED" HYACINTHS IN THE BULB SHED AT ZWANENBURGNURSERY, HAARLEM.

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NOTES FROM CONTRIBUTORS

KING ALFRED DAFFODIL.

MANY have seen in past springs Carter's exhibits of this magnificent daffodil in mass formation. Some have bought, have had one glorious display, have hoped for even better things the next season, but, when that time has come, have experienced a great disappointment. Wiser people have sighed, and asked the man in charge if he sold any Cornish atmosphere to go with them, as without it, or one very similar, King Alfreds were useless. The truth is, this fine variety is fastidious. I have tried lots of dodges in times past to get it to grow out of doors, but all in vain. In 1920 I had two bulbs sent as a present, and I resolved to try my luck with them in pots in a cool greenhouse. The result is three 7in. pots full of healthy foliage and buds. Usually, daffodils after they have flowered have been put in some odd corner outside to finish their growth. My King Alfreds have always remained under glass all through their life cycle, from their being potted until potting time has come again. This I believe to be the secret of our success. Although it has been in commerce so long, it is still an expensive daffodil to buy and throw away as soon as it has flowered. Hence this note of its behaviour at Whitewell may be of use to others who cannot grow it in the ordinary way out of doors as they grow Emperor, White Lady or Barrii conspicuus, but who are able to devote a small space under glass for a few potfuls.—JOSEPH JACOB.

ABORTIVE BUDS OF AMARYLLIS BELLADONNA.

AT this time of year, when the young foliage of the belladonna lily is coming up strongly, one often finds a number of abortive flower-buds being pushed up also. These are evidently buds which would have produced flowers at the normal flowering season (September) had the weather conditions not been unfavourable at that time. To produce a really generous harvest of blossom two factors are essential. First, a thorough ripening of the dormant bulbs in June and July; and, secondly, a period of mild sunny weather in September, when the flower-buds should be just pushing through the soil. If the first factor is lacking, no buds will be formed at all; if the ground becomes sodden and cold before the buds have come through they cannot develop properly and appear only with the leaves in early spring in the form of abortions. After a good flowering year (such as 1921) very few, if any, of these abortive buds appeared in the following spring, but there are always a number after a poor flowering season (such as 1922 and 1923). Last summer was remarkable for the short period of intensely hot weather early in July; this was sufficient to ripen the bulbs thoroughly, but it was succeeded by a long period of such dull sunless weather that very few buds had the strength to complete their development, hence the number of abortions seen now. However, in those gardens where the belladonna lilies had been planted in the ideal situation—a narrow border alongside a greenhouse with hot-water pipes behind them—they flowered magnificently several weeks earlier than bulbs of the same variety planted at the foot of garden walls either with southern or eastern aspects. The books always lay stress on the importance of planting the bulbs very deep, but one wonders if this is really advisable. If the top of the bulb is only 3ins. below the surface of the soil instead of 6ins. or 8ins., it would surely receive much more warmth from the sun's rays and be better fitted to develop a normal flower-stem. Deep planting may be essential in cold districts, but the belladonna lily is rarely injured by frost in the south and west of England. In Guernsey it flowers profusely in open borders and the bulbs are sometimes left to form huge clumps with their tops barely covered by the soil. A certain amount of moisture at the roots at flowering time is no doubt advisable (this usually coincides with the autumn rains), but I doubt if it is desirable to water the ground until some of the buds are seen to be pushing their way through. Anything in the nature of chilling the soil is harmful to the welfare of this lover of sunshine and warmth. After all, there are not many plants native of the West Indies which adapt themselves to our fickle climate at all, so that we cannot reasonably expect a rich harvest of flowers after a particularly cheerless summer. It is, however, little consolation to the gardener to observe a fine crop of abortive buds in spring instead of the noble sheaves of flowers of which an inclement autumn has deprived him.—NORMAN G. HADDEN.

TWO PRIMULAS NOTED AT GLASNEVIN.

AN uncommon Primula is P. Dubernardiana. It has bright green markedly reticulated leaves with long petiole and ovate lanceolate blade 2½ins. long, lightly golden underneath. Its flowers are as large as those of the wild primrose, tufty in growth, pale pink colour with a well marked yellow eye. It flowers in the alpine house in early January and is an introduction from China.

Primula verticillata is a distinct variety from Copenhagen, well worthy of cultivation. Its flowers, smaller than the type, are a good yellow colour, the leaves are almost obovate, powdered mealy white. It is a more compact grower than the P. verticillata usually seen and is altogether a charming little plant for the alpine house early in the year.—W. P. MOORE.

DEINANTHE CŒRULEA.

THIS rare and beautiful plant which, I suppose, is still on its trial in cultivation, is one of the most distinctive of recent introductions. D. cœrulea is a near relative of the saxifrages, an herbaceous perennial which puts up in spring stout, fleshy stems and deeply-lobed large leaves with a reddish tinge suggesting those of a tuberous begonia. The foliage, rather more than a foot in height, is crisp and crinkly and each leaf is surrounded by a fringe of dark bristles. In early summer if not before, the round, red buds which appear in clusters, terminating the above growths, open into blooms of singular loveliness that have been likened to a blend of auricula and shortia. But the fact is they are to the untutored eye, as they are to the botanist, quite unlike anything else. As to the colour of these soft-textured blooms it is a clear smoke-blue deepened by a hint of palest violet, a tone that is inexpressibly charming in shade or subdued light.

D. cœrulea, I am informed, was first found by Henry at Hingshau, but it is to Mr. E. H. Wilson that we are indebted for its introduction. He sent over some seed from Hupeh and the late Mr. Elwes raised and flowered a few plants at Colesborne in the summer of 1909. Two years later the species was figured and described in the *Botanical Magazine*.

Whether D. cœrulea is perfectly hardy there has been some doubt, but it has withstood some fairly severe frosts with us. That it resents excessive wet in winter is evident, but otherwise its culture appears to offer no difficulty. It seems to enjoy shade, ample moisture in spring and summer and a well drained root-run in a peaty or good vegetable mould freely mixed through with sand and stones.—A. T. JOHNSON.

LENTEN ROSES

LOVERS of hardy plants find it passing strange that the beautiful Lenten roses should be so little grown in the majority of gardens. Flowering at a season when any outdoor bloom is precious, their absolute hardiness and ease of culture, with their handsome deep green foliage and graceful habit, they seem to be ideal plants for every garden in the land. The much more fastidious Christmas rose is far more often grown and sometimes treated to an overhead light to keep its flowers clean and unsoiled by storms; yet the Lenten roses, in their great variety of colour and with their simple tastes, are constantly neglected. Like all the hellebores, the Lenten roses are deep-rooting, hungry plants, hence they demand liberal treatment and a well dug soil when first planted. An annual mulch of old manure will result in extra strong growth and finer flowers, though this must be regarded more as a luxury than a necessary item of their culture. Being natives of woodland, they succeed best in somewhat shady situations and are liable to droop badly during a drought if exposed to direct sunshine. A sheltered position is preferable, since their early flowering season generally coincides with stormy weather, which is liable to damage the tender young foliage. They flourish with equal vigour in mild Cornish gardens and on the east coast of Scotland: in the south they begin to flower before January is out, but in cold districts their name of "Lenten rose" is more appropriate. They will tolerate a heavy clay soil and a hungry sand, but a rich deep loam naturally suits their vigorous root system best of all. They are excellent subjects for naturalising in thin woodland or in nut groves or in old orchards. They thrive among deciduous shrubs and are very useful for north borders in small gardens. In some places mice are said to be in the habit of eating the young buds—a peculiar taste, as all the hellebores are exceedingly poisonous; slugs do not trouble them, although they often gnaw the buds of Christmas roses.

Several distinct species of Helleborus are generally known as Lenten roses, the chief of which are H. orientalis (rosy-purple with numerous deeper spots) and H. guttatus (large white with purple spots). These two species hybridise freely and give rise to many intermediate forms, some pale rose seedlings with only a few spots at the base of the flower are especially attractive. H. olympicus (white), H. colchicus (deep purple), H. abschasicus (greenish white) and H. atrorubens (rosy-purple) are other species often offered in catalogues but not always easy to obtain true to name; they all interbreed readily, consequently many seedlings of more or less doubtful merit make their appearance from time to time.

The late Mr. Archer Hind of Newton Abbot worked for many years at improving the Lenten roses and raised many very fine varieties. What has become of these now? There still seems to be ample scope for further experiments in crossing the various species and in selecting the best seedlings. The seed is not long-lived and should be sown soon after it is ripe; it will then germinate well the following spring and the seedlings may be pricked out in a shady border. They mostly flower in their third season, so that the raiser has not

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much time to wait before seeing the results of his labour.

Lenten roses may be divided either in spring or autumn when it is desired to increase some particular variety; they do not take so long to recover from division as the Christmas roses, but are not at their best for two or three seasons, hence the value of having a stock of healthy young seedlings. Seedlings may often be found self-sown near old-established clumps and can readily be moved to fresh quarters. Unless they show signs of deterioration the old clumps should be left for a number of years and will annually yield quantities of flowers which are most useful for cutting.

It is well known that the flowers must have their stems split longitudinally when put in water or they will droop at once and not recover. Immersion up to the neck in water for a night before arranging them is recommended in the R.H.S. Gardener's Diary. Frequent changing of the water in the vases greatly adds to their length of life, and when this is attended to daily they will last in beauty for a fortnight or more.—"SOMERSET."

MODERN GREENHOUSE CONSTRUCTION AND HEATING

BY GEORGE GARNER.

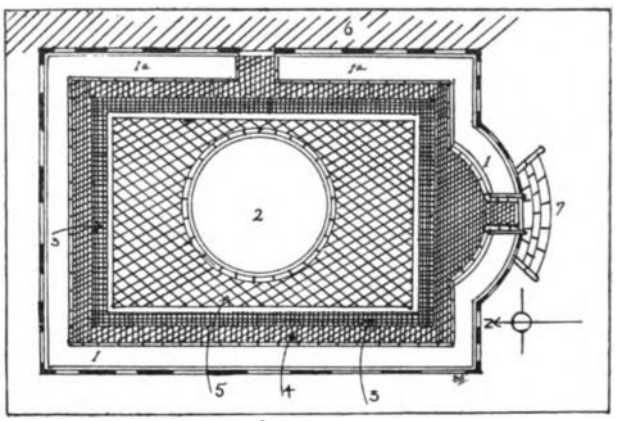
FIFTY years ago the majority of the structures for plant and fruit growing were of the lean-to type. Wood was plentiful and not expensive, but glass was scarce and cost more. Thus our fathers and grandfathers were very proud of possessing a single lean-to greenhouse, which generally contained a miscellaneous collection of plants, some of which we now regard as sufficiently hardy to remain in open borders the whole year round. The timber of these old structures was good and bulky, the glass poor, and the squares small.

The modern idea is to have light and airy structures built of well seasoned wood and reinforced with iron rods. Ventilation, too, is more abundant, the air being admitted freely at the will of the cultivator and usually without causing unnecessary chills to the plants. There are exceptions, of course, but the rule is, in these times, to build plain structures for purely utilitarian purposes; but our horticultural builders are capable of erecting more ornate and imposing structures when it is a question of adding a conservatory to the dwelling-house, and one that shall add to the beauty of the latter.

Perhaps the greatest advance has been made in the application of artificial heat. In the olden days brick flues were the only means of ensuring sufficient heat in the house to expel frosts, and much labour was entailed in keeping the internal temperature even and high enough for the purpose. Now we possess magnificent heating apparatus capable of maintaining an even temperature, varying in degree, as required, in quite a large number of modern structures at a minimum cost both as regards fuel and labour. The single and more modest greenhouse may also be heated in the simplest way and as effectually. Overhead hot-water and steam pipes are used in many structures where it is necessary to force hard or to preserve from damp the delicate flowers of some of our plants, especially during the autumn and winter months.

ABOUT BOILERS.—The plain saddle boiler was, not many years ago, commonly used and highly appreciated; soon the check-end saddle replaced it to a great extent, and in rapid succession our manufacturers and engineers placed on the market more powerful boilers and also miniature ones to heat small structures. These small boilers have been a great boon to amateurs who possess little greenhouses and conservatories and, furthermore, create a big demand for the erection of such houses.

The large sectional boilers, suitable for nurseries and large blocks of glass houses generally, need stokeholds, but they can be fixed without a mass of brickwork and brick-flues. They are as easily managed as the smaller ones. Wrought-welded boilers are very powerful and favoured by many cultivators. With ordinary care these boilers will last a generation in good working condition when used for forcing houses.

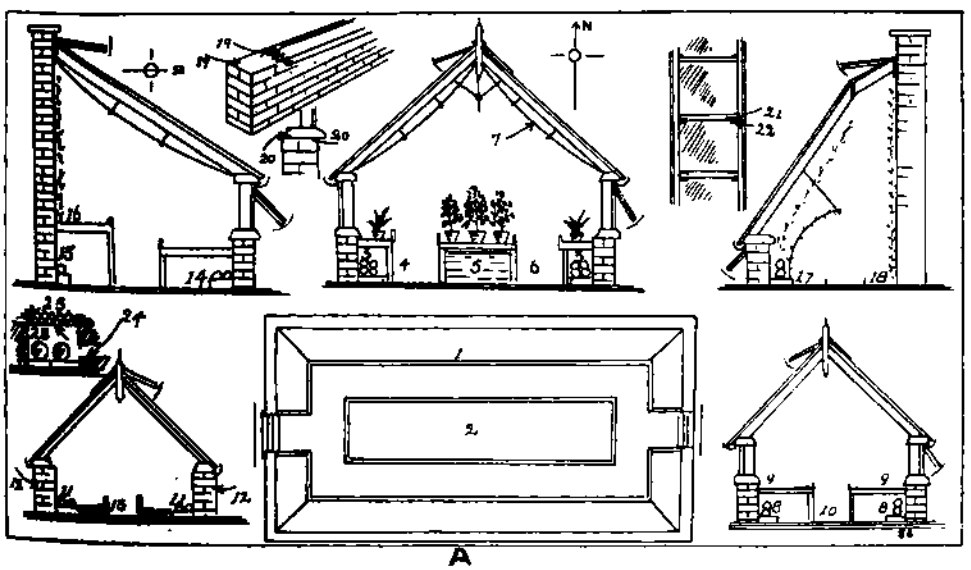


R

ILLUSTRATING THE GROUND PLAN OF A CONSERVATORY.

THE TENANT'S FIXTURE BOILER.—This type is made in various forms. One, upright in shape, may be placed in a tiny shed adjoining the greenhouse, free of all brickwork, the smoke-pipe being carried through the roof of the shed. The hot-water pipes, flow and return, pass through the wall and are fed through feed-box, water expansion box at the extreme end of the pipes farthest from the boiler. The air escape pipe is also placed at this point. Injurious fumes from the boiler furnace cannot enter the greenhouse. Special fittings are not required.

Another form of small boiler is one that is fixed in the end of the wall of the greenhouse, the front being flush with the face of the outside wall and the smoke-pipe is carried up clear of the structure. With these boilers there is little danger of flooding where water is always near the surface, as the stokehold rarely exceeds 18ins. in depth, just sufficient for the ashes. Where room for a covering shed is not available, such shed is not absolutely necessary. The greater part of the boiler is inside the greenhouse and the heat from it is equal to 10ft. of 4in. piping.



A

PLAN AND SECTIONS OF DIFFERENT TYPES OF GREENHOUSES.

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One such boiler measuring 2ft. in height, 1ft. 2ins. in width, with a depth of 1ft. will heat a 70ft. run of 4in. piping—flow and return. The stoking is done outside, the feeding at the return point—the expansion box. This is another tenant's fixture, special fittings are not needed, and the furnace will consume cinders and all kind of rubbish from the dwelling-room grates. Banking-up may be done at eight o'clock in the evening, and the fire and temperature will be normal at eight o'clock the following morning.

GAS AND OIL BOILERS.—These one may term midgets, yet they are powerful and most useful. The gas-heated boilers are capable of heating not only small but fairly large greenhouses, local situations being convenient for the fixture of boiler. The oil-heated pipes maintain an even temperature, are easily regulated and the combustion is good. The whole apparatus is in the greenhouse itself, but may be taken in or out at will.

The following are some of the essential points that should be duly considered by cultivators who wish to erect and heat new houses.

THE SITE.—A fairly open position is the best, the ideal one being sheltered from strong winds but not overshadowed by tall buildings or trees. The shade required should be applied at the will of the cultivator. But it is not always possible to make a selection of positions; also, there are exceptions, for instance, where it is intended to grow palms, ferns and other shade-loving plants; then there are many sites near the dwelling-house itself suitable for the structures. If the subsoil is naturally wet, then pipe drainage is advisable.

THE FOUNDATIONS AND WALLS.—Even the smallest greenhouse should have a sound foundation. A large one should be built on a concrete base whether the walls be of bricks or stones. The regulation height of the walls above ground level is 2ft. 6ins., and the height of the front woodwork and glass 2ft. 6ins. also—5ft. to eaves. Five feet is a good useful height, but it may be varied according to requirements.

WOOD AND IRON.—All wood used should be sound and thoroughly seasoned. The sash-bars of large houses are rarely made of thick deep pieces, but of comparatively small ones, and about every fourth bar is a little stronger, these being reinforced with iron bars shown in the accompanying sketches and referred to later on in this article. The more slender bars are supported and strengthened by fixing angle-irons transversely and securing the bars to them with screws. Lantern roofs are ornamental, useful and imposing, being very suitable for some kinds of structures, but they add expense to the building account.

In olden days the wall-plates were embedded in mortar. When these old houses have been repaired it has been found that the undersides were dry-rotted. In the case of modern structures the wall-plates are laid on the dry wall and the joints on both sides duly cemented. Iron frames are employed in many instances for supporting the staging wood where the latter is used. Slates and shingle are clean, lasting and more suitable for some kinds of plants.

GLASS AND GLAZING.—Twenty-one ounce glass should always be used for the roofs and, personally, I prefer it for sides and ends as well. The bevelled or slightly hollowed squares convey the water from the wood, forming a miniature channel down the centre when it rains. Primed wood is, usually, glazed, but it is better to apply one coat of paint in addition first. The glass should be well embedded in good putty, held securely by brass sprigs, and with no top putty. When afterwards the houses are painted, all exposed wood is covered and there is no risk of wood rotting under loosened top putty.

THE ILLUSTRATIONS EXPLAINED.—In Fig. A, Nos. 1 and 2 denote the plan of staging in a span-roofed greenhouse. The section of this house is shown on page 133. Nos. 3, 3, two flow and two return hot-water pipes; No. 4, side stages; No. 5, central stage, also answering as a cistern to contain rainwater from the structure; No. 6, paths. No. 7 shows the strengthening rod to roof bars. Roof angle 45°.

If all staging be removed, a house of this kind could be used as a vinery. The heating then would be as follows: Two flows at the sides respectively and one return down centre of bed and one on each side of the central path. The narrower span-roofed house is heated as shown at Nos. 8, 8; flow and return on each side; stages, Nos. 9, 9; path, No. 10. These are most useful houses for bringing on young stock for furnishing the conservatory or dwelling-house.

The forcing greenhouse may be built without stages. The hot-water pipes are shown at Nos. 11, 11; air being admitted at the sides, Nos. 12, 12; path, No. 13. In this house heat is conserved, and melons, cucumbers and young stove plants usually grow well in them. Roof pitch for these two houses, 45°.

No. 14 shows flow pipes; No. 15, one return hot-water pipe in a lean-to. The back stage, No. 16, may be used, or removed and a border for climbers take its place. The roof pitch is not quite 45° and needs the strengthening iron rods. The aspect is due south.

The economical fruit structure is shown with front and back borders, Nos. 17 and 18 respectively. The roof angle is 60°, and does not need any strengthening iron rods. The various ways of training fruit trees or, it may be, roses, etc., are shown.

Nos. 19, 19, 20, 20, show how the wall-plate is placed on the wall, the joints cemented, and inside the house the cement is shown so placed in position that water does not lodge there. No. 20, left-hand side of sketch.

No. 21 shows the brass sprigs holding a square of glass firmly to sash-bar, and No. 22 sprigs fixed so as to prevent the square slipping down. The nails, when driven in, hardly show and are painted.

Winter gardens and many conservatories are heated by laying pipes in a trench under the path or floor. When this system is adopted some pipes should be laid (one, two or three, according to size of house) to allow fresh air to enter the trench and drive out the heat from the hot-water pipes. Without these fresh-air pipes there would be loss of heat. No. 23 shows pipes in trench; No. 24, fresh-air pipe; No. 25, iron grating.

Fig. B shows the ground plan of a conservatory or winter garden. Nos. 1, 1, side stages; Nos. 1a, 1a, stages or border against wall of dwelling-house, either for pot plants or climbers. A central bed is shown at No. 2; Nos. 3, 3, iron grating over hot-water pipes; No. 4, small tiles; No. 5, larger tiles; No. 6, the dwelling-house; No. 7, steps to entrance to conservatory.

STRAWBERRIES

I HAVE never seen strawberry plants more robust than they are this year. There is good promise of a good crop of fruit if the blossom is not damaged by frosts. Although the plants are cleared of all runners in late summer or early autumn, there are, generally, quite a large quantity of late-grown runners and weeds to be found at this season and they should be cut off and hoed up respectively so that a substantial dressing of strawy manure can be applied forthwith. Having thoroughly cleaned the ground, the weeds that grow later should be pulled up by hand so as not to disturb the layer of straw around the plants. The rains and weather generally settle down the littery manure firmly, and wash the straw portion clean; thus it forms a suitable bed for the ripe fruits. In the absence of such surface dressings, straw or litter will be needed in due course. The fruits should be protected from the birds by fixing nets over them. Perhaps my method of doing this will be of interest to some cultivators. Strong sticks are driven into the ground 9ft. apart in rows 5ft. asunder and 2ft. 6ins. above the ground. All the outer sticks are set at an angle of a few degrees away from the bed itself so that they will bear the strain of the nets placed over them. The nets are then pegged to the ground all round. Wires are fastened to these sticks and a small wisp of hay or straw is tied tightly to the top of each stick, thus allowing the nets to be put on or pulled off without catching in any uneven part of the stick. It is economical to get these stakes and wires fixed forthwith, or as soon as possible, so that the nets can be drawn over the strawberry bed every night while the plants are flowering and so, probably, save much blossom from destruction. In this way the nets serve a double purpose and the good results warrant the little trouble entailed. HANTS.

FORTHCOMING EVENTS.

March 1.—Fête to be held under the auspices of the Horticultural College, Swanley, Kent.

March 4.—Croydon Horticultural Society's Meeting.—Royal Caledonian Horticultural Society's Meeting.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Cabbages are always useful, and a liberal sowing of a suitable kind should be made with a view of having plants at hand to fill up spaces as other crops are cleared. Both Imperial and Favourite are reliable varieties, and the seeds should be sown thinly in lines 1ft. apart.

Broccoli.—Autumn broccoli should be sown about this date, and the seedlings transplanted in a good piece of the garden in lines about 2ft. apart. Firm ground is essential. Suitable varieties are Michaelmas White, Autumn Protecting, and Self-Protecting Autumn.

Globe Artichokes.—If these have been protected during the winter months, the material may now be removed. Globe artichokes can be raised from seeds sown during the present month, but the usual procedure is to increase the stock by suckers which are obtained from the old plants. New plantations may be made next month, but in the meantime prepare the ground, first giving it a liberal dressing of manure.

THE FLOWER GARDEN.

Scabiosa caucasica.—Of late years a great improvement has been brought about in this beautiful plant, and now there are quite a number of distinct varieties. No flower garden can afford to be without them, and where difficulty in growing them is experienced, the chief cause will be slugs or the absence of sufficient lime in the soil. An open, well-drained site is essential, and the best time to plant or divide is during the month of March. Slugs are most troublesome in winter, and only a liberal application of lime will hold this pest in check. S. caucasica is a perennial, quite hardy, and will need dividing every second or third year. Messrs. Isaac House of Bristol have brought out several varieties of outstanding merit. Seeds are also offered, and this is a good method of increasing the stock; but the varieties do not reproduce themselves true from seed. However, some useful forms may reasonably be expected, and, moreover, all would be of value for cutting purposes. Seedlings can be raised in a warm greenhouse, gradually hardened off, and planted out in June.

Buddleias.—The various forms of B. variabilis should be pruned forthwith, cutting last year's growths back to two or three eyes. Hard pruning is essential if really fine sprays of blooms are needed, and unless such pruning is carried out annually the plants become crowded and take up a lot of space.

THE HARDY FRUIT GARDEN.

Protection of Fruit-blossom.—A difference of opinion exists as to whether it is really necessary to protect fruit-blossoms at this period of the year, but where wall trees are about to open their flowers and there is a likelihood of frosty nights, I think it is worth while to protect the flowers as much as possible. Heavy thick coverings are not advised, neither should they be permanent, but of such a nature so that the material used can be readily and easily removed without injury to the blossoms. Thin tiffany or canvas will be found suitable, and if it can be arranged so that it may be rolled up during the day it will be an advantage. A double thickness of fish netting will also keep off a little frost, and this need not be removed during the day. Apricots, peaches and nectarines are among the earlier-flowering fruit trees.

Nets.—During wet weather all netting should be looked over and, where it is possible, repaired with thin tar twine. If new netting is needed this season, the order should soon be given.

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(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Parsnips.—Deeply cultivated ground is necessary for the successful cultivation of this root vegetable. If pegs were put in to indicate where the celery trenches had been, parsnips may be grown there. To obtain long, straight roots, make holes with a large dibber two or more feet deep in lines 18ins. apart and 12ins. or 15ins. distant from each other. Fill the holes with good fine potting soil. In each sow a few seeds and cover with ½in. of fine soil. When thinning out the seedlings leave the best placed plant to occupy each hole. Lisbonnais and The Student are good varieties.

Salsafy is another root vegetable which should have an open position and deeply worked ground, and may be grown on the same section of land as parsnips. Salsafy should receive somewhat similar cultural details as the above. Sandwich Island Mammoth is the variety usually grown.

Spinach.—The green leaves of this plant are used in cooking, therefore it behoves the cultivator to have rich and well tilled soil on which to grow the plants. Take out rows 1in. or 2ins. deep and 1ft. apart, and sow now the round-seeded or summer spinach, and thereafter as requirements demand. It is customary to sow spinach between the lines of culinary peas, and good crops may be obtained from such positions.

THE FLOWER GARDEN.

General Work.—Fork over herbaceous borders and pick out all underground stems of perennial weeds. Clip holly hedges and ivy on chains and walls. Weed among plants in frames and pinch out the tops of calceolarias and, except when frosty, allow the plants plenty of air.

Saxifraga umbrosa.—This well known hardy plant is very effective when in bloom, and is excellent when used as an edging where standard roses are grown. It is not over-particular as to situation, but where the soil is good it spreads rapidly. Where overgrown it should be lifted now, divided and replanted.

Seeds to Sow.—Several kinds of half-hardy annuals should be raised in heat and, although kept under glass until set out, they should be grown as hardy as possible when once established. The following should be sown now: African marigolds, alonsoa, asters, cosmea, nemesia, nicotiana, ten-week stocks, etc., and others like Dianthus Heddewigii and larkspurs may be grown under the same conditions.

Sweet Peas.—If sufficient plants have not been raised under glass in boxes and pots to meet requirements, an opportunity should now be taken to sow out of doors when the ground is fairly dry and workable.

FRUITS UNDER GLASS.

Melons.—Where it is not yet convenient to make a bed in a pit or on a bench, accommodate the plants in large pots and keep them growing in a warm, moist atmosphere.

Strawberries.—A batch may be brought into one of the vineries or even a peach house provided there is shelving accommodation and plenty of light. Plants should now be showing their embryo flower trusses.

Trees in Flower.—Apricot and pear trees coming into flower should be allowed plenty of air; it is also wise to use the rabbit's tail among the blooms.

Vines.—The flowers should be expanding in the early house, and a somewhat drier atmosphere should be maintained and top air given freely on all favourable occasions.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Hæmanthus Katherinæ. — This fine "spider lily" is deserving of more general cultivation for the conservatory and greenhouse. The hybrids Andromeda and King Albert are also equally useful. Plants that have been kept dry all the winter should now be showing signs of growth. They should be placed in a house with a temperature of 50° to 55°, giving them a good soaking of water at the root. Large, established specimens in good condition at the root will require no further attention beyond the removal of some of the top soil, replacing it with a top-dressing of a good potting compost. Young plants when they have commenced to grow should, as they require it, have a shift into larger pots, while plants in bad condition at the root should be shaken out and washed, carefully removing all dead roots and decaying matter from the base of the bulbs. After repotting, water should be very carefully afforded until the plants have made some growth and a quantity of new roots. This last remark applies to all newly potted bulbous plants. More plants of this class are spoiled at this stage by overwatering than from any other cause. H. Katherinæ grows and flowers freely when planted out in a border in a warm greenhouse. This species is a native of Natal, as also is HH. insignis and natalensis. The latter succeed under the same treatment. The Cape of Good Hope species, which includes HH. puniceus, sanguineus, tigrinus and albiflos, all succeed under cool greenhouse conditions and, like so many South African bulbous plants, their growing and flowering season is during our winter and spring. These plants, therefore, go to rest during our summer, starting into growth during the autumn. Bearing these facts in mind, their successful cultivation should present no difficulty to anyone with a greenhouse and cold frames.

Erythrina Crista-galli. — Where old plants have been stored dry for the winter they should now be brought into a cool greenhouse and given a good soaking of water at the roots. This fine plant is easily raised from seed or by means of cuttings, selecting for the latter purpose some of the more slender young growths. When they are about three inches in length they root readily in a case with slight bottom heat at command. Young plants will not stand drying off like old ones with a large woody root-stock, thus for several winters they require occasional attention as regards watering.

Freesias.—It is not generally realised how easy it is to grow freesias successfully from seed. If seed is sown this month, the resultant plants should flower during November. However, the coloured varieties are more uncertain, many of them taking longer to flower. The seed should be sown directly into 48-sized pots, in which the plants should be allowed to flower. Thin out the seedlings to nine or ten in a pot. While the seed may be germinated in a warm house, subsequent cultivation should be carried out in a cool, airy greenhouse or cold frame, keeping the plants well up to the roof glass.

J. COUTTS.
Royal Botanic Gardens, Kew.

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ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Seakale for the Flower Garden (E. L. H.).—The seakale recommended for planting in flower borders for the sake of the handsome glaucous foliage is the ordinary seakale as commonly used in the kitchen garden (Crambe maritima). It is worth noting when the flower stem is thrown up and the flower buds are showing that it can be used as a vegetable cut as broccoli. This applies chiefly to an old plants that may be about the kitchen garden, for when it is used in the border the flowering stems had better be cut out as soon as they appear, so as to let all the strength of the plant go to the foliage.

THE GREENHOUSE.

Propagating Echeverias (A. H.).—Most echeverias are readily propagated by means of seeds sown in heat in spring. Some produce offsets, which afford a ready means of increase. With those species from which no offsets are developed, and from which no cuttings can be obtained, recourse must be had to the leaves. The leaves should be pulled—not cut—off in autumn, laid on dried sand in pans on a shelf in a propagating or other warm house and not watered. After some time small plants form at the ends of the leaves: these should be carefully watered and as soon as large enough to handle potted up in sandy soil. The arborescent kinds may be increased by means of cuttings during the summer months.

TREES AND SHRUBS.

Pruning Clematises (R. S.).—C. Jackmanni thrives best when fairly hard pruned in February or March each year. Last year's growths should be cut back to half their present length and even more than this in proportion can be cut off when the plant in later years has increased considerably in size. C. montana should not be pruned until after flowering, as the dainty white blossoms are produced on the shoots made last summer. For a year or two only the thin ends of the shoots and cross pieces should be cut out, as our correspondent's plants have only been in position two years. When older and much larger a considerable amount of the old flowering wood may be cut out as soon as the blossoms fade.

Holly Tree Unsatisfactory (A. R.).—We are unable to find any definite cause for the damage to the holly shoots. The work looks like that of a beetle, but no beetle is known to attack hollies in this way. Birds may have started the trouble, but in any case there does not appear to be sufficient grounds for destroying the trees. If any animal is seen to cause the trouble, we should be glad to have particulars.

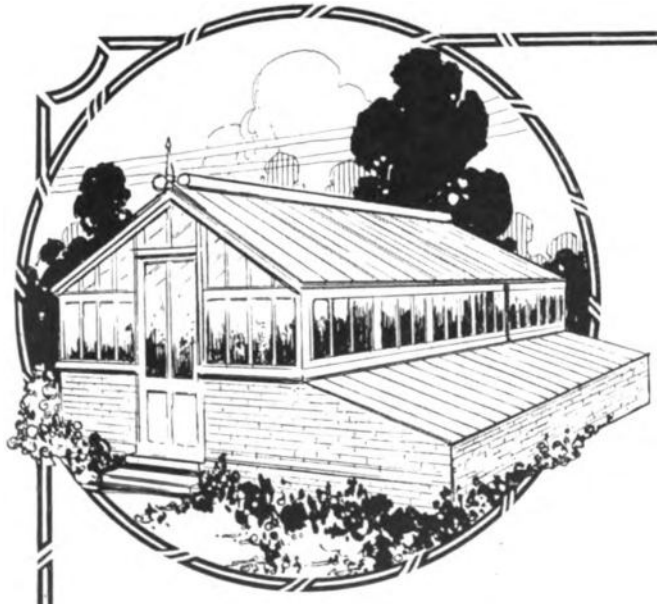
MISCELLANEOUS.

Names of Plants.—L. B. W.—Cestrum fasciculatum.——G. A.—Solanum aculeatissimum.——N. G. W.—Iris unguicularis (I. stylosa).

Name of Fruit.—"Dorset."—Apple Dummelow's Seedling (syn. Duke of Wellington).

Forestry at Wembley.—A village hall, a house and a pavilion built of home-grown timbers and containing every manner of wooden article made in Great Britain will form an important forestry exhibit at the British Empire Exhibition at Wembley. It is being organised by a Timber and Forest Products Committee, with Lord Lovat as its chairman and Mr. W. Dallimore of the Royal Botanic Gardens, Kew, as secretary. The village hall will be built of Scottish pine and larch. It will be 70ft. long and 20ft. wide. The other house will show the uses of English oak in a half-timbered fifteenth century house in which 5,000ft. of oak will be used. The pavilion will be erected solely from English hard woods. Inside these structures will be placed exhibits of wonderful variety, such as fittings and furnishings from Caledonian woods, furniture, kitchen utensils, dairy implements, tool shafts, spokes, felloes and naves of wheels, brush backs and other things made from English hard stock. Outside in the gardens there will be young trees shown by Scottish nurserymen. The development of the various woods will be on exhibit by the Forestry Commission. Visitors will see everything from setting and seedling, splitting and sawing down to ships, baulks and giant beams. The Exhibition's forestry section will be of great value in a time of house shortage and lack of materials. It will indicate how the ancient craft of forestry can best be revived.

Grand Yorkshire Flower Show and Gala.—We understand that after much difficulty a site has been found at Fulfordgate, York, which is quite near to the city and well served by trams, etc. The show will be held on June 18th, 19th, and 20th. Schedules may be obtained from Arthur Anderson, The Assembly Rooms, York.



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THE GARDEN

ORCHARD GARDEN WOODLAND

Vol. LXXXVIII. No. 2729 Saturday, March 8th, 1924 Price THREEPENCE

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A Few Novelties and Specialities for 1924.

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STREPTOSOLEN, Jamesoni, a lovely cool greenhouse shrub of elegant habit, bearing corymbs of showy *brilliant orange-yellow* flowers, 3ft. to 4ft.	1 6
SWEET PEA, Beautiful New Varieties in Mixture, a wonderfully fine mixture containing some of the best newer sorts of Sweet Peas, which cannot fail to give satisfaction to buyers per oz. **2s. 6d.**	1 0
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Nettie, gorgeous pale lavender mauve, a most excellent spike, fine for cutting, 5ft., 2/6.

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Europe, snow white with carmine red band, large compact truss, 1/-.
Evangeline, rich salmon pink, extra, 1/-.
Hanny Pfleiderer, cream, changing to salmon, carmine centre, 9d.
Meteor, soft pink with light eye, 6d.
Mrs. Oliver, salmon, white centre, 6d.
Nana Coerulea, purplish blue, 1/-.
Suffrage, salmon rose, rose centre, 6d.

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THE GARDEN

VOL. LXXXVIII.—No. 2729. MARCH 8, 1924

MASS FORMATION IN MR. F. STERN'S ROCK GARDEN NEAR GORING. BROAD STREAMS OF COLOUR ARE ALLOWED TO FLOW OVER THE ROCKS IN THIS PART OF THE GARDEN. AMONG OTHER PLANTS, CAMPANULAS AND SAXIFRAGES RUN RIOT.

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THE GARDEN

MARCH 8, 1924.

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SPRING

IN company with other more or less distinguished authors, I feel that it is a duty to usher in Spring with a sweeping bow and an apt quotation. I have ransacked memory for something suitable, but my imagination boggles at the usual seasonable sentiment. The blood is not coursing through my veins as it would at the approach of warm weather; on the contrary, the central heating is functioning properly in the room and there is a pleasant fire in the grate. The most appropriate quotation I can recall is a sentence at the start of one of O. Henry's stories: "It was a day in March." It is short, but it is full of meaning. It says plainly that the time has not yet come to lay aside winter underclothing, for the climatic somersaults are about to commence; it means that those curious creatures who rule the weather are just getting into practice; it states that Spring is a wanton jade who requires careful watching.

As a people we have no illusions about our climate, and perhaps it is just as well. There are few countries in the Temperate Zone where gardening is possible throughout the winter, or where such a variety of plants can be grown We can even excuse the gymnastics of the weather. Think how dull it would be to know that frost would cease next Friday for the season, and would start again on October 1st. Horticulture would be accomplished with mathematical precision and plants would be grown by rote. The correspondence columns in the papers would be empty, for there would be no reason to write lengthy letters announcing the first snowdrop or cuckoo. Horticulture by the clock is possible in better regulated climates; but how dull.

This is preliminary to wishing our readers a very successful gardening season. Last year was so poor that by the law of averages this year of 1924 should be good; but there is no knowing.

It would be interesting to compare the first twenty-five years of the eighteenth century and see how they compared with our present-day seasons. Evelyn and other Restoration writers made frequent mention of particularly severe weather, but this seems to apply actually to winter. We know that many plants no longer in cultivation in the open were frequently grown in their gardens. Among others vines were common and oleanders were often met with. This presupposes that spring frosts were, at any rate, less common than they are nowadays.

A great deal of the heavy work should be well forward, digging and trenching nearly completed, and the same with alterations, transplantings and renewals. The time is rapidly approaching when the pottering season begins, that pleasant time when a little work is done here and a little there, but the longest hours are spent in wandering around and watching plants grow and buds burst and flowers come to maturity.

Remember that THE GARDEN is at your door to give advice, not only at this season but at all times. We are not omnipotent, for we still have to learn how to manufacture a vermilion snowdrop or a blue carnation; but we are willing to assist to the best of our power.

I was about to close with this promise of assistance, but I have remembered a suitable spring quotation:

> Mean time, whilst every verdant thing
> Itself does at thy Beauty charm,
> Reform the errours of the Spring;
> Make that the Tulips may have share
> Of Sweetness, seeing they are fair;
> And roses of their thorns disarm;
> But most procure
> That violets may a longer time endure.

Even Marvell had his gardening troubles in the seventeenth century—and he also was suspicious of Spring.

Note.—In ordinary seasons planting of shrubs, fruit trees, etc., is usually finished for the season at the beginning of March. Owing to the extraordinary cold weather during January and February, planting may be continued for another two or three weeks. It is only when the ground becomes warm that planting should cease, and that is a state of affairs which, unluckily, has not been granted to us this season.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

THE SPRING ROCK GARDEN, by Dr. R. Lloyd Praeger.
CYMBIDIUMS, ORCHIDS OF EASY CULTIVATION, by T. W. Briscoe.
NEW AND RARE CONIFERS, by E. H. Wilson.
THE BIG BUD MITE WHICH IS DECIMATING THE BLACK CURRANTS, by Sir George Watt.
TULIP TALK, by the Rev. Joseph Jacob.
FRUIT-GROWING IN SMALL GARDENS.—IV, by Ronald G. Hatton, M.A.
SPRING WORK IN THE HERBACEOUS BORDER, by H. W. Canning-Wright.
THE TRIFLORUM SERIES OF RHODODENDRONS.

Owing to lack of space, the article on "Gardening Tools" has unavoidably been held over till next issue.

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HOW I CAME TO GROW GLADIOLI

BY MAJOR CHURCHER.

I THINK it must be quite thirty years ago when I first purchased a collection of gladioli. My recollection is that I received two large reproductions, in colour, of gladioli and irises from John Lewis Childs of New York, which resulted in my sending for a collection of thirty (?) varieties. Some of the names I remember were Eva, Dr. Parkhurst, Columbia, Mrs. Beecher, Boston, Lydia, Kate, Wm. Falconer, Wild Rose, Superb and Capt. C. B. Tanner. Columbia, Eva, Dr. Parkhurst and Mrs. Beecher were among those which survived the longest, the last named was the sole survivor a few years ago. Strange to say, a few days ago I received the current catalogue of Messrs. L. J. Childs and Co., and I see that they only list "the seventeen best, choicest and finest" of the Childsi group, and the only one of the old varieties named above included in the list is "Superb."

These remained my principal stock for some years with a few additions bought from Veitch, Lilley and Kelway. The most expensive one was Duke of Richmond (15s.), a strong grower, but not a great favourite of mine. Peace, Envoy, Alice Wood, Lady F. Cecil, Seamouse, Mrs. J. M. Skittery, were some of those that followed. Duke of Richmond, Seamouse and Lady F. Cecil were good doers and I think I still have a few bulbs of the last two. Mrs. J. M. Skittery, a pale yellow, edged rose, with orange centre, was a favourite of mine, but it gradually died out. Duke of Richmond I gave away. America came a year or two earlier and proved a prolific increaser, although not a great favourite of mine. It must have been somewhere about this time that I bought some Dutch varieties and a few years later I had a letter from a Dutch firm whose representative at the time was at Bournemouth. In it the firm offered one or two novelties, but no prices were mentioned, and among them was Early Sunrise. I sent an order for, among other things, twelve of this variety and by return received a reply that "before booking the order we think it as well to point out that the price of 'Early Sunrise' is £5 per bulb." This resulted in my order being reduced to two bulbs. I was also to give an undertaking not to part with the bulbs for two years at a less price than I gave for them. It was claimed that Early Sunrise was some ten days earlier than any other variety, but this I never found to be so—two or three days earlier was as near as I could judge. With me it proved a bad investment, for it was a poor increaser and although a fine flower when it first opened it always developed white spots. Notwithstanding the fact that I have not parted with any of the bulbs, my stock can still be counted on my fingers.

Dawn, La Luna, Peace, Sulphur King, Panama, Empress of India, War, Baron J. Hulot, Blue Jay and Primulinus, or as it was then called, Maid of the Mist, were among my next purchases. In the meantime I had tried my hand at intercrossing and in 1913 I had quite a number of seedlings and having joined the National Gladiolus Society I put up No. 123 in Class XIII, and was awarded a "first" for it. This was afterwards named Woodcote. I also exhibited three varieties, of which Alice Wood was one in Class XIV, and, I suppose by the displacing of the card, I was amused to read in one of the gardening papers that it caused some surprise that Alice Wood should have received the award as the best primulinus seedling!

HOW TO GROW PRIMULINUS HYBRIDS TO ADVANTAGE.

Once you have started with the gladiolus you cannot resist buying a few new varieties every year. Where you trust to catalogue descriptions you must be prepared for some disappointments, but, on the other hand, you also get some surprises, which make you forget the disappointments. You also cannot resist raising a few seedlings, ninety per cent. of which you know you will have to discard. However, you get something now and again, which, although it may fall short as an exhibition flower, is prized as of decorative value. Phyllis Mary is one of the latter. This being one of my earliest seedlings I have grown it on from year to year under a number and owing to want of space spoke of discarding it last year, but was met with such an amount of opposition that this year I decided to name it. I was told it was a favourite as a cut flower. Whether it will be a favourite outside the home circle remains to be proved.

It may be interesting to those who wish to try their hand at raising new varieties to state briefly the way to go about it.

The fertile organs, the three stamens which bear pollen, and the pistil which bears a three-cleft stigma on a very long slender stalk, are clearly visible and easily accessible when the flower opens. It is as well to have a loose muslin

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bag to slip over the spike to be tied at the bottom to prevent any outside interference with your operations. Having selected a spike for intercrossing remove the first flower to open (often the first flower does not show the true character of the remaining flowers on the spike), and as the other flowers open remove, with scissors, the stamens; then when the three lobes of the stigma are seen to be spread out, lightly rub the upper surface with a ripe stamen from a flower of the other variety you have selected for the cross. This can be repeated with one or more flowers on the same spike, but I prefer not to use more than three flowers on any one spike. Afterwards cut the remainder of the spike off above the last flower fertilised. Keep the muslin bag on for a week or ten days and in about three weeks the swelling of the pods will give evidence of the success of your operation.

As soon as the pods begin to open, care should be taken not to allow them to remain too long on the spikes. They should be gathered and placed in a saucer in a dry, cool place until the seeds can be shaken out. The seeds may be sown in boxes and raised in the house, or they may be sown in the open ground at the end of April or early in May. I usually sow the first week in May in the open ground, and at any time if grown in the house. Germination is irregular in most cases, but the seedlings begin to appear in from five or six weeks. The seed bed should not be allowed to become dry.

How soon you may expect to see the result of your efforts depends on your own watchfulness. Care should be taken to keep the seedlings growing. Messrs. Lowe and Gibson exhibited a spike—the result of a Byron L. Smith × Nora at a meeting of the Royal Horticultural Society in October last. It was a fine bloom and rather of an unusual shade of colour. The seed was only sown in February of the same year. It will be interesting to watch the progress of this flower. If it lives up to its promise I think it will prove a popular variety. Messrs. Lowe and Gibson will, no doubt, surprise us this year with a number of seedlings which they have tried out. Messrs. R. H. Bath, Limited, had one particularly good red variety at one of the R.H.S. meetings, which I hope we shall see again this year under a name. Messrs. Kelway and Son always show a large number of new varieties each year, but this is only to be expected of a firm which has, I suppose, produced more varieties than all the English growers put together. Unfortunately, I did not see their new one named Palestine at the Holland Park Show. Mr. Edwards of Cambridge was also an exhibitor of seedlings during the past year and no doubt he has others which will come up for inspection during the present year. His Topsy was one I marked to try.

There are doubtless many others who have some seedlings which they are bringing along in the hope that they may meet with a favourable reception from the public when the stock is sufficient to justify their presence on the show bench. One amateur in the North wrote to me some time ago that he had one or two seedlings of merit and I hope that this year he will send some up to the R.H.S. meetings.

Up to the present, apart from Kelways, most of the new varieties have come from Holland, Germany, America and Canada. The flower is also popular in Australia and I think Messrs. Lowe and Gibson exhibited a blue variety which they informed me came from there. I also had two Australian varieties in one of my exhibits—The Blush, vivid pink, raised by Mr. F. Beacham, and Marie Lyon, also a pink, raiser unknown. I hope to try a few more Australian varieties this year.

The English catalogues have contained very short lists of late years, but I notice that Messrs. Barr's list has commenced to grow again. The only French catalogue I see is that of Lemoine and Son, which shows a falling off in the number of the older varieties, but they have a short list of some new introductions, of one of which, Mme. George Boulay, a Canadian writes as follows:—

"This year (1923) Lemoine introduced a super-variety, Mme. Boulay, with pure white petals and a rather small blotch of the most beautiful light cardinal imaginable. The combination was exactly to my taste, and therefore not just what some others will prefer. This variety is sold at a price altogether too high [The price was, and is, 10s. each] but I got one in a moment of weakness, and now want more. Prophecy is a poor game to follow, but if Mme. Boulay does not win her way, I shall be surprised."

To those who would like to try growing gladioli I would suggest a selection from the following varieties:—

LARGE-FLOWERED SECTION.

*Byron L. Smith, a light lavender, faintly lighter toward the inside, cream on the lower petals.

Challenger, a strong-growing plant, 4ft. high, flowers 5ins. across, rich dark orange red, a good self colour.

*E. J. Shaylor, deep rose, lighter towards the centre.

Loveliness, a beautiful cream coloured variety of good form and substance.

Incontestable, pure white, lower petals a carmine and orange blotch. Distinct and beautiful.

Jenny Lind, a pure soft apricot pink, throat pale yellow. An exceedingly refined and attractive variety.

Lustre, dark orange vermilion.

Mrs. Frank Pendleton, bright rose pink on a pure white ground with a large blotch of richest carmine red on lower petals.

Mrs. H. E. Bothin, something like the last named, but a more refined flower.

Nora, light violet blue, lower petals and throat with small spots of a trifle darker hue.

Golden Measure, a large, fine yellow, well formed flower spike, tall and strong plant. This and "Gold" are no doubt the finest yellows at present.

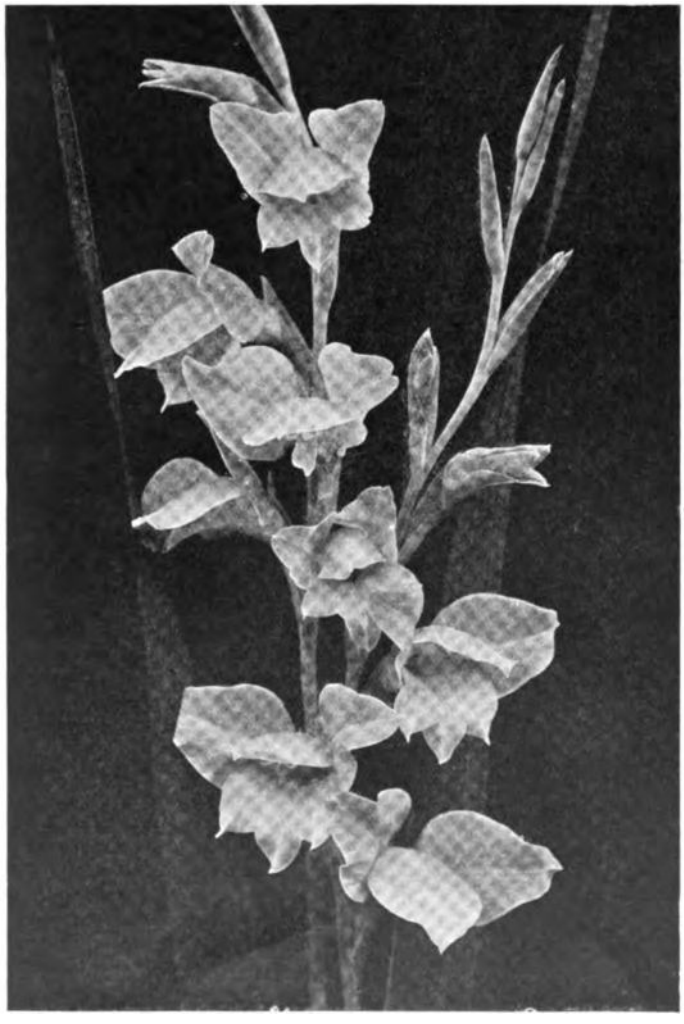
Red Canna, a tall rich dark scarlet red.

*Red Fire, entire flower of richest pure self-coloured bright red.

Rev. Ewbank, a light lavender or porcelain blue, early.

Baron Joseph Hulot, dark violet, bordering blue.

Purple Glory is a very deep velvety reddish maroon, blotched nearly black; extra strong grower, excellent substance, beautiful and distinct.



NYDIA, A PRIMULINUS HYBRID.
A bright apple-blossom pink shaded with rose.

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White Giant.—A Dutch variety which differs entirely from Kunderd Giant, white.

*Mary Pickford, an early variety, the creamy or sulphur shade is more pleasing than the dead white of White Giant.

*Snow Glory, one of the grandest gladioli. It is white, very faintly sulphured on the lower petals, with a fine iris blue line. This was one of the high-priced ones and is only slightly cheaper than it was.

*Perfect Peace, white with a pale pink stripe on the lower petals.

INTERMEDIATE SECTION OR MYRA TYPE.

Alice Tiplady.—This is perhaps the most popular flower in this section and might be taken as the type, but it is not so tall as Myra. The colour of Alice is rich orange saffron, quite solid, faint lines on the lower petals. Slightly ruffled.

*Butterboy, an extra tall, strong plant with large buttercup yellow flowers, nicely spaced on spike.

Linton, tall salmon rose petals bordered with a deeper shade, lower petals golden, veined rose. Heavily ruffled.

Myra, a giant flower, deep salmon over yellow ground; yellow throat with pink lines; tall slender stem.

Midsummer Dream, a geranium red self.

Primunella, a very beautiful ruffled butterfly orchid-like flower.

Jewel, a new primulinus, clear salmon pink, with golden yellow throat.

Liberty, deep salmon pink, yellow blotch.

Sunrise, light yellow, shaded orange.

PRIMULINUS—NYDIA TYPE.

Altair, extra tall, of finest salmon saffron.

Bobolink, tall, slender spike, orange tinted yellow, with entire lower petals of richest deep daffodil yellow, deeper in throat.

Faun, bronzy pink on yellow ground.

Elberton, tall, finest creamy yellow.

Golden Girl, a rich golden yellow.

*Hermione, salmon orange, red blotch on yellow ground.

Nydia, a bright apple blossom pink shaded rose pink.

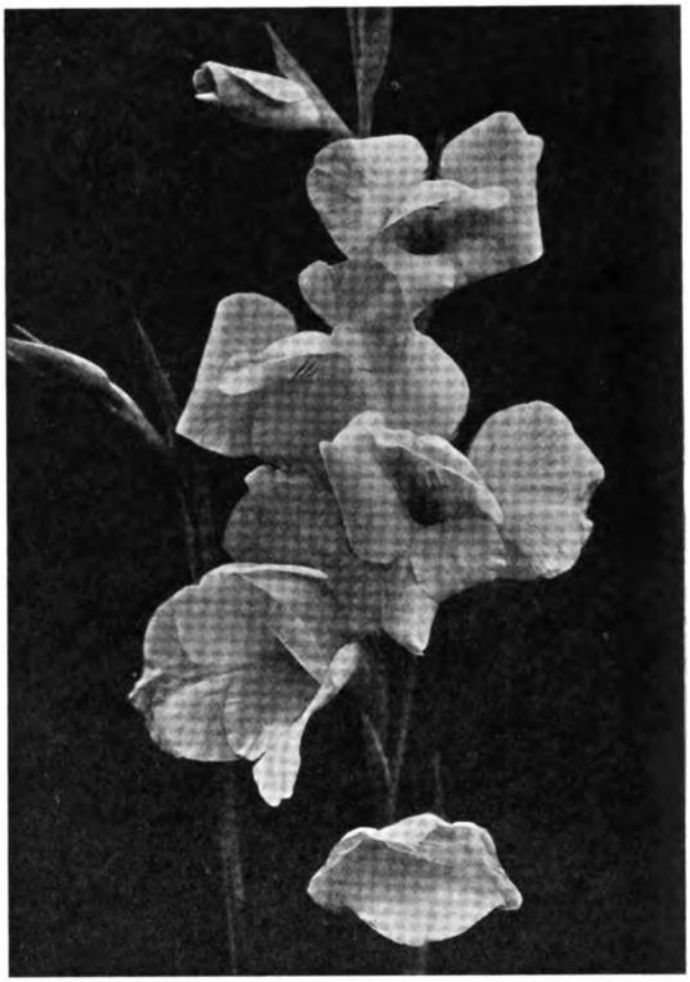
Orange Brilliant, apricot orange.

*Souvenir, yellow, perhaps the most popular of this colour.

Scarletta, outside dazzling scarlet, inside fiery cinnabar.

Those varieties marked with an asterisk have received the A.M. of the Royal Horticultural Society.

To those starting, I would only add, do not buy too many of one kind. Tastes differ, and the purchase of more varieties the first season will enable you to select, not only what you like best, but also those that suit your own soil.



A BEAUTIFUL GLADIOLUS, LIBERTY.
Deep salmon pink with yellow blotches.

NEW AND RARE CONIFERS

BY E. H. WILSON,
OF THE ARNOLD ARBORETUM.

JUNIPERUS SQUAMATA VAR. FARGESII.

THIS handsome juniper is an arborescent form with recurving and hanging branchlets, native of the mountains of western Hupeh and Szechuan. Usually it is a small tree from 15ft. to 40ft. tall, but that it grows to a much larger size the accompanying photograph attests. The tree depicted was 85ft. tall, with a trunk 22ft. in girth, and by far the finest specimen of its kind met with on my travels in western China. In large trees the trunk usually divides at about 10ft. above the ground into several erect stems; the lateral branches are ascending-spreading with recurving apices, and the slender branchlets are quite pendent. It was discovered round Chengkou-ting in north-eastern Szechuan some time between 1892 and 1900 by Père Farges. In 1908 I collected seeds from the large tree of which the picture is given, and these have reproduced the fine qualities of the parent.

Like many other junipers, J. squamata is a polymorphic species. The form to which the name was given is a low-growing plant which closely hugs the ground, and was introduced into England from Sikkim about 1836. In gardens it has been confused with the Japanese J. procumbens, and sometimes masquerades as J. pseudo-Sabina, both quite different plants; but neither under its own or any other name is it as common in gardens as it deserves to be.

Besides this type and the var. Fargesii, there is another tree form which has been named var. Wilsonii. This is a fine tree fairly common in sheltered gullies in western China and is particularly abundant on the higher, forested slopes of Mount Morrison in Formosa. At its best this is from 60ft. to 75ft. tall, with a fine straight trunk and horizontally disposed branches. This variety was introduced in 1893 from north-western China by Messrs. Vilmorin Andrieux et Cie., and plants raised from seeds received from this firm are growing in the Arnold Arboretum. In 1909 I sent seeds to the Arnold Arboretum from western Szechuan, and many plants from this source have been distributed.

Yet another form is var. Meyeri, which is an upright shrub from 5ft. to 6ft. tall, with dense, short branchlets and bluish grey foliage. This ornamental plant was introduced into America from Chinese gardens in 1914 by the late F. N. Meyer, who sent it to the United States Department of Agriculture.

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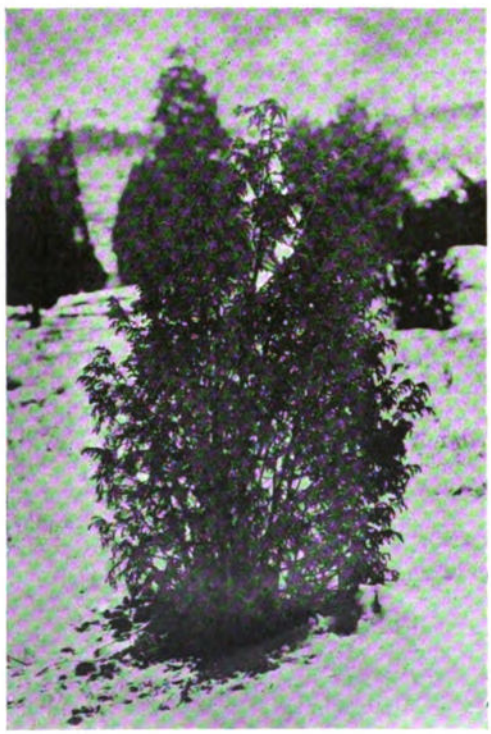
JUNIPERUS CONFERTA FROM THE JAPANESE SEASHORE.

In its various forms Juniperus squamata is the common mountain juniper of central and western China, and extends its western limits to the Sikkim Himalaya and its eastern to the high mountains of Formosa. Throughout the alpine regions of the Chino-Tibetan borderland it covers immense areas between elevations of 12,000ft. and 16,000ft., an altitude higher than any other woody plant except the diminutive Ephedra Gerardiana var. sikkimensis. I have also collected it on the crumbling summit of Mount Morrison (13,075ft. above sea level) in Formosa. On mountain-tops and wind-swept slopes it is prostrate or nearly so, and covers vast areas. Where the contour of the country offers some protection from wind it is a shrub of tangled growth from 4ft. to 6ft. high, with spreading interlacing branches, and forms a perfectly impenetrable thicket. In sheltered gullies and in the forests of silver fir it is a tree often of large size. The branches are used for incense in the lamaseries and houses of the Tibetan and related tribes.

Such is the story and geographical range of J. squamata, the ecological forms of which come fairly true from seed and deserve to be better known in English gardens.



A SEEDLING OF JUNIPERUS SQUAMATA VAR. FARGESII

JUNIPERUS CONFERTA.

This is a littoral species with a remarkably wide distribution along the seashores of the Japanese Empire, having its southern limits in the Liukiu Islands and its northern in Saghalien. The habit is always prostrate, and it usually forms dense broad mats; but where it is not crowded, as on recently formed sand dunes, the trailing branches are flagelliform. The leaves are very numerous, narrow, linear, with a fine white band above, pale green with a prominent keel on the underside, and taper to a spiny point. The fruit is globose, bloomy black when ripe, three-seeded, produced in great abundance, and is very variable in size.

This juniper was discovered in 1854 by the American botanist, Charles Wright. It was introduced into cultivation by seeds collected by me in 1914 and sent to the Arnold Arboretum. Though quite a common plant in Japan, it seems to have been overlooked by previous collectors, and was, indeed, unknown to Japanese nurserymen and gardeners until I brought it to their attention in 1914. It is essentially a seashore plant and is quite unaffected by the salt spray and high tides. When it comes into more general cultivation, it might form an association with Pinus maritima for reclamation work on sandy coasts.

The whole plant is a cheery bright green throughout the winter and should be of great value for covering sand dunes and as a ground cover in shore gardens. It has proved hardy in the Arnold Arboretum, though it continues to grow late into the autumn, and the tips of the branches are often killed back by winter frosts. On Long Island, New York, it is perfectly happy. In the south and west of England this juniper should flourish.

(To be continued)

J. SQUAMATA VAR. FARGESII, 85 FT. TALL IN CHINA.

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THE ART OF BUDDING

BY L. B. STEWART
(ROYAL BOTANIC GARDEN, EDINBURGH.)

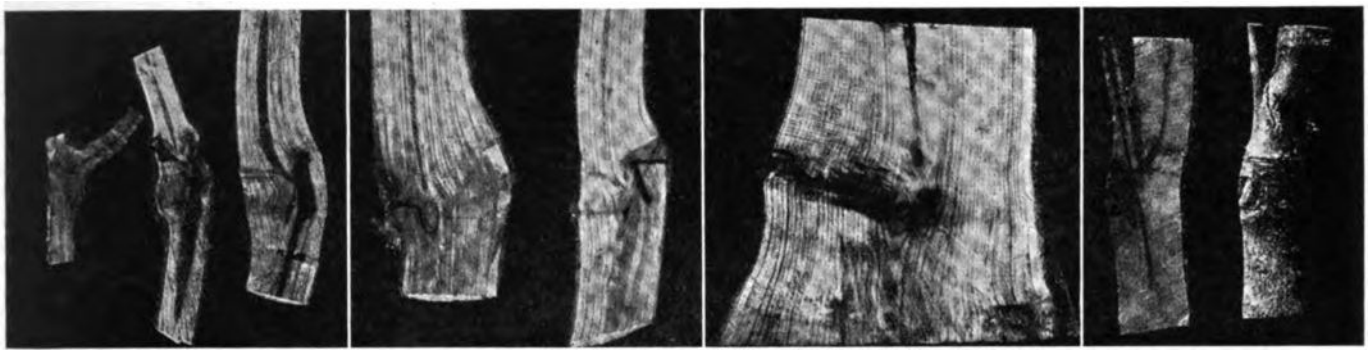
BUDDING of fruit trees, roses, acers and other plants is a very well known way to produce on a large scale. A great many of the hybrids, or varieties, or sports, of a species cannot or will not lend themselves to propagation by vegetative methods, *e.g.*, cuttings or layering, or cannot be raised true from seed. The process of budding is a very simple one, and can be done by anyone after a little practice and ordinary care, and with the following facts kept constantly in view: The stocks must always be in an active state of growth, so that when the operator cuts the bark of the stock, it can be lifted easily from the wood, in which case no tearing takes place. Should the bark be in the least hide-bound there will be no success. The scions must be absolutely fresh, and when the buds are taken off the leaves should be removed, only leaving enough leaf stalk attached to make the buds easily handled. The eye of the bud must be intact. If the eye of the bud is fractured or is removed, then no success will be attained. In removing buds from the scion it is best to start removing the buds from the apex of shoot first. It will be found that the first, second and third buds next to the apex of the shoot are seldom used because they are not firm or mature, and often are so small that they are difficult to handle.

The insertion of the blade takes place about half an inch below the bud. After the knife blade has passed the bud, the thumb of the hand presses against the then stationary blade and the bud is torn off towards the apex, after which the bud lying in close connection with the wood is removed. The following action must be done quickly: Raise the bark and with the one hand hold the bark portion firmly, with the other hand remove wood portion with a sharp jerk. The tail end of the portion torn off is only used for handling, and when inserted in the stock is cut off at the top of the "T," so that it fits exactly into the cut of the stock.

The preparation of the stock is an important process. With some stocks, such as roses, the soil round the neck of the stock is removed, so that the bud is placed in a position as near to the root of the stock as possible. It will also be found that the bark is at that part thinner and much easier to work with than bark on the level or above the level of the soil, and there is less room for suckering.

When budding, one comes across plants which have varied thickness of bark. It is very difficult to tell exactly how deep the knife should be inserted when making the cut, but when the operator inserts the knife blade it makes a click, which is not heard but felt by the operator, thus letting him know that he has reached the bottom or cambium layer of the bark. Bad budding (Fig. 1, left) is often the result of carelessness, and what really takes place is that the knife blade is inserted too deeply and goes beyond the cambium layer into the wood. At that particular part of the stem, with the cutting of the stem, air gets into the wound and the cells which have been cut become oxidised, so that healing never takes place in the centre of the bud portion of the stem, but goes on round the outside of the bud portion of the bark. The result of this is very evident when, on going through a brake, you may see plants which have misthriven and will never make good plants for the purpose for which they were intended. The operator then completes the "T." After he has made the horizontal cut in the bark he inserts the point of the blade at the required distance below the top cut—say 1½ins. or so, according to the size of the stem and kind of tree or bush which is being worked. The main thing to be observed is that when the blade comes to the top and has reached the horizontal cut, the bark is flicked with the point of the knife, thus enabling the bark raising portion to be inserted with greater ease. Some budders have different methods of making their "T." I think that the top of the "T" is better made at an angle of 45°, as it has the effect of draining any moisture from the far side of the stem, whereas if made horizontally there is a tendency for water to lodge at the top cut surface, at close proximity to the introduced bud.

The tying in of the buds is generally an operation which is done by a boy if budding is being done on a large scale, but when a few are being done the budder generally does it himself. The tying should start at the base and finish at the top. When the tie reaches the top of the bud it is advisable that it should be tighter than at the start, thus ensuring a good union. If there should be a slight flaw in the budding, the tight tying at the top stops the flow of sap. In finishing off tying, the knot should be at the back of stem.



From left to right: 1, CARELESS BUDDING, MISTHRIVEN APPEARANCE IS EVIDENT; 2, SHOWS MOVEMENT OF BUD; 3, TERMINAL POSITION REACHED; 4, NOTE LENGTH OF SNAG AND EFFECT OF NON-REMOVAL.

After budding has taken place, the top part of the stocks can be reduced to a short length to ensure that too much draining of the sap, or protoplasm, from the bud does not take place. (Fig. 4.) These snags are left on until the following year's growth is completed, but during the season the snags are used for tying the young bud growths in order to support them in case they should be broken off by the wind. They also act as safety valves to the buds where stocks may prove to be too vigorous, as they sometimes throw the bud out by exuberant growth. When snagging starts they are cut off as near the buds as possible, then the movement of the bud commences.

To all budders it is well known that when the bud is inserted it is placed in the side of the stem and is in a lateral position. As the years go on, however, the bud begins to move (Figs. 1 and 2), and after a few years it will be found that it has travelled round an angle of 90°, or a fourth part of a circle, thus forming a sympodial axis, and has attained the terminal position (Fig. 3). The position of the stock snag has been forced to the side and is now lateral. The growing vascular strands between the stock and bud are continuous after the first or second year's growth has taken place. On the opposite side from the bud the snag end heals up by occlusion. It will be found, however, that in many cases the healing is never perfect at this particular point, and is always a weak portion of the plant. It is, therefore, important never to have the snag end side of the plant facing the prevailing winds, as it proves an easy victim to the gale. The mark left in the healing process is very narrow, being the thickness of the snag, so that only a very small part of the stem is not healed. There are cases, however, where this healing is complete, the only indication being the cross-grained wood in the longitudinal section.

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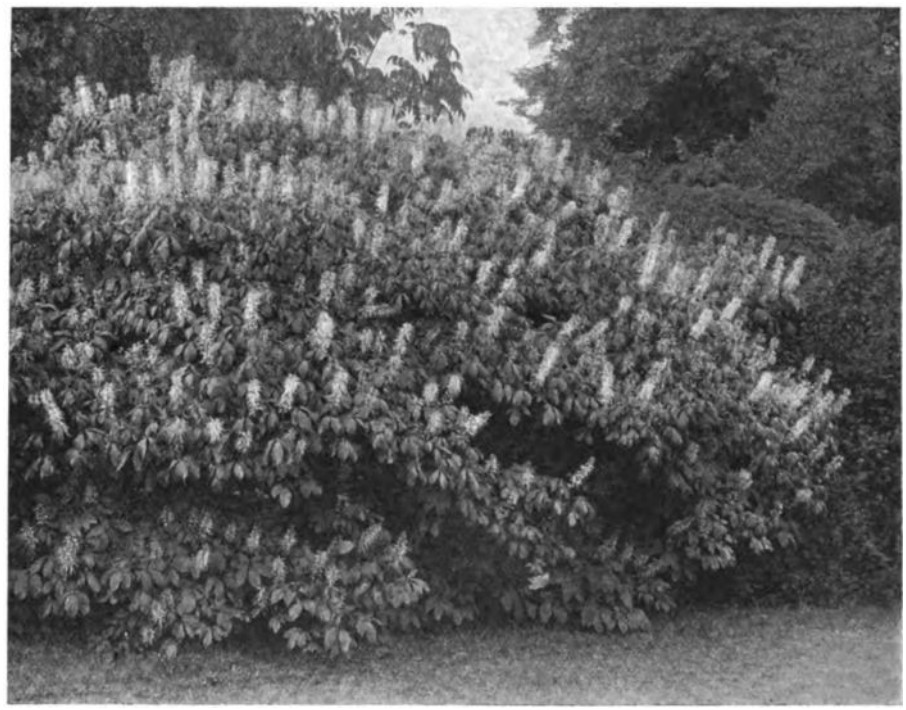
FLOWERING SHRUBS FOR A MODERATE-SIZED GARDEN.—IV

BY W. J. BEAN.

LATE-FLOWERING SHRUBS.

THE great majority of trees and shrubs, perhaps nine-tenths of them, flower between the end of March and the end of June. Still, a considerable number come into bloom from July onwards, and in any select list some of them must be included. A number of these have already been incidentally mentioned, but there are yet others that deserve separate notice. Everyone who sees it in flower is attracted by Eucryphia pinnatifolia, of which the flowers open in July and August, each 2ins. to 3ins. wide, white with a conspicuous cluster of yellow stamens in the middle. Like many Chilean shrubs, it likes moist, cool conditions at the root, and in the hot, dry Thames Valley, at any rate, is happier associated with other shrubs that shade the ground without unduly robbing it. Privets in a garden are anathema to many people, and quite rightly so; yet three of them may escape maledictions, viz., Ligustrum chinense, flowering in July; L. lucidum, an evergreen flowering in September; and L. Quihoui, still later. The last is not well known, but Mr. Vicary Gibbs has appreciated its merits at Aldenham and showed it well last autumn at Vincent Square.



A SHRUBBY ALLY OF THE HORSE CHESTNUT, ÆSCULUS PARVIFLORA.

The shrubby veronicas are too uncertain in regard to hardiness to be relied on to any great extent; but V. Traversii flowers in July and is always a pleasant-looking shrub until it gets too old; still, it is increased so easily by cuttings that its renewal is a small matter. A garden variety called Autumn Glory, with bright blue flowers, seems very hardy and gives a bright effect for many weeks in late summer and autumn.

Among shrubs flowering in July a high place must be given to Plagianthus Lyallii for the profusion of beautiful pure white flowers it bears. It comes from New Zealand and in very hard winters may be killed back to ground level near London, but I have never known it to be destroyed entirely. Two forms are in cultivation, one with smooth leaves and of purely shrubby habit; the other with downy leaves, a sturdier more tree-like habit, more cup-shaped flowers and thicker petals. While both are good, the latter is preferable.

Tamarix pentandra, which came into cultivation some twenty years ago as "hispida æstivalis," a wrong name that still sticks to it in many places, is a very pleasing tamarisk, flowering in August and September, its branches then transformed into long slender plumes of rosy pink blossom. It can be propagated by cuttings of winter wood as easily as a willow, and may be pruned hard back every spring if it is desired to keep it under 5ft. in height. Of about the same hardiness as the Plagianthus and similarly affected by very hard frost is Abelia grandiflora, a hybrid which goes under several wrong names, including "chinensis" and "rupestris." It is inferior in beauty to A. floribunda, a tender Mexican species needing the protection of a wall, but is the best of the kinds hardy near London. Its flowering time extends from July to October, during the whole of which period it bears a succession of its pink-white, funnel-shaped flowers.

ONE OF THE MOST ATTRACTIVE HYDRANGEAS PETIOLARIS.

The shrubby ally of the horse-chestnuts, Æsculus parviflora, a neat bush with handsome leaves and terminal erect racemes of pink and white blossom, opening in July, has been too much neglected. The escallonias mostly bloom after midsummer, and the hybrids known as langleyensis and edinensis are pleasant, graceful evergreens bearing clusters of rich red flowers. Of hypericums I consider the best, on the whole, is H. patulum var. Henryi, a comparatively recent acquisition from China, very hardy and easily cultivated, and bearing fine clusters of bright but rich yellow flowers from July onwards. Buddleia variabilis is a

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somewhat gaunt plant, but at least one of its varieties introduced by Wilson—either Veitchiana or magnifica—must be grown for the splendid panicles of lilac or violet-purple blossom, fragrant and beloved of butterflies.

There are many varieties of Hibiscus syriacus in cultivation, from which may be selected totus albus (pure white) and cœleste (blue); they need a well drained soil and full exposure to sunlight. A hot dry September is needed to bring out their best qualities.

The most attractive of hydrangeas to my mind is petiolaris grown as a shrub, although naturally it is a climber; it also flowers in June. Of the rest, H. paniculata grandiflora and H. arborescens grandiflora, flowering two or three months later, are most to be recommended. All these have white flowers.

YUCCAS.—So different are the yuccas in general aspect from any other hardy shrubs, and so distinct a note do they strike, that the genus cannot go unrepresented in our select garden of shrubs. Undoubtedly the most reliable of them all is Y. recurvifolia, a very hardy plant succeeding in any sunny position and pretty indifferent as to soil. When crowned in late summer with its immense panicle, 2ft. to 3ft. high, of creamy white flowers, it always excites interest and admiration. Y. gloriosa has an even longer panicle (occasionally 4½ft. high) and is quite as hardy; but sometimes, especially after flowering and in snowy winters, damp settling in the crown is apt to set up decay. Yucca flaccida and filamentosa do not develop stems above ground level, and the plants keep about 2ft. high; they also develop fine panicles of yellowish white blossom. Both like a well drained position.

FRUIT-GROWING IN SMALL GARDENS.—III

BY RONALD G. HATTON, M.A.,
OF THE EAST MALLING RESEARCH STATION.

SUITABLE VARIETIES FOR THE SMALL GARDEN.

WITH regard to selection of varieties of top fruits for the small garden, as far as possible, your aim should be to choose for a complete succession varieties of moderate vigour, good quality, varied flavour and sure cropping capacity.

APPLES.

In the case of apples my choice would probably be the following list, and with possibly two or three exceptions, I should grow my selections as single cordons or trained trees on Jaune de Metz Paradise (Malling Type IX). I should probably grow Stirling Castle as a bush or pyramid on a more vigorous root such as Broadleaved English Paradise (Malling Type I). Allington Pippin would also be more manageable in bush form with a 2ft. stem, or it might be grown as an espalier.

APPLES FOR THE SMALL GARDEN.

Culinary.—Not too many.

Early Victoria or	Earliest apple tart	July.
Lord Grosvenor	Good in North	August.
Stirling Castle or		September-October
Rev. W. Wilkes	Splendid baking	
Lane's P. Albert		November-March.
Edward VII or		January-April.
Monarch		

Dual Purpose,

Allington Pippin, useful, but prune lightly.	October-December.

Late-Flowering, for frosty gardens.

Royal Jubilee	Culinary	October-December.
Court Pendu Plat	Dessert	December-March.

Dessert, a succession of fine quality and varied flavour.

Langley Pippin	approx.	August.
St. Everard or	,,	September.
Lady Sudeley	,,	,,
James Grieve	,,	October.
Ellison's Orange	,,	,,
Egremont Russet	,,	November.
Cox's Orange Pippin	,,	November-December.
Christmas Pearmain	,,	December-January.
Blenheim Orange	,,	December-February.
Orleans Reinette	,,	,, ,,
Upton Pyne	,,	January-March.
Belle de Boskoop	,,	January-April.
Heusgen's Golden Reinette	,,	March.
Duke of Devonshire	,,	April.
May Queen	,,	May.
Easter Orange	,,	June.

A list such as this may require some adjustment according to local conditions of climate and soil, but the possibilities of adaptation in a sheltered garden with made soil are far greater than under open conditions.

If two or three cordons each of my list were planted one might look to average, on a very conservative estimate, 3lb. or 4lb. of good fruit per unit. On our Cox's Orange Pippin cordons on Jaune de Metz stock (Type IX) in their second year we averaged over a dozen good fruits per cordon or over 2½lb. Each apple was as fine as the specimens we see in the shops, at 6d. each, yet you could have bought the maiden tree outright for 2s. Not a bad investment! I have seen the intractable Blenheim Orange, on the same stock, bearing several nice fruits in its second season, and we ourselves have had other slow cropping varieties, such as Bramley Seedling, cropping heavily at two years.

PEARS.

I think I should confine my pear growing to a very few summer and autumn fruits of known cropping capacity, and I should most certainly grow these in dwarf form upon Angers quince (Malling Type A), wherever possible.

My selection might be as follows:—

Doyenne d'Ete	Dessert	July.
Laxton's Superb	,,	August.
Souvenir de Congrés	,,	September.
Dr. Jules Guyot	Appearance	September.
Conference	Dessert	October-November.
Dorondeau	,,	,, ,,
Emile d'Heyst	,,	,, ,,
Beurré Hardy	,,	October.
Roosevelt	Large	,,
Charles Ernest	,,	November.
Fondant de Thirriot	,,	November-December.

CHERRIES.

My stone fruits would be still more limited. If I had a piece of north wall or an ugly shed to hide I should plant a Morello in trained form, which could be protected from birds, and, if I wished to break the monotony of trained trees for sake of picturesqueness, I might work into my scheme a standard Flemish red cherry, so sure of cropping, so good for bottling, less attractive to birds than the sweet cherry, sweet of aroma, and dainty and fairy-like in its growth and colouring, lending the atmosphere of a Kate Greenaway picture. Both these cherries are self-fertile.

PLUMS.

My choice of plums would also be restrained. Unless I had a good warm wall (in a latitude unsuitable for outdoor peaches), I should not attempt a wall plum, despite the lure of the uncertain gages and Coe's Golden Drop! The growing of plums as cordons is no very easy matter at the present time. Though some root stocks are found to encourage earlier fruiting and give slight restriction, as yet it is only possible as a rule to grow cordon plums by lifting them every two or three years. The small gardener has usually neither time nor inclination to go to this trouble. I should therefore confine my selection to a few medium-growing, sure-cropping self-fertile varieties of general purpose, and I should only work these in if space allowed.

Purple Egg or Czar	Culinary	August.
Utility or Early Transparent Gage	Dessert	August.
Victoria		Early September.
Burbank's Giant Prune	Culinary	Late September.

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In our small gardens in the South, South-East and West, we are jealous of any south wall space for an outdoor peach. Hale's Early (July) is probably the hardiest and even succeeds far north. Goshawk (August) is also hardy and delicious. Hardwicke (August) is probably the hardiest nectarine, but the small gardener will be wise to limit his ambitions in this direction or he will be apt to find that the tying in and disbudding of his precious wall fruits will occupy a disproportionate amount of time. He will be pleasantly surprised, however, if he obtains a three year old fan-trained peach, and keeps it well supplied with moisture in the initial season, how quickly he may produce a few fine coveted fruits, and cover his wall.

In this question of selecting fruits, science has again helped us. We now know that many varieties will set little or no fruit if their blossom is not cross fertilised. We know that other varieties can stand alone and still crop. Science has helped to tell us which varieties to plant together and which to avoid. We need no longer have our solitary barren disappointing fruit trees, blossoming freely but bearing no crop.

SMALL FRUITS.

A few healthy bushes and canes of well chosen small fruits should in a large measure supply the current household needs, though the housewife will look further for her jam fruit. Half a dozen black currants, the same number of reds and gooseberries, to supply all needs, will require careful judgment and good management, however, for in many gardens the bush fruits are valueless through neglect or old age.

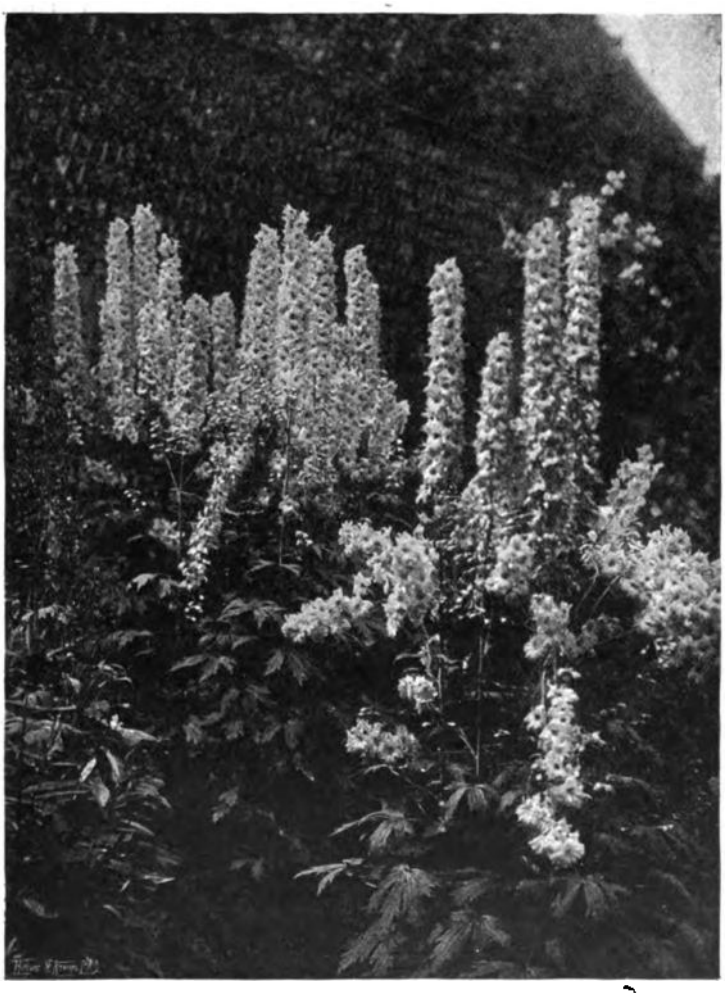
I have already hinted at my choice when I mentioned the well planned garden, so I need not say more.

CULTIVATION OF DELPHINIUMS

BY J. FRASER

FROM the earliest of gardening times delphiniums have been popular in this country. One of the parents of the fine modern strains was Delphinium elatum, a tall-growing species, native to Europe and the Himalayas. A great impetus was given to the raising of improved forms by the introduction of D. formosum from Armenia after the middle of the last century. This species brought large deep blue flowers tinted with indigo, and handsome finely divided foliage. These two were hybridised and the resulting forms crossed with one another, with the results we now see, but whose limits of improvement we do not yet know.

Delphiniums require a deep rich mellow loam to ensure their best development, but not every garden can supply this want. Every good British gardener, however, is equal to the occasion when called upon to grow them in the soil at his command. He will see that it is well drained, deeply trenched, well manured and otherwise ameliorated with the means best calculated to bring it into the required condition. Depth is necessary to prevent it from getting dried up in summer, whether the soil is light or heavy, for delphiniums require a steady and ample supply of moisture all the summer through, especially during May, June and July, while the stems and the long spikes of bloom are being produced. In addition to manure, sand and road grit will open up the heaviest of soils, while depth of culture and manure will greatly improve the light ones. Copious supplies of water may be given to both these classes of soils during periods of drought with advantage to the flowers, while it is always open to mulch the plants with manure or something else that will conserve the moisture where copious watering is out of the question. Frequent stirring of the soil with the Dutch or the flat hoe is almost as good as mulching, and certainly a better expedient than frequent driblets of water, which cake the surface soil without penetrating it, for hoeing is then more imperative than ever. No good gardener would grudge the necessary preparation of the soil, but consider himself well repaid in proportion to the results. This is no more than any other class of herbaceous plants requires, and delphiniums are not in any way exacting in this respect. Indeed, they may be planted in any well kept herbaceous border with every assurance of success.



DELPHINIUMS, ONE OF THE GREATEST JOYS OF THE SUMMER BORDER.

PROPAGATION.

This is effected by seed sowing and by the division of named varieties to increase them true to name. In spite of the numerous magnificent varieties in cultivation, a great many people will continue to raise delphiniums from seed in the hope of getting something superior or different from those already existing. The ordinary seedlings are quite good for garden decoration when raised from superior strains of seed, but the discerning enthusiast will not rest content at that. The hope continually arises that something better will fall to his lot, so that the seed beds are eagerly and frequently inspected with the expectation of finding it when the plants are coming into bloom.

Seeds are usually ripened in abundance by the plants that are allowed to produce them, and for this reason can be procured cheaply from those who have collections of the best varieties. They can therefore be sown in any reasonable quantity. It should be remembered that delphinium seed, when sown in spring, often takes a long time to germinate; indeed, it may lie for twelve months before germination takes place. Much good seed has been thrown away as useless after having lingered for months without giving any results. This character of the seed is common to all the perennial and woody members of the crowfoot family (Ranunculaceæ). The remedy is to sow the seed as soon as ripe, or procure it early in autumn from the seedsmen or those who offer it. Shallow boxes should be drained and filled with any light soil such as that

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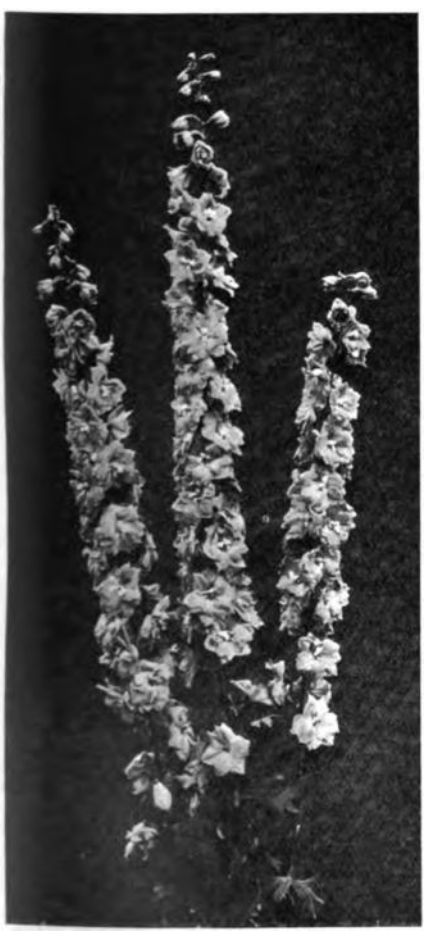
used for seeds generally. The seeds should be sown thinly, covered lightly and the boxes placed in a cold frame for the winter. When the seedlings have made a few leaves they can be transplanted into other boxes, or planted out directly in a warm or sheltered border.

When the division of established plants is intended, they should be cut down after they go out of bloom, say, in July or early August, so that the division and replanting can be carried out in September after the plants have sprouted or commenced to grow again. In light and warm well drained garden soils the old clumps can be dug up, broken into small pieces with roots attached, and replanted in well dug and manured soil. This can be done at any time from late August to the first week of November, but preference should be given to September planting. Where the soil is heavy, cold or wet, the planting should be deferred till spring, say, from the beginning of March to the first week of April. A good plan, where it can be accomplished, is to put the divisions into small pots, in a light open soil, and plunge the pots in ashes in a cold frame for the winter, and they will be established and ready for planting out at the stipulated time in spring. Young plants are subject to attacks of slugs and snails, especially in heavy or clay soils, where they are always plentiful, as moisture keeps the slugs active all the winter and spring. In cold frames they are easier to protect against the ravages of these pests.

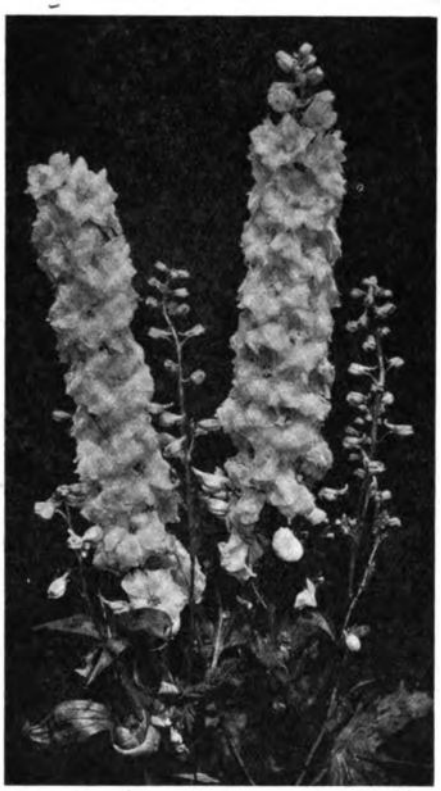


THE GENTIAN BLUE F. W. SMITH.

When planting delphiniums, a sunny or open position should be selected, for they are light-demanding subjects. The situation may be sheltered from the prevailing winds, but it should be open to the sun, because if too much shut in by trees the plants are liable to contract mildew badly. They may be planted along the back of herbaceous borders, or in other lines, according to height; or in massive beds by themselves, where they give a spectacular effect in the garden, the tallest being planted in the centre, and the dwarfer ones by gradation towards the circumference. The beds may be circular, oblong, or of any other shape with bold curves.

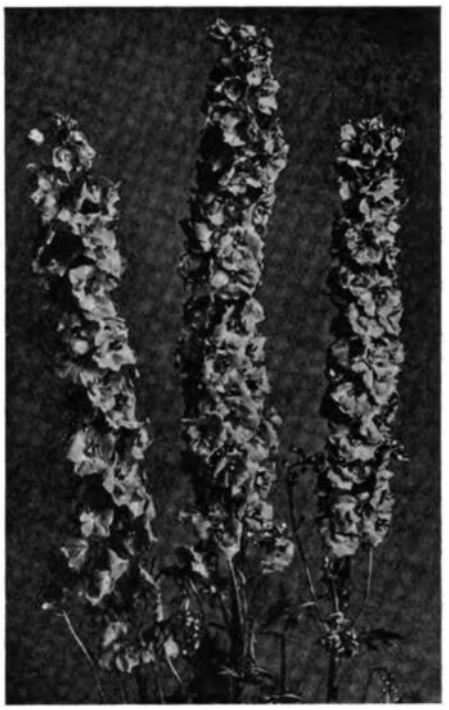
AFTER-TREATMENT.

This consists in hoeing the ground at frequent intervals, or mulching it where that is desirable or convenient, in giving



THE NYMPH, A DWARF VARIETY

copious supplies of water, if possible, during periods of drought, and in staking the stems at an early stage to prevent them from being blown down by winds or borne down by heavy rains. If broken-down stems are allowed to lie for a few days they rise up at the points and can never be straightened or made tidy again. Established plants should have their stems thinned when three or four inches high; and if very large spikes are desired, only one to three of the strongest stems should be retained and assisted with weak liquid manure. No difficulty will be found in their cultivation, if they are propagated by the above cool methods. The practice of placing stools in heat in early spring for the purpose of getting cuttings or offsets is to be deprecated. Where slugs and snails are troublesome, the crowns of the delphiniums should be



MASSIVE SPIKES OF SIR DOUGLAS HAIG.

covered in early autumn with a good coat of sharp coal cinders with the ashes sifted out.

THE BEST VARIETIES.

The beauty of a delphinium is due to the enlarged and petaloid sepals, as in aconitum, caltha and clematis. The petals are small and serve only as a guide for insects to the nectary or spur, and form the white, yellow, brown or black eye of the different varieties. The flowers become semi-double when a petal or more are enlarged, and these constitute a large number of the best modern varieties. The flowers become perfectly double when the petals and a greater or less number of the stamens become enlarged and coloured. In the sixties and seventies of last century a large number of these doubles were in cultivation, and collections of them were cultivated in beds or groups by themselves. They were characterised by small, close double flowers, and could be described as pretty without the transcendent beauty or size of the modern semi-double varieties. A few improved modern varieties are in cultivation.

It would be dogmatic to insist upon the best varieties in cultivation, because it depends very largely upon taste and individual fancy. By the consent of many General Sir Douglas Haig is considered to be the best to date. It certainly has massiveness, length of spike, and large, dark purple and blue flowers to commend it. The long spikes and very large, regularly placed soft blue and mauve flowers with large black eye of Millicent Blackmore will appeal to the fancy of many connoisseurs on account of their own intrinsic beauty. Some of the best of last year's new varieties were Blue Boy, with clear blue flowers and a small white eye; Mrs. Townley Parker, with huge, pale blue flowers, tinted with mauve shades and having

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a grey eye; My Lady, with very large, pale lavender overlapping flowers; and Sylph, which has large and pure white flowers, except for the pale creamy yellow eye. Unique was a novelty in structure, for the large blue petals were reflexed, exposing the black seed vessels. Whether or not this will give rise to a new and popular race remains to be seen.

It does not follow that the newest are the best, nor that they will sustain their reputation after a few years of cultivation. Some of the best of the older ones still command the admiration of the general public, and the very fact of their holding a leading place in collections after so many years is clear testimony to their general excellence. The white-eyed beauties include many of the finest that have been with us for many years, such as Rev. E. Lascelles (rich blue), King of the Delphiniums (rich gentian blue), Queen Wilhelmina (sky blue, flushed rose), Willie O'Breen (bright sky blue), J. W. Kelway (deep blue and plum), Lord Lansdowne (intense blue, without shading), Lord Curzon (marine blue and pale aniline blue), Mrs. W. H. Day (Cambridge blue, flushed pink), Cecilia (pale blue and pink), Mrs. W. Wells (rosy mauve on pale blue) and Duke of Connaught (bright gentian blue).

A few of the black-eyed varieties of surpassing merit are Amos Perry (rosy mauve, flushed sky blue), Twertonian (cobalt blue, of branching habit), E. A. Bowles (with very large rich gentian blue flowers), Dusky Monarch (purple on very large spikes), Mrs. Creighton (Oxford blue, with plum centre) and President Wilson (sky blue suffused with mauve). The above lists might be greatly extended to include really fine things, but The Alake with its stately spikes of rich purple flowers, marbled with blue, can scarcely be omitted from the nucleus of a collection.

Those who admire perfectly double flowers should not omit the rich ultramarine blue Rene Gilbert; the pale blue and soft pink Nora Ferguson; the dark blue Zuster Lugten; the light blue Wedgwood, shaded white; the gentian blue, white-eyed F. W. Smith; and King Bladud, a sport from the Rev. E. Lascelles, without its white eye.

There remains the Belladonna section, generally of dwarf and always branching habit, which makes them practically perpetual flowering and suitable for cut flowers or garden decoration. The old type has sky blue flowers, Semi-plena differs by being semi-double, grandiflora is rich blue, Lamartine is gentian blue with white eye, and Persimmon is a lovely sky blue. The two latter are the loveliest of the group.

VEGETABLE NOTES

BY GEORGE GARNER.

PRACTICALLY all kinds of seeds roots and tubers required for the summer and maincrop supplies of vegetables should be available now, and the majority of these the cultivator should sow or plant in March.

Soils, varying from light to heavy, or retentive, are usually in the right condition to be stirred and turned, thus retaining their freedom from adhesiveness in all kinds of weather when being dealt with.

POTATOES.—Before the end of the month the bulk of the potatoes should be planted. If a few early varieties are planted to risk late frosts, the naturally late-maturing sorts should be planted first and the remainder of the early ones nearer the end of the month or very early in April. Heavy soils manured last autumn will not require more at this date; but in the case of light land, well-rotted manure should be freely mixed with the soil, not placed in bulk in the drills and the tubers dropped on it. A few hours or days extra, as the case may be, spent in breaking up the lumps as fine as possible where retentive soils are met with, will prove very beneficial to the crop. Whether planting in drills, or by spade or garden fork and line, the soil should be left as light as possible on the sets, the latter being buried about four inches deep. The approximate distances between the sets and rows respectively are as follows: early sorts a foot apart in the drill; eighteen inches from drill to drill; second early, fourteen inches, twenty inches; late varieties, sixteen inches, thirty inches. In the case of a very robust-growing variety two or even six inches further apart will prove beneficial. A few very early tubers may be obtained by planting some sets at the base of a wall or fence, thus reserving more room in the open quarters for maincrops. Of early varieties, Sharpe's Express, Midlothian Early, Epicure and Arran Rose are all first class. As second earlies I would recommend British Queen, Arran Comrade, Great Scott, King George, the latter not a very good shape, but a heavy cropper and of good quality. For the maincrop, King Edward VII, Arran Chief, White City, Kerr's Pink and Majestic should give good results.

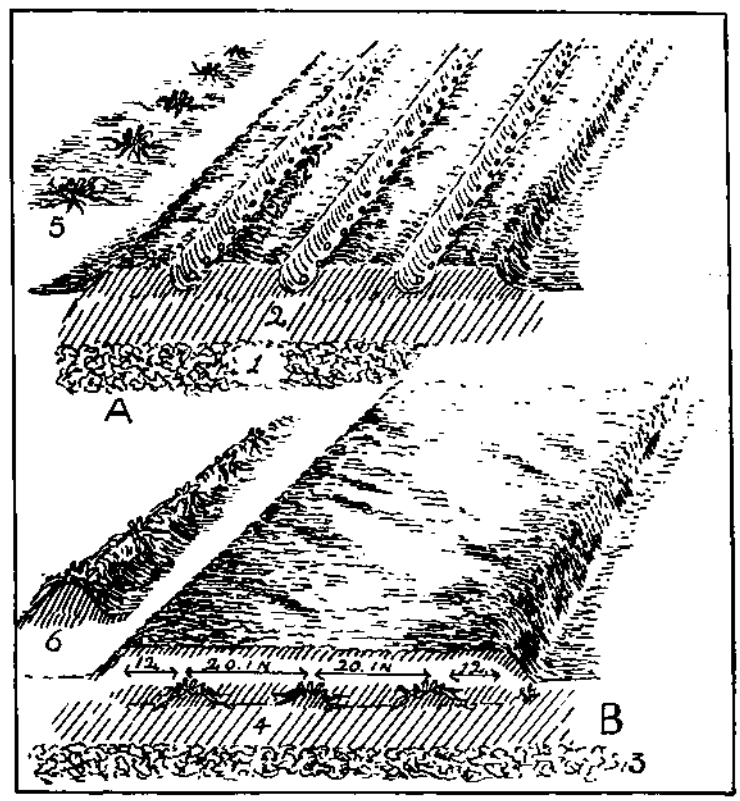
GLOBE ARTICHOKES.—It is usual to protect the old plants with leaves or litter during the winter. It may be remarked that such material left round the plants a day longer than is necessary weakens them. Remove it forthwith and any outside seared leaves and stalks of the plants. Surface dress with rotted manure and lightly fork it in. When the first stems appear apply a good soaking of liquid manure.

Sow seeds, also, as soon as the soil can be prepared, dropping several 3ft. apart in shallow drills 3ft. 6ins. asunder. Dig the soil deeply.

JERUSALEM ARTICHOKES.—To obtain the best crops prepare the soil as carefully as for potatoes. Plant whole, fairly large tubers 18ins. between each in rows 3ft. apart in an open situation. The plants should be hoed regularly and a big percentage of cooking-sized tubers will result. The white variety is the best.

ASPARAGUS.—Two generations ago more trouble was taken with this crop than at the present time, but not with more satisfactory results than now. Elaborately-formed and expensive beds do not always yield the finest produce. The cold, heavy dressings of manure are rarely put on during the winter, but thinner layers of lighter material. All such coverings should be removed, and the soil between the beds forked up lightly so that the fleshy roots are not disturbed. Early lettuces or radishes may, meanwhile, be grown in the alleys.

NEW BEDS should be formed and planted towards the end of the month in the south, and in April in the north. Sow seeds, also, if preferred to plants, about the dates named. Figure A shows at No. 1 how the lower soil should be well broken up and enriched with manure; No. 2 shows the portion of soil into which the roots of the young plants will enter at an early date and so well rotted manure should be used here with finer soil about 4ins. from the top free of manure, in which the seeds should be sown 3ins. deep in drills 20ins. apart. Figure B illustrates how roots should be planted. The distance between the rows should be 20ins. in this case, also, and about 16ins. from root to root in the rows. No. 3 shows the lower, well prepared layer of soil; a thorough breaking up of the stiff loam being important, while one observes in No. 4 the layer, fully 1ft. deep, enriched with rotted manure and the roots planted on small ridges 20ins. apart and about 4ins. deep. Where beds are formed the outside rows of



FIGURES ILLUSTRATE HINTS IN THE CULTIVATION OF ASPARAGUS.

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plants should be 1ft. from the edges to avoid the eventually undue exposure of the roots. Between every third and fourth row, and, between every bed, the alley should be 2ft. wide. Overcrowding of asparagus is a mistake as it results in weakly, almost worthless, growth. No. 5 shows the wrong way to plant the roots, while No. 6 illustrates the correct method. The formation of the tiny ridges may entail a little more labour, but the results warrant it, as in naturally moist soils the crowns do not sink in and decay. Connover's Colossal is a fine variety.

BROAD BEANS.—In heavy soils the plants do well if raised from seeds sown now, as they grow without check. Beck's Gem, dwarf, should be dibbled into shallow holes 6ins. apart in the rows and 1ft. from row to row. Early Mazagan should be similarly planted, allowing 3ins. more space between the rows. Green Windsor is also a fine variety and Seville Long Pod is not only early, heavy cropping and of fine flavour, but has pods of great length. For this and similar sorts allow 2ft. between the double rows and 8ins. between the seeds.

EARLY CAULIFLOWERS.—All autumn plants raised and wintered under glass should be fully exposed every day and the lights tilted every night. The latter should be removed altogether at the end of the month. Spring-raised plants will require more careful treatment in cold frames, but free ventilation night and day in fine weather and their final planting will be due about the middle of April. Early Snowball, Magnum Bonum, Erfurt Dwarf Early (Walcheren for mid-summer), Eclipse and Veitch's Autumn Giant for latest supplies are recommended.

BRUSSELS SPROUTS.—The autumn-raised plants will mainly yield sprouts from October to Christmas. A sowing of seeds in the open border will be necessary now, the resultant plants being available for sprouts from January to March next. Aigburth, Dalkeith and Scrymger's Giant all bear freely very fine sprouts.

SPRING CABBAGES.—The plants from an early sowing this year will require similar treatment to early cauliflowers, with the difference that a transplanting now in an open nursery bed for one month will fit the plants for their open quarters in the latter part of April. The soil should be hoed between the rows of the autumn-raised plants every week in fine weather.

Enfield Market, Little Pixie, Large York, and Improved Nonpareil are all good varieties to grow from spring-sown seed.

ONIONS.—The cultivator will now be anxious about the sowing of seeds in the open quarters and the treatment of box-raised seedlings. The soil will be in readiness, of course, for seed sowing, all except its surface preparation. Having raked the soil thoroughly and working into it a fairly liberal application of old soot and dry wood ashes, drills should be opened about 9ins. apart for the general crop and 1ft. asunder for a special one and the seeds sown in them thinly. Cover the seeds 1in. deep and finish the work by raking the soil in the same direction as the drills run—not across them. Ailsa Craig should be included for the supply of large bulbs; also Cranston's Excelsior; Bedfordshire Champion, Up-to-Date, White Spanish, very mild; Rousham Park Hero and James are beneficial for storing purposes. The plants raised in boxes should now occupy a cold frame and be hardening for the final planting-out in April.

VEGETABLE MARROWS AND CUCUMBERS.—For the maincrop supply, seeds should be sown in small pots in a frame. The resulting plants should be grown on steadily, as weakly specimens are almost worthless. The chief care should be to water carefully and prevent a check to growth. Young cucumbers should be subjected to more heat and moisture. A nice batch of these plants will be appreciated when the frames are cleared of their winter and spring occupants, such as half-hardy annuals and bedding-out plants. The Bush Marrow, Long White, Long Green, Moore's Cream and Pen-y-byd are all good. Telegraph, Tender and True, Blue Gown and Model are fine varieties of cucumbers with Prolific Ridge for the open bed.

TOMATOES.—These plants should be potted and planted out under glass as required and those for open quarters potted on and grown sturdily, keeping them safe from night frosts in frames or houses. Holmes' Supreme, Kondine Red, Sunrise, Ailsa Craig and Best of All are splendid free-fruiting varieties.

PEAS.—Readers are referred to our issue for February 9th, page 74, for notes in detail on garden peas.

SMALL SOWINGS should be made, only, of the following kinds this month, namely: Carrots (stump rooted), turnips, lettuce, spinach, French beans under glass. The maincrop celery should be sown, and the trenches for leeks and celery formed as the soil will be improved by exposure to air.

A SELECTION OF VARIETIES FOR SMALL GARDENS.

Asparagus, Connover's Colossal; broad beans, Broad Windsor; Brussels sprouts, Dalkeith; cabbage, Ellam's Early; cauliflower, Magnum Bonum; celery, Sulham Prize Pink; cucumber, Telegraph; leek, Improved Lyon; lettuce, All-the-Year-Round; onion, Rousham Park Hero; parsnip, Student; peas, Gradus, The Gladstone, Laxtonian; potatoes, May Queen, Arran Comrade, Majestic; radish, French Breakfast; spinach, Round-seeded; tomato, Sunrise; turnip, Snowball; vegetable marrow, Moore's Cream. The above selection applies to vegetables that should be dealt with during March and for gardens where not more than one or two varieties can be found room for.

SWEET PEA CULTURE

BY DONALD ALLAN.

THOSE who have not already sown their sweet peas should do so without delay. For exhibition peas sow two seeds in a small 60 pot in a mixture of one part old loam, one part leaf-mould, with a little sand added to keep the soil sweet. Place one small crock in the bottom of each pot with a little rough leaf-soil on the top to act as drainage. Fill up the pot to about one inch from the rim. Place two seeds in a pot and cover with about half an inch of soil, pressing firmly with the thumbs, but on no account make the soil hard. Leave a little loose soil on the top, as this absorbs the water and prevents the soil from getting sour. Now place the pots in a cool greenhouse, if possible, until the seedlings are just seen pushing their way through the soil; then remove to a cold frame immediately, as the young seedlings must not get drawn or weakly. Keep the lights on the frames for the first week, but after three days admit a little air in the daytime by tilting up the lights at the back about three inches. Close down every night. After the first week the lights can be removed altogether in the daytime, unless in very cold or wet weather. From now onwards the plants should be encouraged to grow away freely. As soon as they show their third pair of leaves the top should be pinched out. This will encourage strong side growths, which later on will form the main leaders. The plants, if gradually hardened off, should be ready to plant out in their flowering quarters about the middle of April, if the soil is in good working order. Do not work on the ground until it is fit, as there is nothing to be gained by hurrying if the land is wet and sticky, rather postpone the planting for a day or two. Very good results can be obtained by sowing the seed in boxes in rows and germinating in the same way as recommended for seed sown in pots.

The trench in which they are to grow should have been prepared in the autumn, but if this has not been done proceed at once to dig out a trench 2ft. wide and 2ft. deep. Some growers recommend digging the trench 3ft. deep, but I do not consider this is necessary. Stretch a line along where you propose digging your trench, running north and south for preference. Dig out the top spit and place it on the right-hand side of the trench, then dig out the bottom spit, placing it on the other side. Now scatter crushed bones along the bottom at the rate of a 6o potful to every four yards of trench. Fork this into the bottom, about four inches, and leave the soil rough. Then spread about three inches of well rotted cow or pig manure if the soil is at all light. Bear in mind that the manure for a spring trench must be old and well decayed. Fresh or rank manure is all very good for an autumn-dug trench but is too strong for spring work. If the soil is inclined to be heavy, a little stable manure should be mixed with the pig or cow dung. Failing stable manure, some rough leaf-mould or old garden refuse will do equally well. Commence to fill in the trench by shovelling the top spit back in the bottom, that is, the spit which was placed on the right-hand side of the trench. When this is finished, fork the bottom up to incorporate the manure and the soil well together, taking care not to go too deep to disturb the crushed bones, as they must be left right at the bottom of the trench. I do not recommend putting the manure in in layers, as I have found the roots get a check in coming into direct contact with a solid mass of manure, which is the cause of the lower leaves turning yellow and the plants getting a sickly appearance. Now fill in the spit placed on the left-hand side of the trench until the whole trench is completed. Give a good top-dressing of burnt wood ashes or burnt garden refuse to each trench

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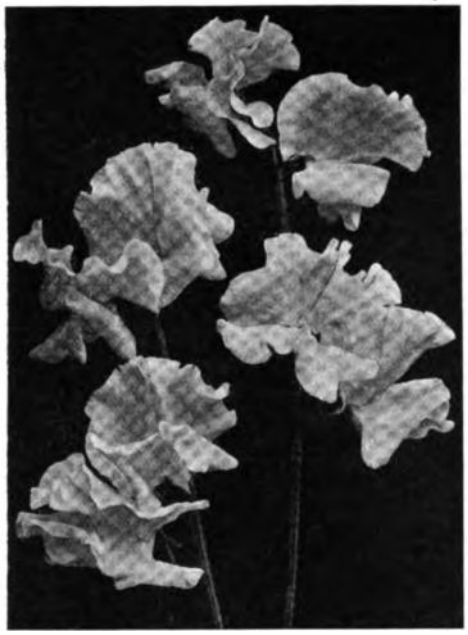

THE DEEP CREAM PINK VARIETY, PICTURE.

and fork in about three inches. If there is no burnt material at hand, dress the top of the trench with potash, about a 6o potful to every four yards, and leave it lying until the day before the sweet peas are planted, when it should then be forked in lightly. Sweet peas for exhibition should be grown on canes, bamboo canes for preference, as these last longer.

Commence to plant along the centre of the trench, placing the pots where they are to be planted one variety at a time. In this way the colours cannot get mixed. It is also necessary to have a few spare plants of each variety to be kept in reserve for any blanks that may have to be made up by the ravages of birds, mice, slugs, etc., and care must be taken not to mix them while in the frames. There should now be four leaders to be trained up from each pot, which can be carefully drawn over and secured to the canes on opposite sides of the trench. My reason for planting in the centre of the trench is that it is much easier when mulching time comes to push the manure into the roots of the plants without damaging the foliage than it would be if planted in a double row, as well as giving the young plants more root room before touching the sides of the trench.

For those who have sown their seed in boxes the plants must be carefully lifted from the box with a small handfork. First remove the end of the box, then the fork can be slid under the plants without injury to the roots. Shake out carefully and plant in the centre of the trench. This time there will be two leaders to be trained up the cane, one on either side of the trench.

When all the planting is finished, I would advise that the canes be got into position as soon as possible, placing them 6ins. apart and securing them to the wires which have been erected on the framework. This will help to protect the young plants from the cold winds. They must now be carefully watched, as slugs very quickly attack the young plants. To prevent this give each row a good dusting of lime, and what I have found to be a good plan is to plant an early row of lettuce between the trenches, as this often attracts the slugs from the peas.

In about three weeks the young growths will require attention, and any long enough must be tied to the canes to prevent them from being blown about and damaged by the wind. From now onwards they will require to be gone over at least twice a week to be tied up to the canes. Hoe along the rows occasionally to kill all weeds and keep the soil from cracking. If the plants are healthy and doing well, they should be showing flowering buds when they are about three and a half feet high. Now is the time to feed them with doses of weak liquid manure from the farmyard or from sheep droppings put into a bag and soaked in a tank or tub of water. Use this once a week to begin with, 1 pint to 3 gallons of water, applying a little stronger twice a week as the plants get older. Give the trenches an occasional dusting with Dobbie's Special Fertilizing Compound, and wash in with clear water, or it can be given in liquid form, 1oz. dissolved in a gallon of water. I have omitted using soot until now because I find it has more effect in giving rich colour to the blooms when used in liquid form after the plants have commenced flowering.

A CHARMING BLOOM OF HAWLMARK PINK.

The twenty-four most popular varieties for exhibition or garden decoration, all strong growers which can be grown on two leaders with excellent results are: Constance Hinton, undoubtedly the best white; Picture, deep cream pink; Royal Scot, scarlet; Mrs. Tom Jones, the best blue; Majestic Cream or Matchless, the best creams; Hawlmark Salmon Pink, deep pink; Royal Purple, best purple; Charity, crimson; Dignity, cream pink; Hawlmark Pink, deep dainty pink; Warrior, dark maroon; Elegance, blush lilac; Royal Sovereign, orange; The Sultan, best black maroon; George Shawer, giant salmon rose; Austin Frederick Improved, lavender; Doris, rose cerise; Jean Ireland, cream ground, picotee edge; Advance, white ground, flushed with rose pink; Valentine, blush pink; Gladys or Powerscourt, lavender; Youth, greatly improved Dobbie's Elsie with picotee edge; Renown, carmine; and Crimson King, crimson.

The best twelve: Constance Hinton, Royal Scot, Mrs. Tom Jones, Youth, Royal Purple, Charity, Hawlmark Pink, Royal Sovereign, Austin Frederick Improved, Renown, Doris and Matchless.

MAINTAINING A LAWN

BY A. OSBORN.

CONSTANT attention is necessary to maintain a lawn in good condition. The important items in the upkeep of a lawn are rolling, mowing, weeding and manuring. Most lawns are carefully mown and rolled, a fair number are weeded, but comparatively few are systematically manured. Each succeeding year, from spring to autumn, the grass is frequently in need of manuring. How many owners of lawns pause to consider how much plant food is taken from the ground by grass?

The occasional application of manure to a lawn need not interfere with its enjoyment. Except for the possible use of a little artificial manure during rain in summer, the application of manures to lawns should be done between October and February. The best of all manures for a lawn is a thin sprinkling of rotting stable manure during late autumn. Brushed or raked at weekly intervals, this will eventually disappear. Comparatively few readers will be in a position to use stable manure. Basic slag is one of the cheapest and most useful manures for grass. Apply a broadcast dressing of from 4cwt. to 8cwt. in autumn or early winter. This is a good manure to apply to soils deficient in lime. For soils containing plenty of lime, superphosphate is a good manure for application in spring, at the rate of from 2cwt. to 4cwt. per acre. Sulphate of ammonia is a useful lawn manure for spring application, using from 1cwt. to 1½cwt. per acre.

In a garden and its surroundings there is usually plenty of material available which, if systematically collected and stored, will provide an excellent dressing for lawns in early winter. The first item may be the old potting soil from the greenhouse, chrysanthemums, tomatoes, etc., weeds from the flower beds and vegetable plots, leaves, lawn mowings, manure from the poultry pens, the rabbit

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hutches and the pigeon lofts, will all be very valuable. Rubbish and sticks from the garden which will not readily rot can be burnt and the ash added to the heap. From time to time the heap should be turned over, adding lime, which improves the physical nature of sour soils and releases ingredients in the soil. It is desirable to commence a fresh heap of refuse about April in each year. The collection of the previous twelve months, if left to rot from April to September without adding any fresh material, will be ready for use in October. Whether the top-dressing is first passed through a sieve or applied straight from the heap to the lawn, and the refuse raked and brushed from the grass later, is a matter of choice.

Most manufacturers of manures prepare a special grass fertiliser. For the busy man who takes a pride in his small lawn, mowing, rolling and weeding it with care, this manure provides a very simple and easy means of maintaining a first-rate lawn. Special preparations are also on the market for destroying weeds on a lawn, such as a fertiliser to apply to lawns infested with clover (encouraging the growth of the finer grasses while checking that of clover), and also a worm-killer to apply when worm casts spoil a lawn.

RENOVATING A LAWN.

Poor, patchy turf or worn grass on a lawn can usually be traced to one of four causes: poor soil, badly drained ground, continued hard usage of a small area (*e.g.*, the nearest point of the lawn to a door or a short cut across the grass between two points), or failure to manure the lawn.

There are two ways of dealing with thin turf and bare patches of a poor soil. Lifting the turf, digging and enriching the ground, replacing the best of the old turf and making good the shortage by purchase, or lifting turf from elsewhere in the garden. If there is a prospect of rejuvenating the grass without such drastic treatment, there is the remedy of thoroughly loosening or pricking the surface soil, adding rich soil, wood ashes and manures. If the surface of the ground is not too hard, vigorous raking and cross-raking with an iron-toothed rake will loosen the soil. Failing this, lightly prick over the surface with a digging fork, whether there is grass or not, but, obviously, paying special attention to the bare patches.

Having thoroughly loosened the surface, sow seeds thinly or thickly according

CAREFUL LEVELLING WITH "BONING RODS."

to the state of the turf. Rake over the surface again, this time using, for preference, a short-toothed wooden rake. Prepare a rich compost of sifted soil, and proceed to cover the surface with a thin layer. If only a small area is involved, scatter with the hand. For large stretches of ground, use a shovel. The rich compost may be made up of old potting soil from the greenhouse, manure from a spent hot-bed or mushroom-bed, old turfy loam mixed with superphosphate; while, on heavy ground, sand also should be added to the top-dressing. Complete the operation by rolling with a light roller.

AN UNEVEN SURFACE.

To lift and relay the turf because of its worn and patchy appearance, commence by cutting the turves into 1ft. squares as indicated in Fig. 2, using a 10ft. or 12ft. rod and a turfing iron. To facilitate relaying, it is important that the turves should be all of one size and equal thickness. Unless otherwise stated, when turves are purchased they are 3ft. long and 1ft. wide. For convenience in transit they are rolled. It is easier, when lifting and relaying turves at home, to keep them flat, 1ft. square being a useful size. The flat lifting tool with a cranked handle in use at Fig. 3 is known as a turfing iron.

Having cleared the surface of turf, the ground should be forked over, digging in any available rich soil, old decayed manure, wood ashes, etc. Fresh manure should not be dug in, as, when this decays, almost invariably the ground sinks and leaves the turf uneven. After digging, tread and rake the surface well, so that it is firm and not liable to sink into holes. Then proceed to lay the squares of turf as depicted in Fig. 4. The wooden tool with a flat bottom is known as a turf-beater. It is fairly heavy, being made of oak, and is used to firm the turves after laying. Spread a thin layer of finely sifted soil over the surface and brush it to fill in any cracks that may occur between the turves. Complete the work by rolling with a light roller.

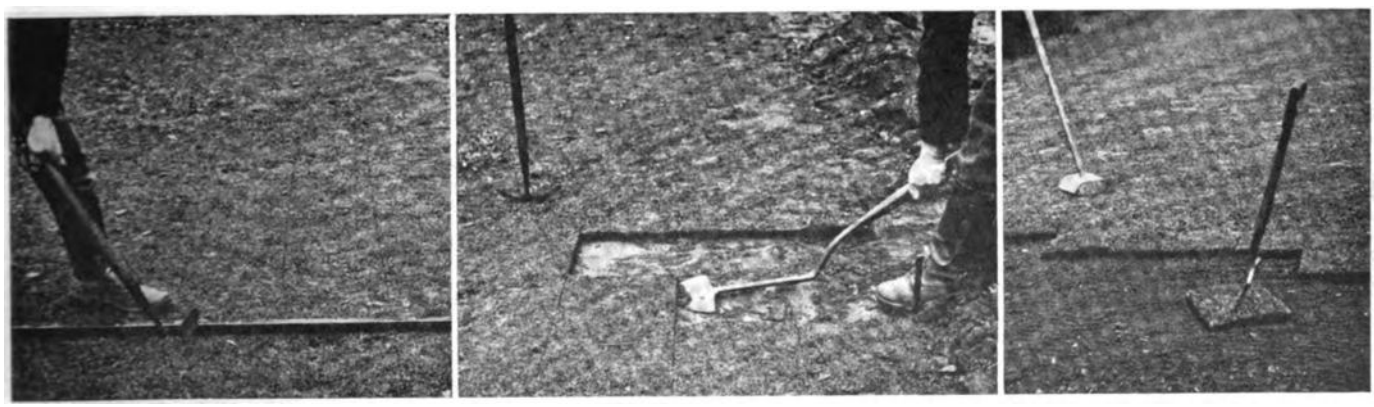
SOWING GRASS SEEDS.

The question of turfing a lawn or sowing seeds is usually decided by the problem of £ s. d. The turf is ready for use in a few weeks, while the sowing of seeds is infinitely cheaper, but is unfitted for hard wear the first season.

Levelling the ground previous to sowing must be carefully done. Small areas and ground for tennis courts, bowling greens and croquet lawns are readily levelled with pegs driven in the ground, a straight-edge and a spirit-level. For large areas pegs are again used, with "boning rods," as indicated in the illustration, Fig. 1.

In digging over the ground for a lawn, the soil must be broken down into fine particles, as otherwise it will settle with an uneven surface. Tread and rake the surface, removing stones and hard lumps of soil to obtain a fine tilth. The end of March or early April is the best time for the sowing of grass seeds in spring.

The amount of seed sown per square yard may be varied on the score of expense and whether a good turf in the shortest possible time is the main object. For ordinary sowing, 1 oz. per square yard will suffice, but, for quick results, up to double this amount may be sown. Choose a dry, calm day for sowing. To assist in securing an even distribution of the seeds, divide the ground into 2yd. widths, using a garden line, and bringing it forward as each stretch is sown.



THE CUTTING, LIFTING, AND LAYING OF TURVES, SHOWING TOOLS EMPLOYED.

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THE FIRST SPRING SHOW AT VINCENT SQUARE

THERE was no falling off in either the number of exhibits or the attendance at the fortnightly meeting of the Royal Horticultural Society at Vincent Square, Westminster, on February 26th. During the greater part of the afternoon there was almost an uncomfortably large attendance, and most of the exhibits were of considerable interest.

Among the floral groups the chief was that of superb bulbs grown in bowls of fibre, shown by Messrs. R. H. Bath and Co., and this deservedly received the highest award of a gold medal. The Dutch tulips were of splendid quality. Besides tulips there were daffodils, hyacinths and crocuses of equally high merit. Along the sides of their exhibit Messrs. Bath placed pots of Fritillaria Meleagris.

On an adjoining table Messrs. R. and G. Cuthbert set up a quantity of mollis and Ghent azaleas of warm glowing colours.

Indica azaleas were contributed by Messrs. L. R. Russell, Limited, also some smaller pots of the beautiful little Japanese varieties.

Mimosas in variety, with the comparatively rare Coleus thyrsoideus and some good hippeastrums, were staged by Messrs. Stuart Low and Co. next to their large collection of greenhouse carnations.

Messrs. Allwood Brothers had their usual group of first-rate carnations and, of course, many vases and bowls of their charming Allwoodii, which in their hands seems to be as perpetual as their larger sisters. Their perpetual border carnations, which combine the formal beauty of the old florists' flower with the continuous blooming habit of the newer type, were much admired. Mr. C. Engelmann had many useful varieties in his collection of carnations. Messrs. Cragg, Harrison and Cragg showed another collection of their excellent strains of blue and pink cinerarias.

Mr. George Paul staged a further collection of bushy camellias. The Swan and alba simplex are two good single whites. The alternating scarlet and white petals surrounding the anemone-like centre of C. Gilesi is very attractive.

Roses were staged in larger quantities and of better quality than most visitors would have expected so early in the year. Mr. Elisha Hicks included vases of Climbing Lady Hillingdon; Glory of Hurst and Lady Reading are two good red cluster varieties.

Glorious sprays of the difficult Fortune's Yellow Rose were shown by Mr. George Prince, who also demonstrated his great ability with the yellow Banksian rose, of which he had long sprays smothered in flowers. Among his H.T. varieties were good vases of Richmond and Golden Ophelia. Messrs. Sutton and Sons had a few charming bowls of their large-flowered star primulas, which were highly decorative. Mr. B. Pinney again showed large-flowered violets.

Alpines were mostly saxifrages, though various primulas and hardy cyclamens were to be seen in many exhibits. Messrs. M. Prichard and Son had Primula cashmeriana and Saxifraga oppositifolia major in fine clumps. Several very desirable varieties of the hardy cyclamen were included by Messrs. Carter, Page and Co. in their collection of alpines. Mr. F. G. Wood and Mr. G. W. Miller both had pots of the delicate blue Grape Hyacinth, and the latter showed many of his excellent polyanthuses and primroses.

A very complete little collection of seasonable border and alpine flowers was contributed by Messrs. Barr and Sons, who included various dwarf irises, primulas, early little daffodils, lachenalias and some hellebores bearing sombre yet interesting brown and blackish flowers. A small rock garden was made by Messrs. J. Cheal and Sons, who also set up a good collection of Dielytra spectabilis. The brilliant scarlet flowers of Tulipa præstans, a double red daisy and many crocuses were displayed by Messrs. Waterer, Sons and Crisp. An interesting collection of alpines in which saxifrages predominated was arranged by Messrs. R. Tucker and Sons.

Hardy shrubs in variety added considerably to the interest of the Show. Messrs. Wallace and Co. staged dwarf conifers, a pretty little standard of the true Tarantine myrtle, Daphne Mezereum album, with Andromeda japonica and Berberis japonica bearing ample racemes of flower.

Various olearias and dwarf conifers suitable for the rock garden, were shown by the Orpington Nursery Company. Messrs. Maxwell and Beale had dwarf heathers. Large-foliaged rhododendrons, Abies Webbiana and various alpines were staged by Mr. G. Reuthe. Floriferous bushes of Forsythia were prominently placed by Messrs. Skelton and Kirby. Viburnum Carlesii in quantity was arranged over such primulas as the pink form of P. denticulata by Messrs. Bakers, Limited.

Many spathes of Richardia (arums) were brought by Messrs. R. Gill and Sons, with excellent sprays of Erica codonoides and a mass of Primula Juliæ.

The only collection of vegetables was one of the splendid exhibits by

THE KALEIDOSCOPIC EFFECT OF THIS TABLE OF BULBS, SHOWN BY R. H. BATH AND CO., CAN BE IMAGINED.

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Messrs. Sutton and Sons. They displayed practically every seasonable kind, including mushrooms of the highest quality. The heads of Broccoli Snow White were perfect in form and of milky whiteness. Dwarf beans were freely shown and of such sterling sorts as Sutton's Early Giant, Plentiful, Superlative and Masterpiece, and all were so well grown that none could be singled for special mention. The seakale was probably the best ever seen at a show.

Messrs. George Bunyard and Co. had a dozen dishes of apples of brilliant colouring of such sorts as Crawley Reinette, Sanspariel and Mabbott's Pearmain. Messrs. Shearns, Limited, had another of their "shop windows," in which they displayed excellent fruits and cinerarias.

NEW AND RARE PLANTS.

CANARINA CAMPANULA. — Although this interesting greenhouse perennial was introduced from the Canaries (hence its generic name) so long ago as 1696, it is a very rare plant in this country. A decade or more ago the late Mr. H. J. Elwes brought a small specimen to the R.H.S. hall. About a score of years ago Mr. E. J. P. Magor of Lamellan, St. Trudy, Cornwall, collected seeds of the canarina and distributed seedlings in the West of England. With these exceptions the plant does not seem to have been much grown. A well grown plant possesses considerable attractions. The solitary, terminal, pendulous, bell-shaped flowers are unusually large for the natural order Campanulaceæ, and the purplish-fawn ground colour is relieved by the reddish veins. Canarina campanula thrives best in quite a cool greenhouse and when it can be planted out in a light rich soil placed on the staging. This ensures the perfect drainage

GRACEFUL SEEDLING OF IRIS LITTLE BOY BLUE.

which is needed; copious waterings are essential during the growing season. A large, well grown plant was exhibited. Award of merit. Shown by Lieut.-Colonel Messell.

FREESIA FLAME.—The colouring of this deliciously fragrant variety might almost be termed "butter and eggs," for it is a deep yellow (almost a buttercup yellow) splashed with deep orange. It is a very desirable novelty of robust habit. Award of merit. Shown by the Rev. Joseph Jacob.

IRIS LITTLE BOY BLUE.—A pretty little Krelagii seedling only a few inches high, but of good size and metallic blue colour with a gold crest. Award of merit. Shown by Messrs. H. Chapman, Limited.

LACHENALIA RUTLAND.—This is a charming novelty of very uncommon colouring. The large, well formed flowers are broadly rimmed with rosy maroon which is distinctly lighter on the edge of the segments. The unopened buds and the tips of the flower-stalks are brightly flushed with purple. The remainder of the stout flower-stem is pea green in colour with occasional cloudy maroon marking. Award of merit. Shown by the Rev. Joseph Jacob.

LACHENALIA SIAM.—This is another good variety with large flowers. They are a bright buttercup yellow and of waxy texture. The flower-stems are yellow. Award of merit. Shown by the Rev. Joseph Jacob.

ORCHIDS.

FIRST CLASS CERTIFICATE.

MILTONIA WILLIAM PITT VAR. ROSSLYN (M. Isabel Sander × M. Bleuana var. Reine Elizabeth), exhibited by Mr. H. T. Pitt, Stamford Hill, London. Undoubtedly the finest Miltonia hybrid yet seen. It belongs to the well known vexillaria section, but differs in its glorious ruby-crimson colour which covers the whole flower, except for the lemon-yellow mask at the base of the labellum.

AWARDS OF MERIT.

ODONTOGLOSSUM LEANDER (parentage unknown), from Mr. R. Gerrish, Milford Manor, Salisbury. One of the finest of the amabile section, the large flowers having the segments broadly formed and effectively marked with rose-purple.

ODONTIODA PURPLE EMPEROR (O. Coronation × O. Armstrongii var. Peerless), from Messrs. Armstrong and Brown, Tunbridge Wells. A most promising seedling, bearing a couple of flowers, the segments broad and flatly displayed, deep violet-rose in colour, with solid claret-red blotches on the central area.

CORRESPONDENCE

INBREEDING OF RHODODENDRONS.

I HAVE read with much interest your correspondence on the self-pollination of rhododendrons. It is unfortunate that a caucasicum hybrid has been used as an illustration, for although valuable and first-class crosses have been made with caucasicum, the result of this blood is to render the hybrids sterile in many cases. Seed, I believe, has never been known to set on nobleanum, for example.

Unfortunately, the time taken to raise and flower rhododendron seedlings is usually too long for them to have been worked out on Mendelian lines. It is well known, however, that certain rhododendron hybrids, where the two first parents are species, will come true in the next generations, *e.g.*, the rhododendron which in Cornwall is known as Dickson's Aucklandii will come perfectly true from seed both as regards foliage and flower and with apparently similar vigour. It is, of course, absurd to attempt to raise seedlings of the ordinary garden hybrid with the hope of getting anything but a reversion to the dominant factor, but seedlings raised from some of the choicer hybrids (species × species) in Cornish gardens have produced good strong seedlings which in leaf character show resemblance to the parent plant but which have not yet flowered.

It may be, however, that while a rhododendron will not reproduce healthy plants if the flower is self-pollinated, it will produce good results if the flower is pollinated from a different flower on the same plant. Auriculatum is well known as being very shy of setting seed, possibly due to the fact that the humble-bee has by August taken to searching other plants for honey and leaves the rhododendron alone, but on a big plant of auriculatum covered with flowers in my garden I self-pollinated one truss with pollen from its own flower, the truss next to it was fertilised with pollen taken from a truss on the opposite side of the plant, and some half-dozen trusses I left to Nature. The self-pollinated truss and those left to Nature failed to set seed, whereas I got three or four good seed pods from the flower fertilised with pollen from the other side of the plant, from which seedlings have been raised. I do not believe the theory that the humble-bee when it attacks a flower self-pollinates it. One speck of pollen is sufficient to throw a pollen tube, and I think that the humble-bee, although it will have plenty of pollen from the flowers it has just been to, will yet always have sufficient strange pollen to predominate and to throw a stronger tube on the pistil and that cross-fertilisation is very much more frequent on these plants than Mr. Stevenson imagines. To prove this, I have often seen humble-bees going from truss to truss of R. Souliei in my garden and, according to the first article, although the first flower should have been cross-fertilised, yet every other flower on the species should have been self-pollinated with pollen from the same plant. Now Souliei is one of the rhododendrons that is very easily affected by foreign pollen, and anybody who has tried to raise seedlings of this plant, as I have done, knows the difficulty of raising it true even if many pods are picked on the same plant with the idea of weeding out the rogues later on, and in the two attempts that I have made I failed to get a single true specimen in some hundreds of plants, and I believe that the only way to raise true plants of this species is by artificial pollination, taking care that strange pollen should not reach the pistil. I think you are to be congratulated on opening your columns to such a very interesting subject, and with apologies for my meagre remarks.—LIONEL DE ROTHSCHILD.

RCCK GARDENS UNDER GLASS.

THE notes by Mr. Low in THE GARDEN of February 16th, are very interesting to those who have suitable accommodation for these fascinating plants, and recall to my memory a small house devoted to alpines of which I had charge of some years ago.

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Many of the plants one sees growing in an outdoor rockery would scarcely be recognised when seen in flower under the protection of a glass roof. The flowers open much cleaner and brighter, especially of the varieties which bloom in the early months of the year. During open weather a house devoted to alpines cannot possibly have too much ventilation. The majority of the varieties being quite hardy they cannot stand "coddling," and should be grown as sturdy and naturally as possible.

If a house is arranged as a rockery, suitable spaces should be allowed between the rocks for batches of plants which have been grown in pots to be planted, or plunged, just as they are coming into flower. Then one can always have an attractive show. To take an instance, primulas grown in pots in a cold frame—such as japonica, Bulleyana, pulverulenta, Juliæ, and the less hardy malacoides, and obconica—may be planted, and a magnificent show will result. To plant an indoor rockery fully is to my mind disappointing at times when plants have finished blooming. There are too many dull spaces, whereas if suitable plants are grown in pots in a cold frame and brought in when coming into flower, the house can always be kept bright and interesting. Varieties which I consider most suitable for permanent planting are those which are evergreen, such as sedums, saxifrages, aubrietias, dianthi, gentiana, etc. These are always neat and attractive, even when not in flower. In the spring the rockery can be kept bright with different bulbs grown in pots, and planted out in suitable places.

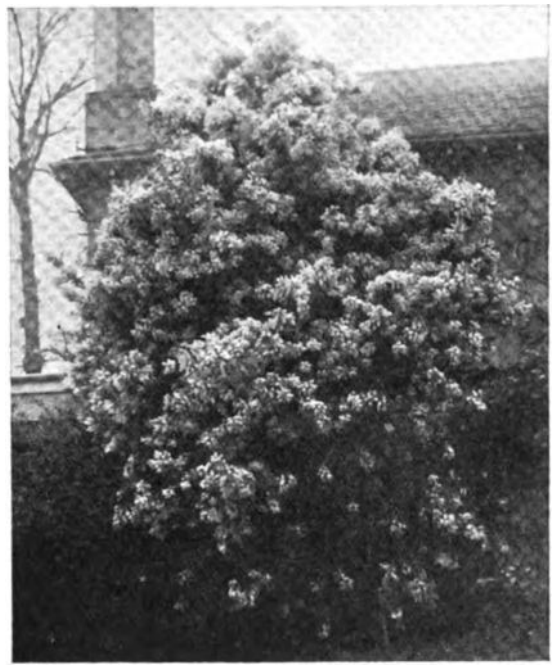
The following are a few varieties I can recommend as fairly easy to grow, although all, of course, are not evergreen. Androsace Chumbyi, Anemone Pulsatilla, A. P. alba, Antennaria tomentosa, Armeria plantaginea rosea, Aubrietia Dr. Mules, A. Fire King, A. Prichards A. 1, Borage laxifolia, Campanula carpatica Riverslea, C. pulla, Cypripedium spectabile, Dianthus neglectus, D. deltoides, D. roseus, Dryas octopetala, Gentiana acaulis, Helianthemum Scarlet Queen, H. The Bride, Hutchinsia alpina, Iberis gibraltarica, Ourisia coccinea, Phlox divaricata Laphami, P. G. F. Wilson, P. Moerhoemi, P. Bijou major, Primula cashmeriana, P. pulverulenta, P. Bulleyana, P. Juliæ, Saxifraga apiculata, S. Aizoon rosea, S. Faldonside, S. decipiens Bakeri, S. Bathoniensis, Sedum Ewersii, S. Nevii, Silene Schafta, Thymus coccineus, Verbena chamædrifolia, V. venosa.—ALFRED GREAR, *The Old House Gardens, Walmer, Kent.*

CAMPANULA LINIFOLIA AT MONT CENIS?

THE Campanula linifolia referred to in my notes on plants at Mont Cenis is not C. linifolia (Scopoli) as figured in Thompson, but C. linifolia Lamarck, which seems to be very similar to C. Scheuchzeri, Villars. These, along with C. carnica and a host of others, are included in Farrer's "English Rock Garden" under C. rotundifolia as forms of that species, most of them according to his experience reverting to a more or less typical C. rotundifolia when planted out in this country. The flowers at Mont Cenis were of a deep satiny violet colour, larger and a much more robust plant than any form of C. rotundifolia that I have seen in this country. It is interesting to note that in addition to the above C. linifolia that there is also C. linifolia De Candolle, which, according to Joseph Wood's "Tourists' Flora"=C. Scheuchzeri, Vill., C. linifolia, Hænke and C. linifolia, Gaudin, which are included under C. Scheuchzeri in Gremli's "Swiss Flora," and C. linifolia, Flahaut, as referred to by Mr. Enever Todd. Some of these may be due to the plants being described in the field after the radical leaves had died away as suggested by Mr. Todd.

My remarks on the absence of the fluffy seed heads of Anemone alpina resulted in a kind note from a correspondent, who said: "Your surmise about Anemone alpina is quite correct. On June 25th there was a great frost at Mont Cenis and the anemones which the day before had been at their best were literally razed to the ground. The leaves were blackened and the flowers withered up as though they had been burnt."—T. A. L.

I HAVE just picked up and read—having been away and so missed it until now—THE GARDEN, February 9th, in which Mr. E. Enever Todd comments upon the Campanula linifolia reported by Mr. Lofthouse from Mont Cenis. I collected C. linifolia at Mount Cenis with the late Reginald Farrer many years ago. I accepted the name from



A FINE BUSH OF ACACIA BAILEYANA OUTDOORS.

Farrer at the time, and have since found the same plant on the Galibier Pass and at Val d'Isere and elsewhere and have distributed a selected variety of it very widely over a number of years, and have also exhibited it frequently under that name and have never had the name questioned.

I must confess that I do not remember ever having gone very deeply into the question of whether it was the C. linifolia of Scopoli or of Flahaut. One of these days—if I have time—I will go and delve among herbarium specimens at Kew, though I doubt if any conclusions or confusions I may arrive at will add to my pleasure in growing the plant. The Mont Cenis, Galibier, Val d'Isere and elsewhere plant is certainly akin to C. rotundifolia. Possibly a mountain development. Yet it is distinct. I should be sorry to have to define the distinction in botanical terms. But for garden purposes, and although C. linifolia as I know it varies widely in colour, stature and even in the size and shape of the bell—for garden purposes it is quite distinct. Broadly speaking it is dwarfer, more solid in build of leaf, stem and flower, larger in flower and normally deeper in colour. In fact, just what one might expect C. rotundifolia to develop into under alpine conditions. I have found pale silvery lavender blue forms, and three summers ago I spent a whole Sunday on the Galibier, picking out the most lovely forms with gigantic bells of deepest purple. This linifolia has much the same narrow stem-leaves and roundish radical leaves as C. rotundifolia.

I rather feared that Mr. E. Enever Todd might quite likely have caught me—together with the late Rev. Johns—"deviating from the perpendicular" in the question of the apparent misnomer—C. rotundifolia. But I am glad to read in my edition of John's "Flowers of the Field," 1907—"The specific name, rotundifolia (round leaved), is far from being descriptive of the leaves which accompany the flower, as they are long and narrow, but is peculiarly applicable to the root-leaves, as they appear in winter and early spring, at which season Linnæus is said to have first observed them on the steps of the university at Upsala." I have not an earlier edition handy to see what was originally said on this point.—CLARENCE ELLIOTT, *Stevenage.*

ACACIA BAILEYANA OUTDOORS.

I ENCLOSE a photograph of an Acacia Baileyana growing in my garden. There are several beautiful specimens of A. dealbata in the neighbourhood, but so far I have not found this sort growing anywhere in the open, although I fancy it is the hardiest of the two and certainly the most beautiful. This one was planted in 1916 as a very small plant from a pot, and it must now be quite 19ft. or 20ft. high, and every year is a mass of fluffy yellow. It begins to blossom at the end of December and lasts from six to eight weeks in beauty.—VIOLET CAVENDISH BENTINCK, *The Cottage, Dawlish, Devon.*

FREESIAS AND DUDS.

IN reply to Mr. Jacob (page 51), I think he is carrying out my idea o ripening the corms by a slightly different method of his own. My reasons for saying so are that, speaking from memory, some seven years ago when duds first came under discussion, I humbly ventured to suggest that they were due to insufficient ripening. Time and my own methods have proved this to my satisfaction. Last year I gave Mr. Jacob rather full details as to how to treat his corms. Whether he treated any like I told him or not I do not know, but he has evidently carried out my ideas by a slightly different method of his own. Therefore what I mean is thus explained. My "cure" is proper ripening, and Mr. Jacob's is the same, though his *method* is not identically the same as mine. May I point out again that duds may occur, however well ripened the corms may be, if they get insufficient moisture after potting.—G. H. DALRYMPLE.

A CHARMING GRASS.

I WOULD like to add a little supplement of praise of the beautiful Arrhenatherum bulbosum fol. var. referred to by Mr. Joseph Jacob (page 74). I first saw this variegated-leaved grass growing in large clumps on the banks of a pond in a New Forest garden many acres in extent. It was one of hundreds of rare and interesting plants grown there. The plant is hardy, withstanding nearly 20° of frost without injury; but I also grow some under glass, where it attains a height of nearly 2ft., and is very useful for association with early sweet pea blooms. The peculiar freshness of the blades referred to by Mr. Jacob first drew my attention.—G. G.

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GARDENING OF THE WEEK

FÓR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Onions.—The main crop should be sown without further delay, providing the ground is suitable for working. The soil is made firm by treading, and a fine tilth obtained by raking with a wooden rake. If available, a liberal sprinkling of ash from the rubbish fire will be beneficial, and it should be afforded before the drills are drawn. The lines should be from 9ins. to 12ins. apart. Do not sow the seeds too thickly or there will be a lot of work thinning out later on. Cover the seeds and then rake over the bed the same way as the drills; there is no need to firm the soil with the back of a spade. Suitable kinds are: Ailsa Craig, James' Keeping and Bedfordshire Champion. Plants raised in boxes may be hardened off and transferred to their final quarters, choosing if possible a rich and well tilled piece of land.

Leeks.—The principal sowing of leeks should be made, and from this batch a succession can be obtained by planting out the largest plants directly they are ready, and following on later with the smaller examples. Both the Lyon and Musselburgh can be recommended.

Peas.—The time has arrived when a good breadth of the marrowfat type of pea may be sown with every confidence of success. There are a host of varieties to choose from, but a good stock of Duke of Albany is hard to beat. True, its height is 5ft., but it yields fine crops, when provided with a suitable site. It is a good plan to allow them ample space, and then plant a few rows of potatoes, cabbage, spinach or lettuce between the lines of peas. To keep off birds and mice, damp the seeds with paraffin oil and then coat them with red lead. Sow thinly in flat drills about 6ins. wide.

Cabbage.—The bed should be hoed at intervals to keep down weeds and to encourage healthy growth. Fill up any blank spaces; the plants used will produce hearts a little later and, therefore, keep up the supply.

Carrots.—A few lines of Early Horn sown now will furnish roots to follow those from the frames.

THE FLOWER GARDEN.

Pruning Flowering Shrubs.—At this season a certain amount of pruning may be carried out. The late-flowering kinds of ceanothus and tamarisk, late-blooming spiræas such as S. japonica, S. Aitchisoni and S. Anthony Waterer, should be cut back. Jasminum nudicaule is cut hard back to near the old wood, and the same remark applies to Hydrangea paniculata. Caryopteris is treated likewise, and heaths may be pruned after flowering if they are getting large and spindly. In any case the old flower spikes should be removed. Ivy on walls and buildings can be trimmed as an opportunity occurs.

Annuals.—During March and April all kinds of hardy and half-hardy annuals may be sown in the open ground and, in most instances, where they are intended to flower. In all cases, sow thinly, and when large enough thin the seedlings so that they have ample room to develop.

Begonias.—The begonias to be used for bedding purposes may now be started into growth. Examine the tubers, and large examples may be cut into two or three pieces, but in such a way for each plant to possess two or three buds. Boxes should be filled with leaf-mould and the tubers partly covered, and then placed in a greenhouse or pit where the temperature is about 50° Fahr. Do not afford much water until the tubers are well started.

T. W. BRISCOE,
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Celery.—The seedlings from the earliest sowings should be set 2ins. or 3ins. apart in boxes filled with a good rich compost, and kept in a genial atmosphere until re-established in the fresh soil. An early vinery or early peach-house is almost an ideal place to set the seedlings at this stage, as the necessary heat, moisture and shade are here provided.

Onions.—Those contemplating sowing in the open should have the surface soil—when fairly dry—thoroughly broken down and well raked. Rows should be drawn out 2ins. deep and 15ins. apart, and the seed thinly sown. After covering the seed, rake lightly and go over the bed with a roller. The following well known varieties may be grown: James' Keeping, Magnum Bonum, Rousham Park Hero, Trebons and The Queen. The last-named is a quick-bulbing variety and, although small, is very fine.

THE FLOWER GARDEN.

Biennials.—The attractive Canterbury Bells and the salmon and pink shades of Sweet Williams should be set out in the borders. The plants are usually more effective when planted in small groups. Young plants of Agrostemma coronaria atrosanguinea, although perennial, should also be set out now.

Pink Mrs. Sinkins.—It is charming to have this old-fashioned plant in the garden. When plants get worn out the beds should be cleared, provided young stock has been raised to take their place. The ground should be trenched, and old lime and sand added where the soil is heavy. When the bed is well firmed the young plants should be set out. In a fairly open situation they should do splendidly.

Antirrhinums and Sweet Peas.—Boxes or pots containing seedlings of these plants should be set in cooler quarters to harden off.

FRUITS UNDER GLASS.

Melons.—It is not necessary to have a great depth of soil to grow first-class melons, but bottom heat I consider to be very essential. The bed should be made—if a pit is not available—on a bench situated a few inches above the hot-water pipes. Select good turves, 6ins. broad, and place these two deep, in lines 9ins. apart, along the front of the bench—*e.g.*, the glass front. Between these low turf walls spread a layer, 3ins. deep, of decayed manure; the remainder should be filled with a good compost in which fresh loam and old lime are included. The bed should be made very firm and left for several days to warm before the plants are set out.

Vines.—Continue with the pinching and training of the young growths in succession houses. Weevils often do much damage to the young shoots and leaves of the vines. A search should be made each night with a light around the woodwork and underneath the vine rods, and the weevils caught and killed; or spread something white on the floor and tap the rods to dislodge the weevils.

DAVID ARMSTRONG,
(Gardener to North More Nisbett, Esq.).
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Sparmannia africana.—This old greenhouse plant is worthy of more general cultivation, as plants continue to flower for several months during the winter. It is not generally known that the stamens of this plant are sensitive; if lightly touched they gradually spread outwards. This plant is easily propagated by means of cuttings at this time, rooting readily in a close case. They grow quickly and, grown on into six-inch pots, they make good plants for the stage in their first year, but they are seen at their best when grown into large specimens, either as bushes or standards. To ensure freedom of flowering the plants should be stood outdoors all summer in an open sunny position, taking them indoors about the middle of September.

Clivias are excellent plants for the conservatory, and, where they have been kept cool and somewhat dry at the root, a portion of the stock, if placed in a warm house in a temperature of about 55° they will soon come into flower; with sufficient stock, a succession of flower can thus be maintained over a considerable period. Clivias make fine large specimens if grown in large pots or tubs, and if so desired the plants may remain in the conservatory all the year round, as they make good, permanent furnishing. They also do very well if planted out in beds or borders in a cool house.

Aloysia citriodora (Lemon-scented Verbena).—On account of its beautifully scented leaves this plant is very popular for the cool greenhouse; old plants that have been kept dry all winter, should now be pruned hard back and placed in a warm greenhouse, where they will soon break into fresh growth. Many growers experience some difficulty in successfully propagating this plant, their failure is generally due to using too old shoots; when the young shoots are about three or four inches in length they should be secured as cuttings. At this stage they root readily in a close case, with slight bottom heat. To induce a bushy, well furnished habit, the young shoots should be pinched several times. If so desired this plant can be grown into large specimens.

Strelitzia Reginæ.—This handsome plant with its extraordinary looking flowers, can be grown in large tubs, but is seen at its best when planted out in a bed of good rich soil in a conservatory. Its large, handsome foliage is attractive at all times and it produces its flowers over a long period.

Cyperus alternifolius.—This graceful plant is very useful for grouping with other plants in all sorts of floral arrangements, not only in the greenhouse, but also for decoration in the dwelling house. For this purpose a succession of plants should be kept up, either by dividing the old plants, or by cutting off the whorls of leaves and inserting them as cuttings. They soon root in a warm case and quickly make good, useful plants. There is a beautiful variegated variety which is best propagated by division.

Lobelia Erinus, of which there are many varieties, apart from their value as summer bedding plants, are very useful for furnishing the fronts of stages in the conservatory; good varieties are propagated by means of cuttings; a few double varieties must, of course, be increased by means of cuttings. Excellent results can be obtained from seeds, as the varieties come nearly true; there are also several spreading varieties which are very useful for filling small, hanging baskets. Seed may be sown now in gentle heat. They should have quite cool treatment at all times.

J. COUTTS,
Royal Botanic Gardens, Kew.

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THE BREAKING OF TULIPS

BY CHAS. W. NEEDHAM.

THE idea that the breaking of tulips is caused by the transmission of a mosaic disease which has recently been the subject of investigation and scientific research in relation to the potato, seems to require consideration. (The idea is no more acceptable to the Dutch than to the English grower.) If it be that the breaking of tulips is caused by disease, whether mosaic or some other virus disease, many curious features occur to one's mind, remembering experiences of the last thirty-five years: one's desire for "breaks" and one's anxiety to discover a perfect feathered or a noble flamed flower.

Our fathers in the cult, the florists of old, particularly of the first half of the nineteenth century, valued most highly a well marked bloom; these markings to be excellent had to be within limits that had been slowly evolved through years of experience, and up to standards that had been determined upon by those who raised and grew the English and Dutch tulip and best knew its capabilities and powers of development. These faithful inheritors of perhaps the oldest floral tradition, who knew and loved the flower, met together and exchanged their views, the experience of each being disseminated for the benefit of all—their object being the attainment of perfection in form, colour and marking. The standards were laid down here, in didactic terms, by George Glenny and Doctor Hardy, echoed by the general body of seedling raisers, and generally adopted by the growers of the flower, Dutch standards differing slightly. In these earlier years scores of thousands of tulip seedlings were raised, the results of efforts to obtain what seemed to the educated taste in tulip culture, flowers of the best type. Judged by the standards which then obtained in the floricultural world, a very fine tulip was a well marked one; whether it be a "grand feather" or a "majestic flame," perfect form it must have, with clear colour, and be quite pure. The ultimate aim of this esoteric cult was a broken tulip, or, as the floral law termed it, a rectified bloom.

To one brought up in the "nurture and admonition of the law," it is with somewhat of a shock one reads of a learned American plant pathologist alluding to "these mosaic varieties" when writing of broken tulips.

If the term "mosaic varieties" had referred to broken Darwins—Rembrandts—or broken Dutch, or broken Cottage tulips, or broken species of tulips, it would not seem to savour so much of sacrilege. Is there any scientific basis for believing breaking to be caused by mosaic or other disease? Recalling to mind all the efforts that were made to induce break: by depth of planting, liming, poverty of treatment, hard usage, change of soil and other methods that were in vogue to obtain the desired end—broken tulips—and then to think one need only have "conjured" a cloud of aphides from the near-by potato plants to produce the desired effect is rather startling! One cannot remember being entirely without numerous and prolonged visits from the "green fly": to plant in its growth, and to bulb in its resting stage—unwelcome on any occasion. If breaking be a result of a virus disease, transmitted by some particular kind of aphis, or other sucking insect, and spread by means of the juice of the plant, into which the poison was introduced by the visitor insect, in similar biological relation to the introduction of malaria in the human system by a carrier insect, then one or two problems at once appear for solution.

In a collection of English tulips, the result of thirty-five years growth and selection—after annual accretions and eliminations—are both breeders and broken varieties, the latter, of course, preponderating, since the tendency of the tulip is to break, and these tulips were bred to break. Many of the broken sorts once grew in the collection in the breeder stage, there are records, extending over twenty years, of the doings of the bulbs in the tulip book, each bulb and its progeny being identifiable in the bed, in the cabinet, and in the book, so that it is easy to trace the style of bloom of any particular bulb over the period named; some have broken, some have not! There are groups of breeder bulbs of one variety grown side by side, some have broken, some have continued to bloom as breeders. Breeders and broken ones, all are grown alike and subject to similar treatment. Why do some breeders still persist as breeders? Rose Hill, Annie McGregor, Mrs. Collier, Goldfinder, Sulphur, Talisman, Mrs. Barlow, all appeared in the breeder stage last year, and all have been in the same collection twenty years at least, it is true most of the older breeder types have broken, but some still remain.

In groups of seedlings raised fifteen years ago, and groups of seedlings more recently raised, both broken and breeder forms are seen. To say that some are touched by and some not affected by disease, does not seem a satisfactory answer. One has known weak-looking plants, that had been in the self or breeder stage the previous year, throw fine feathered blooms, and, lest one should generalise and think lack of vigour in duced the break, one had to note on the same bed, *per contra*, most vigorous examples of Dr. Hardy, Mabel and Annie McGregor, appearing in the flamed stage; all had broken from breeders of last year, weak and vigorous plants alike.

The mysteries of rectification are not easily solved, it seems to be part of the nature and functions of a tulip to exhibit at some time this changed appearance of the bloom. All coloured tulips that have colouring matter—anthocyanin pigment—on the inside of the outer skin of the petal, will break, or are liable to break; while true selfs, yellows and whites, that have not the aforenamed pigment, do not break.

Again, if broken tulips are touched or troubled with a disease, how is it that we have apparently very healthy plants—from a layman's point of view—still growing from sorts that broke fifty and seventy years ago?

Aglaia, San Jose and Heroine continue in the broken forms, their breeder forms having died out over fifty years ago.

In the course of fifty years many plants, that our grandfathers grew, tend to die out, it may be they die of old age, of obscure maladies, of unfavourable environment, or of wrong culture. On the other hand it may be that some virus disease attacks them and carries them off, and if so, sucking insects may be the carriers of such disease, as was outlined at the last meeting of the British Association.

Perhaps our tulips, in common with other plants, get disease—mosaic and other disease—but it has yet to be established scientifically that mosaic causes the breaking.

In earlier times than ours the broken form of the tulip bloom was the more esteemed; the self or breeder was valued for its inherent quality, for the possibility it possessed, of breaking in good style, and the change was eagerly looked forward to, extravagant expectations were often indulged in, and perhaps hopes were occasionally realised.

In any case the pleasure of expectation had been felt and hope springs perennial in the breast of the florist.

Since tulips were known and cultivated in Europe, 1550 or thereabouts, the breaking or transfiguration of colour has been the most fascinating feature in the life story of a single tulip entity.

Times change and we with the times. Our efforts are now mainly directed to the keeping of our tulips in the self or breeder stage admired by the many, and to the prevention of the break.

Once we know the cause of the breaking, it may be we are on the way to discover how to keep the self state, and perchance we may then be able to make some chosen varieties break, and to keep the majority of our tulips in the self colourings that appeal to the masses for their decorative value.

May we hope scientific research will come to our aid in these and kindred matters? Intelligent investigation would add to our knowledge and render possible the proper treatment of tulips and other bulbous plants which may in like manner be afflicted by disease.

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Dropping of Lupin Buds (D. H. B.).—The usual cause of the dropping of lupin buds is either the attack upon their roots of a fungus or an insect, or may be at times drought or want of drainage interfering with proper root action. We know of no pest that actually eats off the buds in the way you describe. The V. T. H. slug traps are excellent for catching slugs.

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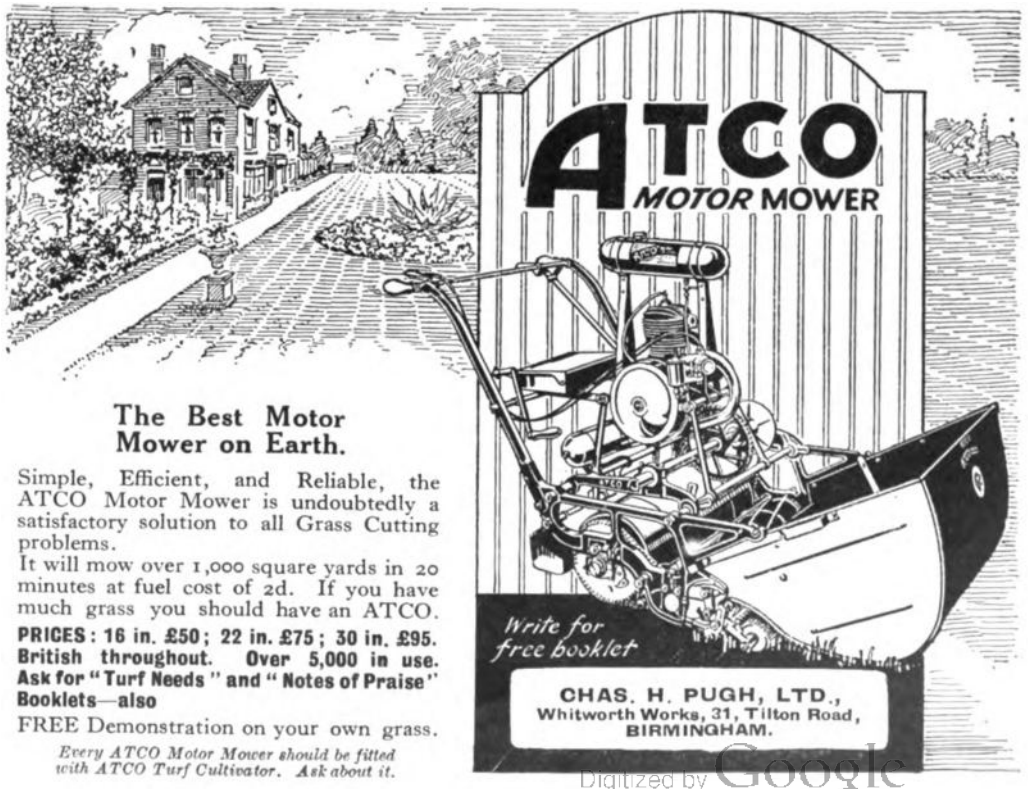

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TREES AND SHRUBS.

Clematis Withering (W. R. H.).—The dying back of the growths of clematises is a frequent source of disappointment with growers. It is usually attributed to one of the following causes: (1) The sun cracking the bark of the stems; (2) twisting and severely crippling the rather fragile stems; (3) most clematises are grafted and there may be damage at the point of union between stock and scion. From these suggestions it will be seen that it is largely a matter of care in the management of the plants.

Cytisus albus (A. S. S.).—It is probable that the plant is a seedling, and the other brooms may have been propagated by cuttings. As the plant is 5ft. high it should flower this spring. Seedlings, as a rule, grow vigorously at first instead of maturing flowering shoots, but you will reap the benefit later in having a large flowering bush. You do not state if the brooms are all growing together. Perhaps the white broom is in richer soil. This would account for vigorous growth instead of flower.

Name of Fruit.—(G. B. T. N.)—Apple Newton Wonder. One of the finest late cookers.

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Messrs. Sutton and Sons, Reading.—Farmers' Year Book and Graziers' Manual.

Messrs. E. P. Dixon and Sons, Limited, The Yorkshire Seed Establishment, Paragon Square, Hull.—Flower and Vegetable Seeds.

Messrs. Bowell and Skarratt, Hardy Plant Nurseries, Cemetery Road, Cheltenham.—Alpine and Other Plants Suitable for the Rock Garden; and also their list of Hardy Orchids.

Messrs. W. and J. Brown, 29, Narrow Street, Peterborough.—Rose Trees, Fruit Trees, and Ornamental Trees and Shrubs.

Messrs. Harrison and Sons, Royal Midland Seed Warehouse, Leicester.—Flower and Vegetable Seeds.

Mr. H. N. Ellison, 5/7, Bull Street, West Bromwich.—Flower and Vegetable Seeds, Bulbs, Ferns, Cacti, Roses and Fruit Trees.

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Messrs. Barr and Sons, 11-13, King Street, Covent Garden, London, W.C.2.—Lawn Grass Circular.

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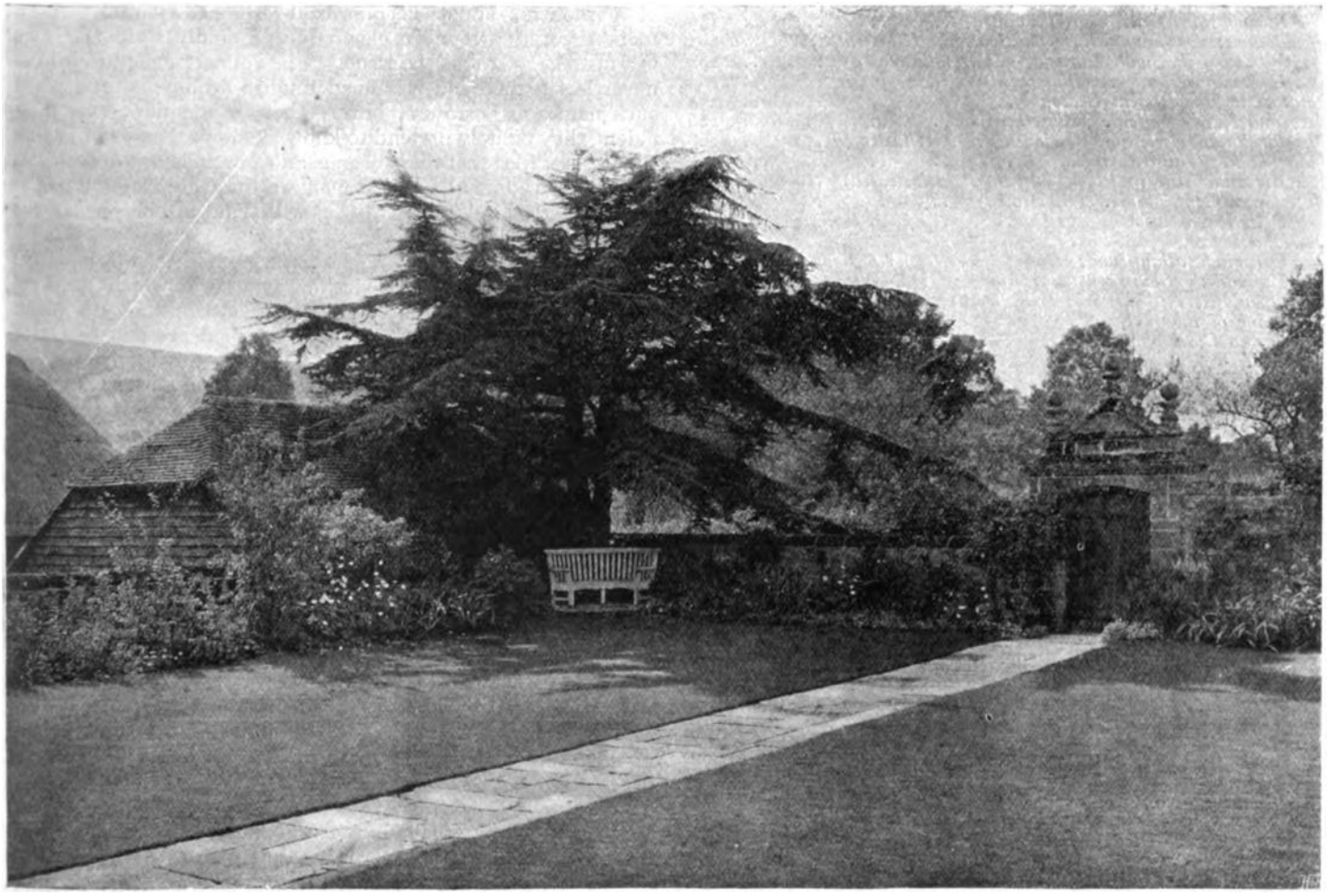

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PLANT NAMES

IN the January issue of an American contemporary is an article, on Practical Plans for Planting Little Gardens, which consists of lists of suggested plants for various classes of small gardens. The nomenclature of these lists is interesting, as it consists either of the English translation of the botanical name or of a colloquial synonym.

Some of the colloquial names are obviously confined to America; whether the plants are grown in this country I do not know. I confess that double baby's-breath, orange sneezeweed, tickseed, gasplant and rosinweed are unknown to me, and what is more, they either convey no meaning or I conjure up an unfavourable impression of the plant. Double baby's-breath is quite unintelligible. I suffer from hay fever, and the name sneezeweed, however beautiful the plant may be, conveys to me the idea of masses of pollen blown about by the summer breeze with consequent sneezing. Tickseed, if the name is correct, means nothing else than a plant with seeds which stick to you like a burr, an unpleasant companion in a small garden. The name gasplant is distinctly reminiscent of the Brentford gas works.

No doubt I am maligning plants worthy of being grown in any garden, else, presumably, they would not be included in these lists, but one supposes that this article is written for the beginner in gardening, and as a beginner I should strongly object to having plants labelled with such names in my garden. Perhaps it is unfortunate that Latin and Greek are the common tongues of the horticultural world, but as it is an accomplished fact there is no other method but to use them. Per[illegible], what knowledge of plant nomenclature I possess gained through the use of the proper botanical name, and I jib at having to learn a second list of plant names.

The trouble is that in the English language words cannot be manufactured like they can in Latin or Greek; it is not sufficiently adaptable. Even the compiler of these lists has to admit this, for he gives the botanical name after several of the plants he mentions, as, for instance, evergreen azalea (amœnum) and Japanese mountain azalea (Kæmpferi). It is quite impossible to invent English names for the constant stream of new material coming into cultivation.

Another American habit is to give the literal translation of the botanical name. Why call Campanula carpatica—a popular plant the world over—the Carpathian harebell? It only makes plant nomenclature more difficult. A few other examples which I pick at random are Tartarian honeysuckle for Lonicera tartarica, a name by which it has been known since 1752; alternate-leaved dogwood, for Cornus alternifolia, a name given to it by Linnæus; Thunberg's spiræa for Spiræa Thunbergii. The English names are clumsy, and in addition, the important factor in a plant's name, the name of the genus, comes last, and so makes reference tedious and difficult.

In the British Isles this question of nomenclature is no such a difficulty. We take names as we find them and are satisfied with the botanical name of a plant. There is, however, a sentimental feeling, particularly among the older generation of gardeners, about keeping old-fashioned names. As a member of the younger generation, I boldly state that this is a mistake. It fogs the issue. The younger generation have never learnt these old-fashioned English synonyms, and when such names as yarrow or bitter-sweet are mentioned by their elders, they politely pretend to know all about them, not having the vaguest idea that they mean achillea or Solanum dulcamara.

Another difficulty is that many of these old English names are distinctly local and that what will stand in one part of the country is useless in another.

Most of the Latin or Greek terms are either an adaptation of the name of the finder or the country in which they are found, or they point out some definite attribute of the plant. It is surprising how quickly sufficient botanical Latin or Greek can be acquired to translate such a name into English. You may say, Why not use the translation to begin with?; but one of the advantages of these Latin or Greek terms is that they are definitely recognisable as names. Rhododendron porphyroblastum is long and tiresome. The translation is Rhododendron with purple buds. This at once loses all semblance of a name.

There are many pitfalls in the use of an English nomenclature. Among the commonest names are sinensis or japonica. The translation is easy: they mean Chinese or Japanese; but supposing the English translation was used—the Chinese or Japanese barberry, for instance. There are dozens of them which come from China or Japan. Berberis sinensis refers to one plant, but the Chinese barberry may refer to dozens. Let us steer clear of the American habit of using English names; it only complicates matters at a time when everything should tend towards simplification.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

DWARF SHRUBS FOR THE ROCK GARDEN, by W. Irving.

TOMATO CULTURE, by Edwin Beckett.

THE ART OF GRAFTING, by A. Osborn.

CACTI, by R. W. Ascroft.

FRUIT-GROWING IN SMALL GARDENS.—V, by Ronald G. Hatton, M.A.

NOTES ON WEMBLEY.

A FULL DESCRIPTION OF THE FORTNIGHTLY MEETING OF THE ROYAL HORTICULTURAL SOCIETY.

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THE SPRING ROCK GARDEN

BY DR. R. LLOYD PRAEGER.

THIS IS THE GARDEN WHICH IS MOST EFFECTIVE IN THE SPRING, WHEN THE MAJORITY OF ITS INHABITANTS ARE IN FULL BLOOM.

I THINK that no kind of garden gives such joy in spring as the rock garden. This is largely because the majority of alpines and rock plants are spring bloomers, but more still on account of the endless variety of growth-form which the denizens of the rock garden can boast. The well stocked bulb garden is its most serious competitor and may be made a very delightful place, painted with blossom; but it cannot compare in varied charm with the rock garden, for the spring bulbs, belonging as they all do to a few allied natural orders, have a distinct family resemblance—erect annual growth, undivided, mostly narrow, leaves, and a certain sameness of habit. The population of the rock garden, on the other hand, drawn from nearly every race of hardy plants which is decorative or interesting, presents an endless variety of form and colour in stem, leaf and flower.

Although the latter part of winter sees many a fleeting gleam of colour in the rock garden, especially in mild districts, the spring display may be said to begin in March with the Kabschia saxifrages. Given reasonable luck in weather, these form groups which, for daintiness, are unsurpassed in the garden throughout its whole calendar. Whether we choose the safe but unambitious course of sticking to reliable plants like SS. apiculata, apiculata alba, sancta, marginata, etc., or venture on diapensioides, Boydii and lilacina, we will rejoice in having (or having had) them. Then there is that excellent early heath, Erica carnea, with its many colour-varieties, a host in itself. The earliest anemones, too, like the many-coloured A. blanda, are already in evidence. Adonis amurensis is also very early, with finely cut foliage and big soft yellow flowers; so is the little Hacquetia Epipactis, dwarf and golden. Many early bulbs, too—crocuses, snowdrops, grape-hyacinths of various kinds—brighten the March rock garden.

For April, a much more varied display is easily attainable, and a large number of dainty alpine herbs and bulbs are already peeping forth; but the main display of bloom is supplied by three genera—the "three A's" Arabis, Alyssum and Aubrietia—and, indeed, by one species of each: Arabis albida, with white flowers (single or double), a very common plant, but, none the less, invaluable; Alyssum saxatile, with golden or citron blossoms and greyish foliage; and Aubrietia deltoidea, giving tints which range from pale lilac to deep crimson and imperial purple. To these, of course, we must add the mossy saxifrages, with their plump, fresh green cushions and wealth of bloom: white, pink, and on to crimson. These four plants are such robust, reliable things, and between them give such a range of colour, that I often long to construct a rock garden on the grand scale, with great solid masses of stone, and stock it with sheets of these plants, ramping over the slopes and hanging in curtains down the rocks. The effect, especially as seen at a little distance—say, across a piece of water—would be brilliant in the extreme.

Then there are hepaticas from mountain woods—blue, red and white, double and single—and anemones of several kinds, among the loveliest being the pale blue varieties of our native A. nemorosa; and already the big woolly purple heads of A. Pulsatilla are pushing up from among the lacy foliage. Several species of corydalis, which already in March have displayed their tender fern-like foliage, are now in flower—C. cheilanthifolia, C. cava, and so on. Dwarf daphnes are filling the air with fragrance, and everywhere new life is springing forth.

When May comes, every day brings fresh flowers—achilleas, with silvery leaves and white blossoms; red, pink and white armerias with slender stems rising from plump green cushions; graceful aquilegias of every hue; pinks of a multitude of sorts, for the genus Dianthus is a host in itself, and unaided could furnish a rock garden. Then the erodiums and their cousins the geraniums are full of charm, with graceful leaves and delicately veined petals. The early irises are full of beauty and interest; rock roses are a sheet of colour of every tint but blue; there are graceful flaxes, some tall and slender, others prostrate; the dwarf poppies, such as Papaver alpinum, are in full glory; little white and red catchflies are gleaming; and blossoms belonging to fifty other genera go to swell the colour chorus.

AN INFORMAL ROCK GARDEN, WHERE PLANTS ARE ALLOWED TO SPREAD OF THEIR OWN FREE WILL. EVERY NOOK AND CRANNY IS FULL TO OVERFLOWING.

Especially in the south, the rock garden is best in May, because, along with the wealth of plants which in that month their "treasure on the garden throw," there is still the promise of much to come. Comparatively little is as yet in the seldom decorative stage of seed, while a profusion of species is still in the pleasantly anticipatory state of budding. These include many kinds of æthionema

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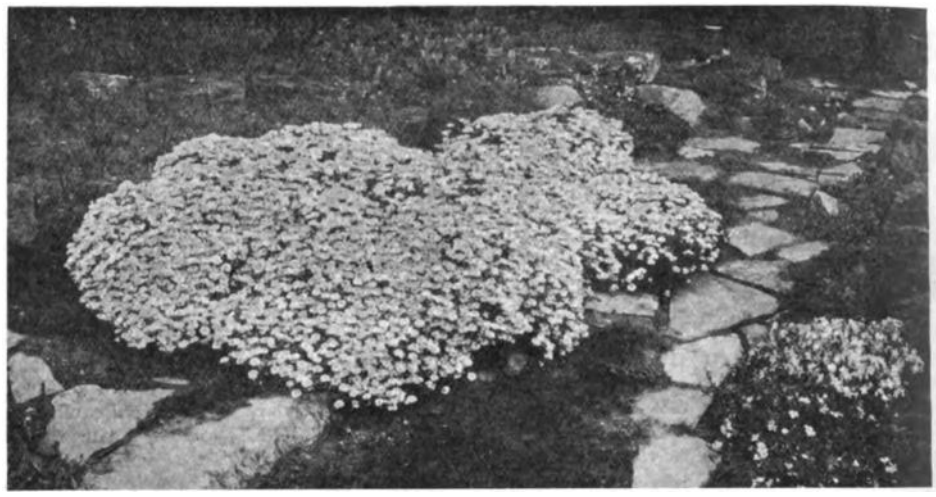
with small grey leaves and slender spires of pink flowers; campanulas of fifty sorts (should we so desire), mostly blue—that most precious of colours; their cousins edrianthuses, also blue and very choice; erigerons of many kinds, like pink or purple daisies; gentians in variety, giving once more a blue note; yellow hypericums, many of which rank among the daintiest of shrubs; lithospermums—once more that precious blue. Biennials are unusual in the rock garden, for the true denizens of the rocks and mountains are almost all perennial, but an exception must be made in favour of meconopsis, which gives us a number of beautiful things with soft poppy leaves and spires of great delicate flowers of wonderful tints of blue and purple and yellow. Then there are primulas, too numerous to mention here; a great variety of veronicas, blue, purple or white; and, last but not least, those invaluable genera, sedum and sempervivum, which will flourish anywhere delighting in the driest places, and bearing a wealth of many-coloured bloom.

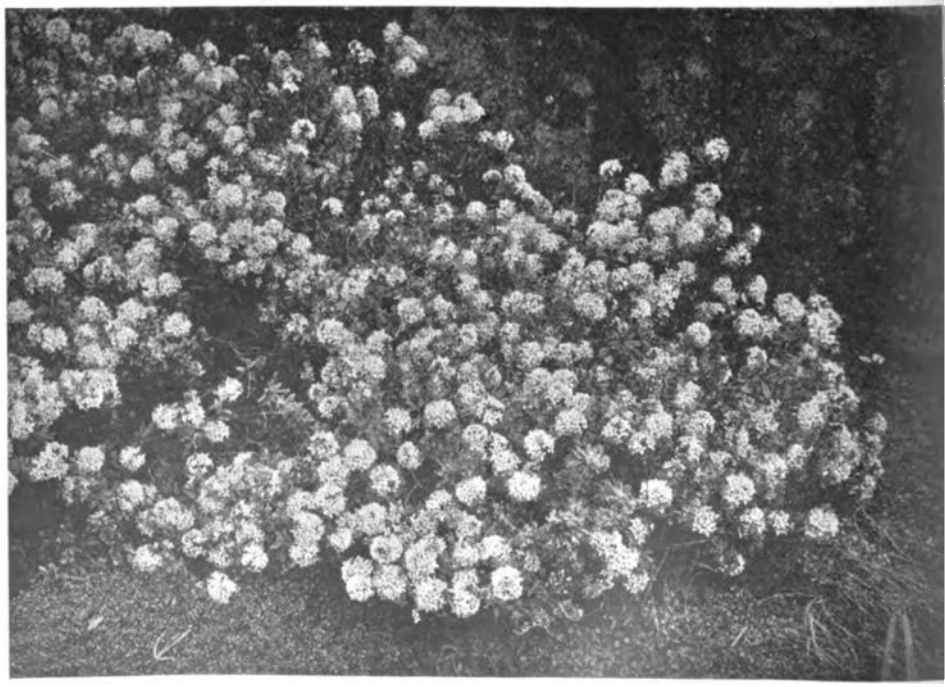
ONE OF THE FINEST OF THE EARLY FLOWERING WHITE SAXIFRAGES, S. MARGINATA.

Of late years a great deal has been said and written about this rock garden business, and it is legitimate to enquire how far rock gardening is to be regarded as a passing fashion, a "stunt" encouraged by the nurseryman, the writer about gardens, and the gardening papers (since it brings grist to all their mills); or how far, on the other hand, we are justified in thinking that it has come to stay, and will continue to occupy its present position as an essential member of the body corporate of English gardening. I feel no doubt that the latter is the case, and I base this opinion on the conviction that rock gardening has a definite æsthetic basis. Although until lately they were not extensively cultivated—partly on account of faulty knowledge of their requirements—the beauty and interest of alpines and rock plants have been long appreciated. And, indeed, among the endless forms of plant life which occupy our globe, what more charming than the fresh plump cushions of these little people of the hills? To the lover of beautiful things, the tiny flower-starred cushion of Androsace glacialis appeals as would a rose or a birch tree—two of the loveliest things in nature. To compare the alpines with the occupants of the herbaceous border is to compare jewels with furniture: to contrast the rock garden with the massed wallflowers and geraniums of the orthodox gardener is to contrast jewellery with wallpapers and carpets. Furniture and carpets may be both essential for the house beautiful, but there is room for jewellery also.



A FINE MAT OF IBERIS SEMPERVIRENS MAKING A CORNER PIECE BETWEEN TWO PATHS. THIS IS AN INDISPENSABLE PLANT IN THE ROCK GARDEN.

And not only the rock plants themselves, but their setting, if it is properly arranged, is pleasing to the eye. The grey or red rocks are a welcome change to the brown areas of soil, and the irregularity of outline to the straight lines or laid-out curves of other parts of the garden. The escape from formality which it affords is the most charming attribute of the rock garden, and it makes its appeal all the year round. But spring is rock garden time *par excellence*. Thus, in a sunny hollow, with alpine treasures of every hue bursting into bloom or glowing in full expansion, we may experience that soul-satisfying contentment that few but the gardener know; time stands still, the day's worries recede into insignificance, and even the luncheon bell may call in vain. May the rock garden long hold one of the premier places in English gardens!



PHNE CNEORUM, A VALUABLE SPRING SHRUB.

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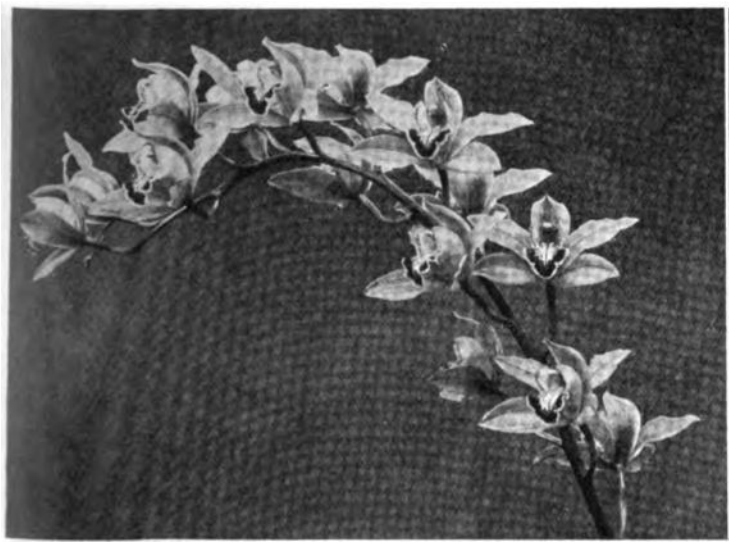
CYMBIDIUMS: ORCHIDS of EASY CULTIVATION

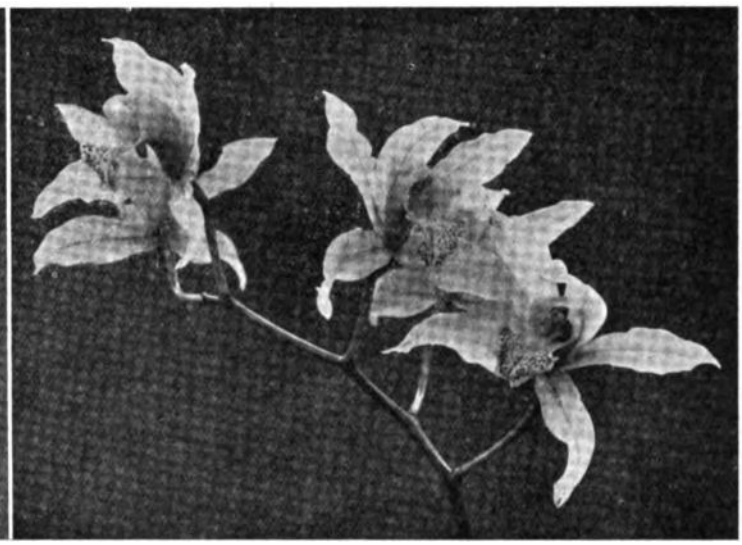
BY T. W. BRISCOE.

IT has been stated that every dog has his day, and this is certainly true in regard to various groups of orchids. Some ten or fifteen years ago the genus cymbidium was not held in very high esteem outside the gardens where a general collection of plants was grown, but to-day they are in the front rank and their popularity will increase rather than otherwise. The cause is not far to seek when we realise their decorative value, the ease with which they can be grown, the moderate temperature needed, and the low cost of many of the plants now in commerce. Among the older species will be found C. Lowianum, C. giganteum, C. eburneum, a beautiful ivory white, C. Tracyanum and C. insigne, all of which are worth growing.

The latter was discovered in Annan about twenty or so years ago, but it did not attract much attention until Messrs. Sanders of St. Albans exhibited plants under the name of C. Sanderi in 1905. It is a magnificent plant, producing flower spikes four to five feet in height, the flowers being white tinged with rose and the lip is more or less mauve heavily spotted with deep rose-purple. Such a distinct species was in great demand among orchid growers, the object being to use it for hybridising purposes, and the results obtained immediately placed the cymbidium in a most exalted position. Although the older species ought certainly to be represented by a few plants, it is among the hybrids that we shall find the material to form a collection, whether small or great, of these useful plants. The foliage of the cymbidium is long, arching and somewhat narrow, and a healthy specimen is always attractive even when not in flower. The spikes are more or less erect, but arch over gracefully towards the top. Hybrids vary in colour considerably, and out of a large batch of seedlings there will probably be one worthy of a distinctive name. These particular plants often realise high prices and are generally sold to a connoisseur, but the amateur or beginner will ignore these, and start with plants of average merit more reasonable in price. The following hybrids are well worth consideration, but the best plan is to see them in bloom, or consult a grower who specialises in these desirable plants. One of the first to be raised was C. Gottianum (C. insigne × C. eburneum), a plant worthy of wide cultivation. C. Alexanderi (C. insigne × C. Veitchii), C. Doris (C. insigne × C. Tracyanum), C. Pauwelsii (C. insigne × C. Lowianum), C. Schlegelii (C. insigne × C. Wiganianum), C. Sybil (C. eburneum × C. Pauwelsii), C. Corona (C. Lowianum × C. Schlegelii), and C. Castor (C. Woodhamsianum × C. insigne) are a few of the numerous fine hybrids there are to choose from to-day, brought about by the introduction of a single species, viz., C. insigne, and it is beyond doubt that this plant has revolutionised the genus if judged from the decorative or garden standpoint. Most of the hybrids are pleasing and attractive in colour, they have a stately and striking habit, and what is more from the beginner's point of view, they possess that desirable attribute, a robust constitution. Cymbidiums do not require a high temperature to bring them to perfection—a minimum of 50° being ample. Very low houses are not suitable for these orchids, but the average greenhouse will be found quite lofty enough, while a corridor at the end of a range of houses is ideal for them. They will also thrive among a miscellaneous collection of plants, providing a few cultural details are observed. A certain amount of light is necessary, and they need all the light possible the greater part of the year, but during the late spring and summer months moderate shade is essential. This ought not to be of a permanent nature, and should only be employed when the sun is bright. Ventilation is an important factor, and when the outside temperature is warm the top ventilators may be opened an inch or so providing it does not lower the inside temperature. Ventilators in the front wall of the structure are excellent for affording ventilation, the cold air then passes over the hot-water pipes before it comes in contact with the plants. Always avoid cold draughts, and consider the weather and direction of the wind before admitting air. The atmosphere is kept more or less moist by damping the floors and stages with water once or twice daily when the weather is hot, and a light spray overhead with tepid water will also be beneficial. Cymbidiums produce a quantity of thick, fleshy roots and therefore need moderate pot-room and a somewhat retentive rooting medium. All the ingredients are broken up into pieces about the size of a walnut, the fine particles of dust removed, and after adding a six-inch potful of crushed crocks to every bushel of the compost the whole is thoroughly mixed. Ordinary flower pots or deep pans are chosen and a thin layer of drainage material placed in each, over which is laid a little moss or loam fibre to prevent the drainage being choked with soil. It is important that the repotting be done at the right time, and few will go wrong if they watch for the new growth. This should be a few inches high, because at this stage fresh roots are made, and the plants soon re-establish themselves. Annual repotting is not needed, in fact, large examples will go for several years without disturbance, but young plants will need attention every two years. These are moved into larger receptacles without removing much of the soil, in the same manner as when repotting a pelargonium, but large examples will require dividing to keep them within reasonable limits. The roots are carefully unravelled and the back pseudo-bulbs are reduced to three behind each lead or growing point. If desired, each piece may be potted singly, but the best plan is to make up a compact specimen, distributing the leading shoots evenly over the surface and in such a way



CYMBIDIUM PAUWELSII.



A TYPICAL CYMBIDIUM HYBRID.

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that the new growths will not reach the edge of the pot for a year or two.

When repotting, press the soil fairly firm, and leave it just below the rim of the pot or pan to allow space for watering. Some growers include a few live heads of sphagnum moss in the last layer of soil, but, apart from appearance this is not necessary. Newly potted plants must be afforded water in strict moderation, or the roots will decay, but once they take possession of the soil a copious supply is essential. The roots are kept moist at all times, the greatest quantity of water being needed during the period of activity, and rain water ought to be used whenever it is available.

Cleanliness is absolutely necessary, and when the growth is young a watch must be kept for thrips, these minute insects penetrate down the centre, and unless they are destroyed progress will be impeded.

Fumigation will destroy them, but the fumigant must not be employed too strong; it is better to vaporise the house two nights in succession rather than risk injury to the plants. Scale insects are occasionally seen on the pseudo-bulbs and old leaves, but these pests are easily removed with a wet sponge or a pointed stick.

With ordinary care and attention no difficulty will be experienced in growing cymbidiums.

FRUIT-GROWING IN SMALL GARDENS.—IV

BY RONALD G. HATTON, M.A.,
OF THE EAST MALLING RESEARCH STATION.

PRUNING IN SMALL GARDENS.

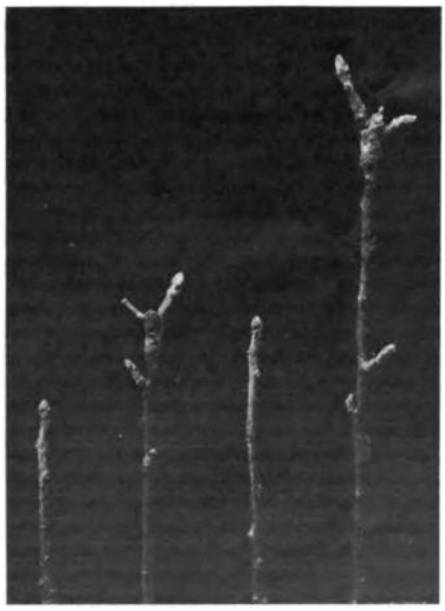
FIRST, with regard to pruning. Your trained tree has been chosen so that it may shade your small garden less, fringe your borders or cling to your walls. It has only a restricted space. There is an ultimate limit to its growth.

Now, at the outset it is worth repeating that the more you try to restrict your tree by hard winter cutting the more it will retaliate by wood-making in the coming season. Be gentle with your tree.

METHOD OF RESTRICTING GROWTH AND ENCOURAGING CROPPING.

Experiment has pointed out many ways by which we may coax it to modify its growth and produce fruit. First and foremost, there is the use of the root systems that restrict, then the more laborious method of root pruning or constant shifting. Try these methods first, for root restriction is desirable in the small garden. If your tree is not on the right roots, or if it does not respond to root treatment, you may resort to ringing or notching in the early spring. Science has verified and amplified what our ancestors long ago practised, and has shown that many an intractable apple may thus be made to fruit.

Experiment has proved and proved again that the less you prune, within reason, the more quickly your tree crops. True, your cordon and espalier must be pruned, but in so doing remember this main principle. And let me give you two others; the later you leave your pruning of main leading growths into the spring, the less violently will they retaliate; and again, pruning in summer of your side growths also tends to lessen the tree's vigour.



DESIRABLE FERTILE LATERALS TO BE LEFT.

PRUNING THE TRAINED TREE.

Your main object on the cordon, and therefore on the espalier or fan-trained tree, which is merely a multiple cordon, is to create a single straight stick upon which at every hand's-breadth is a fruit spur, bearing one or more perfect fruits, the whole under your complete control for picking, pruning, spraying. Within reason, the less you interfere with the main terminal growth the better until it passes right beyond your reach or the reach of a step-ladder.

Try to check first by bending it over, by ringing, by late spring cutting—but once your cordon is in heavy fruiting the cutting of the leader should not be much of a worry to you.

Now, as to the fruiting spurs, and lateral growths which you want to convert into fruiting spurs. You have two alternatives: to nip these latter back in summer or merely to "spur prune" in winter.

ALLINGTON PIPPIN'S NATURAL HABIT.

WINTER-PRUNING THE CORDON.

In commerce we rely almost entirely on spur-pruning in winter, and, so far, I find that trees on the little dwarfing stock Type IX fruit well on this method. It is quite simple. Let me take you through the stages by which we convert an infertile lateral wood growth into a fruit-bearing spur. Experiment has made sure these operations for the pruner. Mind you, some of your weaker lateral growths, on certain varieties, are best left alone for a few years, as they occasionally fruit on these "dards" and "brindilles," as the French call them. You can always work back these untidy little laterals later.

But after you have cut clean away at the base any very coarse laterals, as being too strong ever to be fruitful, turn your attention to the medium laterals and follow out this simple instruction.

First year.—Cut back your lateral to four or five good buds.

Second Year.—You will find, in most cases, new growth has been made at the point of cut, but that below you have something forming which looks suspiciously like a fruit bud. But do not be in a hurry, or you may find you force it into growth again. Cut back your new growth once again to within a bud or two of its base; then

Third Year.—You may cut right back to your fully established fruit bud.

And now, remember that this fruit bud or spur is capable of infinite development. If you are careful in fruit picking it may rest dormant for the following year and fruit again the next, or it may form a short fruit-bearing dard. Leave such if there are not too many.

SUMMER PRUNING.

As an alternative you may summer prune your lateral growths. It seems possible that frequent lack of success in

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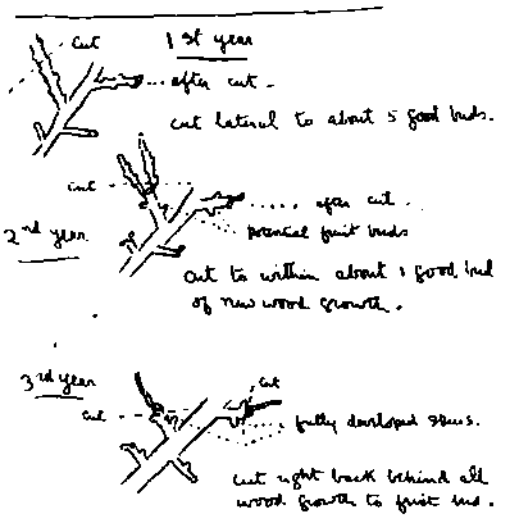
this country, and consequent lack of faith in the method, are due to the fact that we are not sufficiently drastic. Commonly, we nip our laterals to four, five or six buds in July or August, or both, and then, if a season of late growth follows, we get nothing but new, short, unripened wood shoots instead of the hoped-for fruit bud. Experiment seems to be pointing to the fact that the harder you cut your laterals in summer the less likely they are to make wood growth again, and, therefore, the more likely to form fruit buds. If you have anything of the experimenter in your nature, try cutting back some of your laterals quite hard in summer, say to within one bud of the base, and watch results carefully under your conditions. To grow your wall plums and peaches you must, of course, resort to summer disbudding;



but remember that the peach and morello, especially, fruit almost entirely on last year's wood, but you can have too much of it. Success depends on summer nipping, and you had best remove all superfluous wood in this way.

THINNING OLD TREES.

If you are unfortunate enough to have large, old, shapeless trees in your garden, remember that they probably need light and air. Thin, cut out whole branches, work back side laterals until you can see the blue sky and work your arms comfortably within the spaces.

It is as well at the end to point out again that hard pruning is injurious to the cropping capacity of the tree. What should be aimed at is a *via media* when the best crops can be obtained without injury to the tree.

THE HERBACEOUS BORDER

BY H. W. CANNING WRIGHT.

FOR spring, as with autumn, planting of herbaceous plants, the most important point is thorough soil preparation. These plants will occupy the ground for three years or more, with only the opportunity to top-dress, so that deep digging and manuring are essential to success.

If the soil be light, use plenty of cow manure: if heavy, stable manure with plenty of straw in it, and *not* that where peat bedding is employed. A dressing of lime is always desirable; while kanit at the rate of 2 oz. per square yard, is a slow-acting substance that supplies potash. Let each and all of these be thoroughly incorporated into the soil, this being especially necessary in the case of the animal manures.

Freshly dug soil is not the best for planting, so that ten days or a fortnight should be allowed to elapse, after digging is completed, before the plants are put in. Meanwhile, leave the surface rough and rake down just prior to planting. This is beneficial in two ways: it aerates the soil and helps to dry it. The latter is very important, as perennials cannot be successfully planted in wet, clammy soil.

Spring is an ideal time for this, and the planting itself a very simple matter. We wish, however, that every grower would take as much care when dealing with his herbaceous perennials as he does when planting—say—roses. It is every bit as important to take out a sufficiently large hole and carefully spread the roots, covering in little by little with soil and firming as you proceed. Do not use the foot too violently, especially when dealing with such fragile-rooted plants as the alstrœmerias or the thong-like kniphofias. It is important that these should be made firm, but not by careless or violent means.

Spring planting also enables one to judge the depth at which the plants should be set: for, in a great majority of cases, growth will already have commenced, and thus one can see exactly how deep to bury. Fibrous-rooted plants—such as phlox or moisture-lovers that have their roots near the surface—benefit by a mulch of old manure, especially if the weather turns dry, and, in any case, quick re-establishment must be ensured by liberal waterings.

Turning now to varieties that can be especially commended for spring planting, do not overlook the aconitums—so valuable for retaining blue colour in the border late into the autumn; while the variety Wilsoni, in pale violet, which maintains a long season by means of its lateral growths, is splendid. Alstrœmeria, with its gorgeous blaze of orange-yellow lily-like blooms, will not flower the first year: but you are one year nearer the perfect plant by getting the roots in now, and there is no question that it is the safest period in the year to effect removal.

HERBACEOUS PHLOXES AMONG THE BRIGHTEST OF BORDER FLOWERS.

Hollyhocks will be grand in autumn, but use seedlings, and spray before midsummer if you would avoid disease. Japanese anemones may certainly be planted, while seedling antirrhinums should provide a blaze of colour. Asters are essential, and we do commend to your notice some of the many excellent giant-flowered novelties. Campanulas ought to be largely represented, for their long flowering season makes them indispensable. Do not hurry with outdoor chrysanthemums, but insert the labels and leave their spaces, lest you forget them.

Delphiniums are simply glorious back-row specimens, while some of those of dwarfer stature should also be allowed to break forward and carry their inimitable blueness towards

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the front. The wonderful steely blue eryngiums should not be forgotten, and—here and there—a good bush of that ever useful plant, Gypsophila paniculata fl. pl. may find a place. Helianthus—tall, golden yellow sunflowers—and helenium, in a wonderful range of gold and coppery red, are both glorious for autumn display; while torch lilies—kniphofia—set the garden aflame from June onwards. Quite a feature may be made of these, and without risk of monotony, either in colour or form; while the period over which they bloom—May to mid-October—leaves nothing to be desired. I especially commend K. tricolor major, with strong upright stems, 3ft. tall. The expanded flowers are pale primrose yellow, the upper ones gold with a hint of green, and the unopened buds terra-cotta red.

K. comosa is very distinct, with short bottle-brush heads of brilliant carmine orange, 4ft. This species is unusual, in that it reverses the usual order by expanding its buds from the top downwards. K. erecta is good, the flowers coral-scarlet, unexpanded buds dull red. In this, when the buds are ready to expand, they point upwards against the stem; while the younger buds point downwards, giving a most curious effect where the two meet.

K. chrysantha is delightful with long spikes of golden yellow, the unopened buds being a lovely citron green. All of these should not be omitted from among the dwarfer plants, and worthy of special praise is A. acris punctatus, which does not exceed 1ft. in height. The leaves are deep green, with thin wire-like stems and light heliotrope flowers in great profusion.

In even the largest border it will be found that an immense number of dwarf and medium stature plants are required, for too many taller growers detract from that sense of breadth which is so essential to a good appearance. For its continuous flowering qualities, Helenium pumilum aurantiacum is difficult to beat and bears a great profusion of orange-yellow flowers through summer and autumn. For September flowering, Helenium autumnale cupreum—18ins.—is simply splendid, giving large bushes of bright coppery brown flowers which possess that luminous light that carries well across the garden.

If you want to combine value for cutting with decoration of the border, Coreopsis grandiflora Perry's variety, should please you. This forms neat bushes of foliage, from which rise enormous numbers of very large semi-double flowers of a vivid golden yellow. It is too late to plant sweet williams successfully, but a note should be made and seeds sown—for next year—of such vivid varieties as Pink Beauty. Meanwhile, such spots as they are to occupy may be planted up with violas,

AN EARLY SUMMER BORDER BRIGHT WITH LUPINS IN MANY DELICATE SHADES OF COLOUR.

are, more or less, tall growers and suited to back row or middle positions; but full use towards the front should also be made of the dwarf forms. K. rufa, for example, is but 18ins. high, with thin wiry stems and golden yellow flowers lightly touched with coral red. K. brevifolia Macowani is similar in height, with small spikes of vivid yellow passing to tawny orange.

We always love the white everlasting pea—preferably at a corner, where it can shower its blooms about, somewhat untidily, in a natural bouquet that does not fade for weeks. It is not too late to plant the wonderful montbretias, while phloxes are a host in themselves, either in sun or shade. All peonies transplant well in spring; so do rudbeckias, and, in these, do not omit lacinata fl. pl. Some of the dwarf asters for these will give glorious colour masses until late into the summer. Heucheras are grand front-row plants and transplant splendidly now; while, if you have any old clumps, these will benefit by splitting into single crowns and replanting. See that they are kept moist, and they will soon grow again. Among these I can specially recommend H. brizoides gracillima, with branching panicles, 2ft. high, smothered with rich crimson flowers. H. sanguinea Pluie de feu, is a French introduction and a splendid plant, with fiery red flowers all through June and July.

No modern border would be complete without a generous representation of Allwoodii; these are excellent for meeting the demand for a dwarf plant that flowers over a long period in a variety of colours. Spring is the time *par excellence* for

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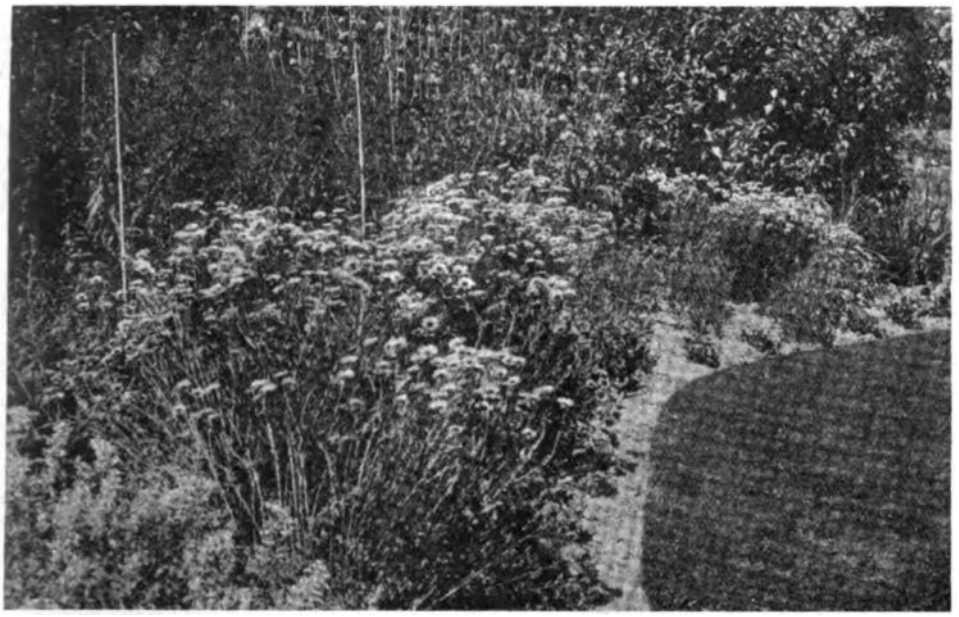

THE END OF A SUNNY BORDER WITH A BACKGROUND OF TREES

not only freer flowering than the doubles, but are more brilliant in colouring and certainly better adapted for cutting.

If your border fronts upon a path, by all means seize upon the opportunity to edge it, here and there, with a few rocks. Not too many, nor too large, but just enough to give an excuse for massing broad sheets of some of the commoner rock plants, such as arabis, aubrietia, alyssum and certain of the more vigorous saxifrages. These give a glorious wealth of violet, purple, rose, white, gold and crimson, that will make your border fully as attractive in the early months of the year as it is in the summer. By thus massing your colour at the fore-front early in the year, you will find no lack of interest and, later, as these plants pass again to green, they form a neat and effective edging to the taller growers. In this connection the Megasea saxifrages are capital plants, and one can rely upon their handsome foliage throughout the year.

Finally, whatever you plant, do so generously: not fewer than three specimens to make a clump, and if the border is a large one, from a half to one dozen.

planting the splendid double and single pyrethrums. A special word of praise should be accorded to the singles, for these are

POTATOES FOR THE PRESENT SEASON

BY A. J. MACSELF.

ABOUT this time last year potatoes were a drug on the market. Growers were overloaded, and merchants could not deal with half the available supplies, despite ridiculously low prices. One result was that commercial growers decided to plant less, and a vast number of amateurs decided not to fill their limited space with a crop that could be bought at less than the cost of production.

The danger now is that scarcity and high prices of seed potatoes may induce many amateurs to plant their own instead of buying new seed, but that has, by experience, been proved to be false economy, as a complete change of soil and environment for potatoes is an essential to complete success. The extra initial cost is repaid fourfold in increased yield and quality. The potato is too important a crop to play with, and every owner of a vegetable plot should plant the best he can procure.

Of late years we have grown a large number of varieties. During the war greatest consideration was given to bulk of crops, and a certain number of varieties found favour which certainly was not due to merit beyond that of being heavy croppers. For the last two seasons, however, a marked change has been apparent, and there are unmistakable signs that considerably more attention is being paid to flavour, texture and form.

In this connection it is interesting to study the statistical information published by the Ministry of Agriculture in regard to the acreage devoted to the principal varieties in comparison with that of a few years back.

The particular list to which I refer concerns itself with potatoes grown mainly by the seed growers of Scotland, and as the stocks they grow are distributed far and wide the logical conclusion is that the rise and fall of a variety in seed-producing areas is an indication of its fate in private gardens, from whence the demand for seed arises.

The once sensational Northern Star was, five years ago, grown to the extent of 1,009 acres. In 1920 it dropped to 698 acres. By 1922 it had still further fallen to 443 acres, and in 1923 the figure was only 194 acres.

Commercial growers have evidently found that Northern Star failed utterly to fulfil the great things that were prophesied of it, and private growers must also have lost faith in it, for, depend upon it, if the demand for seed had been maintained the acreage would have correspondingly taken care of itself. For confirmation of this view we need only take the reverse case of Kerr's Pink, which in 1919 filled an acreage of 1,061. In 1920 it sprang to 4,451 acres, and in 1921 it took a further leap to 11,809. In 1922 it accounted for 11,326 acres, and in 1923 the figure was 10,988. Bearing in mind that the total acreage for all potatoes in 1923 fell far short of the average, Kerr's Pink must be considered to have held an extraordinarily good position. The reason for this is that it is a potato which combines capital flavour with heavy cropping capabilities, it keeps splendidly in storage and is immune from wart disease, which is an important point in scheduled areas.

A potato that I have many times eulogised and have urged many to grow is Tinwald Perfection. This, in 1919 occupied 682 acres. In 1922 it had risen to 5,125 acres. Last year it was down to 2,372 acres, but that, again, is probably due in part to the general decline in potato acreage, and it shows a striking contrast to Evergood, which stood at 3,273 acres in 1919 and was down to 320 in 1923.

Arran Chief has had a wonderful run of popularity. In 1919 no fewer than 32,477 acres were grown. Last year the figure was 21,021; but no other variety reached the twenty thousand mark, the nearest approach being King Edward with 16,899. The year previously it was 20,276.

Of varieties which have fallen most during the five years, Ally, Evergood, King George, Northern Star, President (from 5,142 acres down to 426 acres) and Templar may all be said to have been relegated to the category of failures, and they are all varieties that lack first-class quality.

Very striking is the progress of Golden Wonder, a potato that has no superior in flavour, but which for a while was saddled with a reputation of laziness in cropping power. In the year 1919, 3,767 acres were grown, and in each succeeding year the figures have increased as follows: 4,155, 5,305, 7,862, 12,403. What more eloquent testimony is required than this? and who shall still maintain that the Britisher is no judge of quality in a potato?

Both Sharpe's Express and Duke of York, two of the most serviceable earlies, have travelled from just over 600 acres each in 1919 to over 2,300 in 1923. The garden owner who does not quite know what to plant will be fairly safe in choosing a variety that is conspicuously on the upward grade, for commercial growers do not waste their acres.

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NEW AND RARE CONIFERS

BY E. H. WILSON,
OF THE ARNOLD ARBORETUM.

PICEA WILSONII.

IN young plants of P. Wilsonii the branches are numerous, spreading, more or less upturned at their extremities, with dark green acute leaves, the upper inclined forward, the others spreading more or less in one plane at right angles to the shoot, from ½in. to ¾in. long, and lustrous on both surfaces. The shoots are slender, pale grey, glabrous or nearly so; the winterbuds are grey to dark brown, ovoid, non-resinous, with firmly imbricated, erose bud-scales. As it grows in the forests of central China this is a tree of moderate size, not exceeding 75ft. in height and 7ft. in girth of trunk, pyramidal in outline, with short, dense, horizontally spreading branches. It is fairly common on the higher ranges of north-western Hupeh at altitudes between 6,500ft. and 8,000ft., and appears to be even more plentiful in the province of Shansi, especially on Wutai-shan.

PICEA ASPERATA IN THE ARNOLD ARBORETUM.

It was discovered and introduced into cultivation in 1901 by myself, and a few plants were distributed by Messrs. Veitch. In 1909 William Purdom collected seeds of this spruce in Shansi, and the plants growing in the Arnold Arboretum were raised from his seeds.

PICEA ASPERATA.

In its juvenile stage, P. asperata is a sturdy-growing plant with relatively thick, spreading branches and dark green or glaucous leaves, stout, spreading on all sides of the shoot, very pungent and from ½in. to ¾in. long. The shoots are orange-brown, glabrous or puberulous; the winterbuds are nearly the same colour as the shoots, ovoid, swollen at the base, non-resinous, with bud-scales scarious and free at the apex. In a natural state this is a tree from 100ft. to 150ft. tall, with horizontally spreading, slightly decurving branches upturned at the ends, and old trees are very spire-like in appearance. The bark is grey-brown, fissured, and peels off in thin flakes of irregular shape; the cones, which vary from 3ins. to 5ins. in length, are fawn-grey. Some of the trees are very glaucous in appearance. This is the Chinese homologue of the Norway spruce, and is the common quadrangular-leafed species of north-western

FINE SPECIMENS OF PICEA ASPERATA, 80–110 FT. TALL, FORMING BELTS OF ALMOST PURE FOREST IN NORTH WESTERN SZECHUAN.

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A NOBLE FIR, ABIES FARGESII, OVER 100 FT. HIGH.

PICEA WILSONII IN N.W. HUPEH 60–80 FT. TALL.

Szechuan, where extensive and almost pure forests of this tree occur. It was discovered in 1903 by myself, and in 1910 it was introduced into cultivation by seeds which I sent to the Arnold Arboretum. Its two varieties (notabilis and ponderosa), which differ in size of cone, shape of cone-scales and other minor characters, were also introduced at the same time, but as they grow in the Arnold Arboretum they are at present indistinguishable from the type.

A SEEDLING OF A. FARGESII IN CULTIVATION.

ABIES FARGESII.

When young, Abies Fargesii is a decidedly handsome fir, with lustrous, blackish green, ascending-spreading leaves, soft to the touch, each from ¾in. to 1½ins. long, and with two prominent white, stomatic lines on the under-surface and terra cotta brown, glabrous shoots. The branches are inclined upward, the winterbuds are ovoid, shining purple-brown and non-resinous, with firmly imbricated bud-scales. In China it is a noble tree, upwards of 100ft. tall, with a thick, columnar trunk and a narrow crown of short, massive branches, horizontally disposed. This is the common silver fir of north-western Hupeh and adjacent Szechuan, where remnants of old forests of it still occur. It was discovered between 1892 and 1898 by Père P. Farges, and introduced into cultivation in 1910 by means of small plants which I sent by mail to the Arnold Arboretum. The plants have proved perfectly hardy, and this fir promises to be a very important acquisition to gardens.

PICEA WILSONII IN THE ARNOLD ARBORETUM. JANUARY, 1924.

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THE TRIFLORUM SERIES OF RHODODENDRONS

BY E. H. M. COX.

THE article under this rather frigid title will, I hope, help to popularise a series of rhododendrons which without a doubt are among the most useful, accommodating, and beautiful of flowering shrubs. Rhododendron species, as a rule, are looked upon by the amateur with rather an unnecessary awe. It is true that many of the newer species are hardly in general cultivation as yet and that well grown plants of almost all of them, whether new or old, are on the expensive side. I hope, however, in this and a further article or two to prove that some rhododendron species are worth growing by anyone who has a garden.

So numerous are rhododendron species that to help in their identification they have been serialised; that is to say, species which have certain well defined characteristics in common are grouped together around one plant, usually the first of the series to be discovered. In this case the type member is R. triflorum, a Himalayan plant found and introduced by Sir Joseph Hooker in the fifties of the last century. It is, perhaps, unfortunate in this case that R. triflorum was the first of its series to be discovered, as it is about its least worthy member and is now rarely met with in cultivation. It is fairly hardy, but its colour is a greeny yellow of no distinction, and it can be dismissed with no further description.

The main points in favour of the Triflorum series are that they are quick growers, easy to cultivate, amenable to many conditions found in British gardens, easy to strike from cuttings, with a few exceptions absolutely hardy, and without exception very floriferous. They are all twiggy shrubs from 4ft. to 10ft. in height; the leaves are narrow and tapering at both ends; the flowers are carried in loose terminal clusters; the corollas are almost flat in appearance owing to the diameter, which is large in comparison to the length of the tube.

The facts to remember for their successful cultivation are as follows: Absence of lime in the soil is essential; a soil which allows for good drainage is necessary; they should be planted where they can have shade in moderation; shelter from wind is advisable; they require a certain amount of moisture; there should be a quantity of humus, either leaf-mould or peat, in the soil—if it is not present it can be added; to propagate from cuttings, half-ripened wood should be taken.

Their beauty is not of that bold character so often associated with rhododendrons. They have no large fat trusses which sit up aloft and stare at you. Their beauty is far more elusive and is not to be found in the examination of a single flower—or even of a single plant, beautiful though that may be. Theirs is a beauty gained from a mass which shimmers like the folds of old silk. Whatever the colours are they are delicate in shade. That being the case, it is advisable, where possible, to plant them in groups of one species. In planting seedlings allowance will have to be made for their quick growth. As a general rule 4ft. is a good average to keep between them.

THE MOST FREE FLOWERING OF THE SERIES, R. YUNNANENSE

RHODODENDRON OREOTREPHES, ROSE FLOWERS TINGED WITH LAVENDER.

The best members of the series are the following:

R. AMBIGUUM.—This plant comes from Hupeh in China, and has yellow flowers with a faint greenish tinge to them. This tinge is no deterrent, for it is clear in tone. R. ambiguum flowers in late April and early May. It is particularly useful in our gardens, as it will stand hard usage and is very accommodating as to position. It should not be planted close to orange and yellows, which do not show off R. ambiguum to advantage.

R. AUGUSTINII, called after Professor Augustine Henry, by whom it was found in Yunnan. The colour is rather variable, and care should be taken as to its selection. Its best form is one of the bluest rhododendrons in cultivation; it was introduced by Wilson under number W.4238. The colour ranges from this bluest of lilac colours to a muddy pink-lilac, which should be avoided. It flowers at the same time as R. ambiguum, but asks for rather more attention as regards situation. It should be planted in light shade, and to get the best effect should be kept fairly moist.

R. CHARTOPHYLLUM PRÆCOX.—My especial favourite in the series. The leaves are rather

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broader and the plant is more bushy than the usual members of the series; it is also semi-deciduous. The flowers are white or the very palest pink in colour, usually with crimson markings; in one form the markings are orange. They are both equally attractive. Its appearance is so diaphanous in full bloom and its habit so graceful that it may well be grown as a specimen plant. That I am not the only admirer of this plant is shown by the fact that in North-West Yunnan it is the only rhododendron cultivated by the Chinese in their gardens. This is praise indeed.

R. LUTESCENS, with pale yellow flowers. Not quite so hardy as the rest of the series, for it flowers early and is sometimes cut. It requires a certain amount of shade and shelter. To appreciate its pale beauty it should certainly be grown in a clump.

R. OREOTREPHES.—One of the best. It is farthest away from the typical triflorum, for the leaves are more oval and have a bluish tinge to them. The habit is more bushy. The flowers are deep rose with a trace of lavender. It is not particularly touchy about moisture and will flourish on a moderately dry bank.

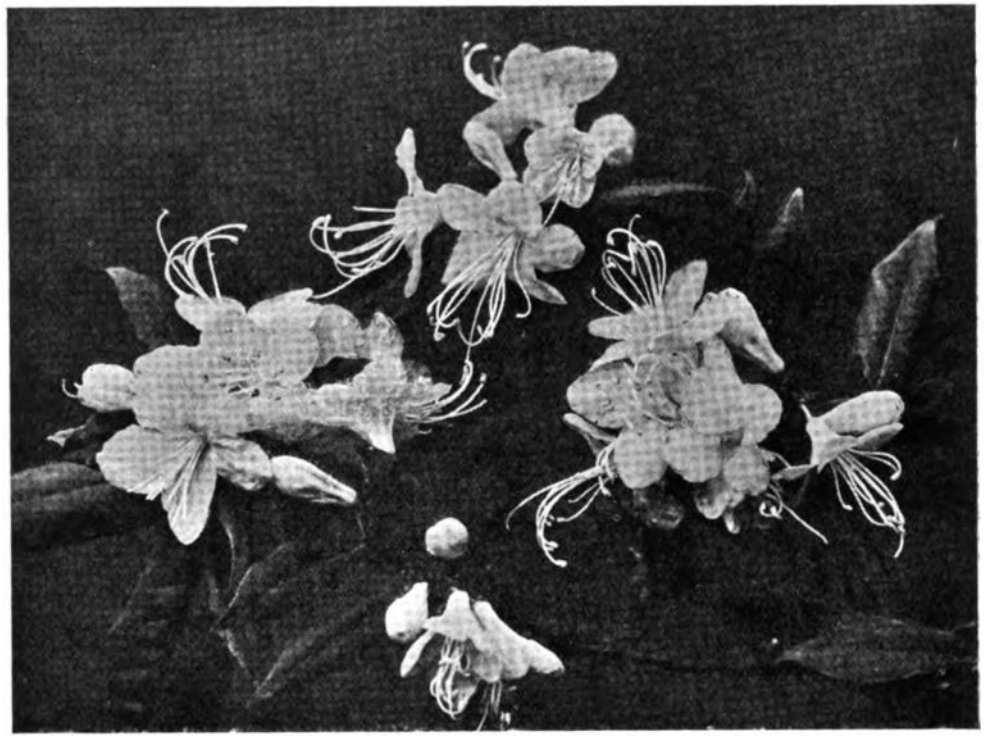
R. VILLOSUM.—A purple beauty. Messrs. Gill of Falmouth showed a particularly fine form of it at the Chelsea Show of 1923. Its colour was deep and so rich as to be almost a royal purple.

R. YANTHINUM.—One of the most variable in colour, ranging from nearly pure white to purple with brown blotches. Like so many rhododendrons of variable colour, it can be very fine or it can be horrid. It is worth while picking out a good form and striking your own cuttings in preference to growing from seed, as the seed does not come true to colour.

R. YUNNANENSE.—One of the greatest favourites and perhaps the most floriferous of a floriferous series. The colour is pale pink with crimson spots or blotches. This is a very common plant in China and is really magnificent. At the Royal Botanic Gardens at Edinburgh they have a hedge of this rhododendron which is worth travelling from the ends of the earth to see in full bloom in early May. It is absolutely hardy and accommodating.

R. ZALEUCUM.—The largest member of the series. It will grow to a bush of 14ft. or more in height. The colour varies from a pale lilac to a blue-lilac, almost approaching the finest form of R. Augustinii in tone. It is quite hardy, but not quite so floriferous as the rest of the series.

This by no means finishes the list, but I hope that there is a sufficient selection in the above to tempt people to grow these fascinating plants. Without a doubt it is the series of rhododendrons best suited for the ordinary garden. All the plants mentioned are in general cultivation, and can be obtained from many nurserymen who specialise in rhododendrons and shrubs generally.



PALE YELLOW, R. LUTESCENS. TO APPRECIATE ITS BEAUTY IT SHOULD BE GROWN IN A CLUMP.

TULIP TALK

BY THE REV. JOSEPH JACOB.

THE TULIP IN LITERATURE—ARM-CHAIR GARDENING—THE LAUGHING CAVALIER SCENT—JOHN REA—THE CAUSE OF THE MANIA—WHAT GREAT LADIES WORE ABOUT A.D. 1635—TYPICAL EXAMPLES OF SUCH FLOWERS.

IT is just what happens when one has decided to build a house. Up to that time one passes by houses or goes in and out of them with, comparatively speaking, unobservant eyes. But once the fateful decision has been made, it is surprising how one notices matters one never noticed before. It is the same in the world of flowers. Once the Rubicon has been crossed and a "Curious" has said to himself, "I am really going in for this or that," it is wonderful how he takes note of this or that whenever he comes across them in his ordinary reading. Only the older generations of gardeners will remember dear old F. W. Burbidge. He was "great." I remember a long talk we had about what I may call armchair gardening. His idea was that long winter evenings might be utilised in trying to get together a collection of references to a special flower, or to special flowers, in literature. I did not know it at the time, but he must have done something of the kind with regard to the daffodil, as I can prove from some papers of his that came into my hands after his death. The seed Burbidge sowed has germinated. What he did with the daffodil, I now find myself continuously doing in the case of the tulip. Now, luckily for me, the tulip is, perhaps, the best of all flowers for armchair work. Very likely Mr. Arthur Grove could produce lily references galore, and Mrs. Darlington rose quotations as sand on the seashore; but, considering that the tulip is, as it were, a flower born out of due time, with hardly four centuries of civilised existence to its credit, it is a standing wonder how frequently references to it are to be found in just-bread-and-butter writings. It seems as if the pleasant shock of its sudden appearance in the sixteenth century still reverberates, and that we need no super-powerful receivers to hear the famous broadcasting of the Mania time of 1635–37. Truly, as a Western flower the tulip had a great send-off. One of my latest finds is in the Baroness Orczy's "Laughing Cavalier" (now no longer to be found on Frans Hals' splendid canvas or under the pen-name of "Diogenes" in the Baroness' book, but, if I mistake not, in something very like flesh and blood at the Council table of the mighty in Vincent Square!). The rivalry of the rich men of Haarlem, and the handiness of the name of Mynheer Beresteyn's "Schwarzer Kato," are more or less the sort of references that one expects. What "found" me most of all was the description of the heroine Gilda's "small white hand" as possessing "the subtle fragrance of tulips." Well done, Baroness! You have said what is very true. Putting on one side the stronger scents of Sulphur, Jenny and Prince of Austria, nearly all garden varieties have a strange undefinable aroma which fascinates and allures like that well known smell of the East. Here the armchair gardener might register a vow to try his spirits—that is, his tulips—and let his poor old nose have a

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chance. It likes having something to do, although some modern raisers of flowers seem to forget this. Suppose all roses were Frau Karl Druschkis in their scentlessness and other families followed suit—the next step would be atrophied noses!

Again, another value of this reference collecting habit is the historical one. Gardening is a great asset to the eye, the nose, the tongue and, in more ways than one, to the mind. The first purely gardening flower book that was produced in England was John Rea's "Flora, Ceres and Pomona," which appeared in 1665. It has been far too much overshadowed by the larger work—the "Paradisus"—of Parkinson; but if I wanted to know what *actually* was grown in the best English gardens about this time, I would go to the work of Rea and not that of Parkinson. In one of his dedication poems—that to Lady Gerrard of Gerrards Bromley—we get these four lines:

"Mark how the glorious Tulips rise
In various dress, to take your Eyes,
And how the fair'st and all the rest
Strive, which shall triumph on your Brest."

I call attention to them not because Rea considered tulips "the most glorious ornaments of the best Gardens" or in order to discuss the differences between "the early, middle, and later flowering varieties" of which full lists are given; but because he tells us that they were worn on ladies' dresses. This, of course, naturally calls to mind the Mania time. As far as I can learn, the initial cause of the incomprehensible madness of the people of the States of Holland was the simple and natural one of the rich young men of Paris to procure for their best young women the finest and the rarest of flowers for them to wear in their dresses in an evening. Just as I seem to remember in my early days camelias in the hair were all the rage. "In her hair she wore a white camelia," so "Tulips in her dress" would portray the floral embellishments of the seventeenth century belle of the ball. Can I give any idea of the type of tulip that might have been worn in those distant days? Yes, I think I can. They would almost to a certainty be striped ones, or edgers, that is, with an edging of a different colour from the body of the petal as we now have in the "Lac" type. Their petals would be more or less pointed. Their colours would be much as we have them now, only the greater the mix-up the more they would be esteemed—"Agot" and "Morillion" were two of the names given to what we would now call "strains," and denoted different mixtures. If a striped were used it might be something like Admiral Reyniers, Globe de Rigaut or Golden Bride of Haarlem. If an "edger," it would very likely feature Mrs. Elwes, Lac van Rhijn or Duchess of Parma.

Some of these may be in flower now, or may have just passed out of flower and be remembered. They are generally, nowadays, grown under glass. Those who force tulips might like to jot down the names, so that another season they may be able to say to friends as they go round the greenhouses or see them in their sitting-rooms, "These are the sort of things that Mynheer Beresteyn and his friends bragged about, or that Lady Gerrard wore if ever she gave a ball in spring-time at Gerrards Bromley."

A PICTURESQUE AND DELIGHTFUL FIELD OF TULIPS

THE BIG BUD MITE WHICH IS DECIMATING THE BLACK CURRANTS

BY SIR GEORGE WATT.

THE alarming disease met with on black currants and known as the big bud or gall mite was first recognised in this country about the year 1850. It was then recorded from one or two localities, but viewed more as an entomological curiosity than as a dangerous pest. Since then it has spread over the length and breadth of the country and become so serious that it may be said to threaten the very existence of black currant cultivation.

DESCRIPTION.—According to entomologists, it is not an insect but a four-legged acarina or spider. It is about one-hundredth part of an inch in length, so that it cannot be seen by the naked eye, though readily discovered on cutting open a swollen bud lengthwise and examining the central axis of crowded young racemes of flowers and distorted embracing bud scales, using for that purpose the magnification of a ten or twenty power lens.

PROTECTED AND EXPOSED PERIODS.—Once the mites make their escape from the buds and get on to the leaf-stalks, twigs, etc., they drop from twig to twig or to the ground and, I believe, are wafted on the breezes far and near. Crawling about all over the plant, they have little difficulty in getting attached to insects, birds, or the dresses of people working in the plantation, hence, by numerous different methods, they doubtless are carried to new feeding grounds.

During their residence within the buds the mites are completely protected from both their natural enemies and the chemical reagents used for their destruction. The period of exposure is, however, very short, for no sooner does the mite reach a new bud than it at once crawls between the bases of the imbricating scales and soon finds itself in the very heart of the bud—a veritable city of refuge—where its descendants may reside in perfect safety for some time (six to nine months) before their depredations cause the bud to swell and burst open and the resulting scarcity of food renders migration imperative.

DIFFICULTIES OF TREATMENT.—It is the brevity and intermissive character of the periods of exposure and the complete security at once attained within the bud, that render all methods and materials of chemical treatment next to futile. Insecticides are of value only when the mites are wandering about outside the buds, and if they all were to come out at one and the same time they might be dealt with effectually. An insecticide may be used with good effect to-day, but a few days later a fresh swarm may occur; hence to be really effectual the insecticide would have to be used every now and again throughout the year. It is the failure to recognise repeated swarmings that has led to so many false hopes of success. There is, of course, one great swarming season, namely, from March to May; but there are, in addition, what may be called individual bud swarmings throughout the year, except during the coldest days of winter and spring.

From May to July the mites may be said to disappear—there are many fewer swollen buds present then than at any other time. The mites from the great swarming season have either found their way into new buds or have perished. Buds in every stage of mite infestation may be discovered, however, on one and the same shoot: some large, greatly swollen, widely open at the apex, and with mites clearly crawling out of them; others sufficiently advanced that they

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will open in a week or two; still others only partially swollen or not swollen at all and with the apex securely and firmly closed, nevertheless mite-infested. The last-mentioned have quite recently been invaded, and just now there may be within only one mite or a very small colony so that they may be difficult to discover. These facts explain why the systematic and even persistent removal of all big buds, as also the removal of all visibly affected portions of bushes, are of necessity futile methods of treatment. The buds left on the bushes, though they may not be big buds, may still be mite-infested and very shortly will swell and discharge their hordes of mites ready to attack the buds of the new shoots. And buds of new shoots are more readily attacked than buds on old shoots, so that the pruning has only intensified the malady.

SUGGESTION OF FIRING AS A REMEDIAL MEASURE.—In 1922 I was asked by the Directors of the Crichton Royal Institution of Dumfries to take the supervision of a fairly large plot of badly mite-infested black currants (1,932 sq. yds., or 427 plants of Boskoop Giant). I was given authority to conduct any experiments that I believed might lead to the discovery of practical results. I may explain that for some years previously all known methods of chemical treatment had been tried, but with no beneficial results. Heavy pruning had also been resorted to, but shortly after there was not a bud free from mite on the young shoots that sprang from the collar-pruned stools. Clearly, something more drastic had become necessary, or the cultivation would simply have to be abandoned and land somewhere else found for a new plot.

Experience gained in India suggested to my mind the possibility of success by burning the bushes to the ground. I satisfied myself that suckers were so freely and readily given off by the black currant that, were the plants burned *in situ*, fresh shoots almost for certain would be given off from the underground stems, and the plants thus resuscitated very possibly might prove to be mite-free.

I have reason to suspect that there may be a hibernating stage in the life-history of the mite, and that it then rests in the soil. If, therefore, firing be sufficiently well performed, not only would every trace of mite-infested buds be destroyed, but the soil also would be purged.

Having arrived at the conclusion that a systematic firing as a remedial measure should be tried, certain practical issues had next to be dealt with, such as the following:

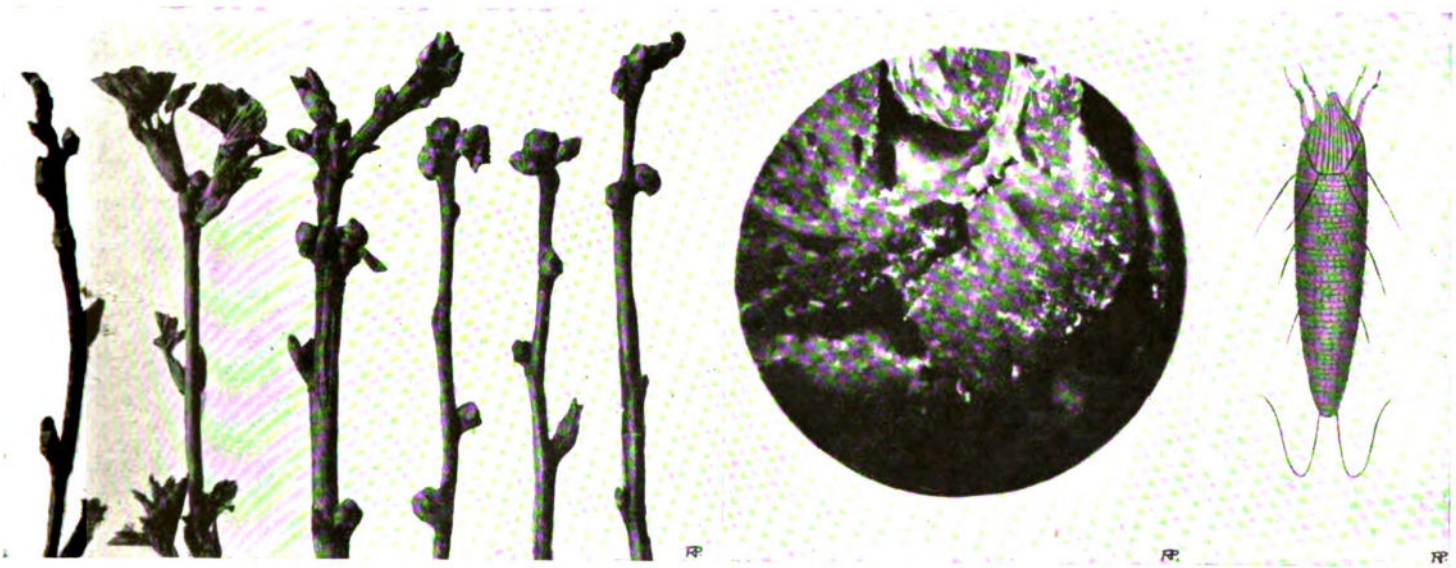
SEASON OF FRUITING.—I realised that it was more important to consider the plant than the mite. Firing would, therefore, perhaps, best be accomplished in February-March-April, or just before the sap begins to ascend or the plant to sprout. The actual date selected would, no doubt, vary slightly, according to locality; the idea being that the burned stools would thus have not more than a few weeks delay before the ascending sap forced them to sprout. With a longer interval between burning and the ascent of the sap, there would be danger of the weakened plants not surviving.

METHOD TO BE PURSUED.—The work should be proceeded with in strips of, say, 6ft. to 8ft. in breadth, right across (and 3ft. beyond) the brake. The bushes (within that strip) should be cut down to within 3ins. of the ground and placed temporarily behind the operator. The surface of the strip should next be given a thorough hoeing to a depth of 2ins. or 3ins., sufficient to open it up completely. The strip should then be carefully covered by a layer 6ins. deep of old dry straw, paper, etc., and over the top of that should be laid the prunings of the currant bushes. On this, again, should be spread a second layer of straw or other readily combustible materials and on the top of that thrown dry hedge prunings, spruce thinnings or anything available that will burn. On no consideration should the strip be trodden on after being hoed, as it is desired that both the currant prunings and the soil should be burned sufficiently to kill all the mites that may be on or within them.

After the first strip has been prepared, a second should be taken in hand, then a third, and so on till the entire brake of currants has been converted into a pyre of 18ins. to 24ins. in depth, ready to be fired. It should be ignited on the windward side, choosing a suitable dry day, not too windy, as it is preferred to secure slow, steady conflagration, not a sudden blaze.

SUBSEQUENT TREATMENT.—The charred twigs should be removed and the surface soil dressed. The ashes should be pushed aside and fresh soil drawn towards the stools. All the ashes should be carefully forked into the soil, not left to be blown away. If the burning has been done in March, a month later the plants should be sprouting freely. The death rate will be found to be between 8 per cent. and 20 per cent. The losses depend entirely on the extent of the previous ravages of the mite. The root supply of the resuscitated plants will be found far in excess of the stem requirements, hence a superabundance of shoots, many of these faciated, will most probably occur, so that pruning or thinning may become necessary.

RESULTS.—The Crichton experiment, alluded to above, was performed on March 22nd, 1922, when the entire brake was fired, but to make sure, next day it was again fired. On April 30th the plants had commenced to sprout freely, and on July 18th it was reported that the treatment had cost £13 13s. 6d., and that out of the 427 plants 91.1 per cent. had completely recovered. Firing had thus proved a practical measure so far as the recovery of the plants was concerned, and the mite, up to that date, had not reappeared. But on March 25th, 1923, a year later, I examined the entire brake once more, plant by plant, and ultimately found one bush with a few small rounded purple-coloured buds, right down near the ground. These were found to contain a few live mites, feeding in the very position (within the bud) that the mite, aft-



1 2 3 4 5 6
FIGS. 1 & 2, HEALTHY SHOOTS. 3 6, SHOOTS ATTACKED BY MITE.

SECTION THROUGH A BIG BUD SHOWING MITES WITHIN. *Greatly enlarged.*

ERIOPHYES RIBIS *Highly magnified.*

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the great swarming season, usually succeeds in attaining about June-July: the buds had only just been invaded. I at once directed that that bush and the few adjacent ones should again be fired. This was done, and by June every one of them had once more sprouted and their shoots were a foot high. They did not appear to have suffered in the least, so that as a practical measure it may be found necessary to correct imperfect firing by refiring until the mite is entirely eradicated.

CONCLUSION.—To-day, the Crichton plot of black currants is growing vigorously, the plants are over 3ft. in height and laden with flower-buds that give promise of a full crop, while the mite is nowhere to be seen. So far as I can judge, therefore, the treatment would seem to be a complete success. Should contamination from external sources occur later on prompt refiring of isolated bushes as seen to be contaminated should prove an infinitely less expensive treatment than any of the methods of control known to me. I shall continue to watch the progress of the Crichton plot—my first adventure in the fire-treatment—and at some future date may report success.

NOTES FROM CONTRIBUTORS

A WARDIAN CASE.

THE accompanying illustration shows a Wardian case packed with young rubber plants for export. This is, without doubt, the best method of sending growing plants on long journeys. It is best described as a miniature greenhouse with half the roof removable. The roof is of frosted glass protected by slats. The bottom is filled with fibre and the plants are planted in it and rammed down as hard as possible to keep them from shifting. Between each row of plants a batten is nailed down on top of the fibre; it is thus impossible for anything to shift during transport. The side is then screwed on and the plants are ready for their journey, and will remain quite happy without further attention for a considerable time; but attention can be given by removing the side if necessary. Ventilation is supplied by two holes at the top; these are covered with wire gauze and inside them are little boxes (open at the top) which prevent any salt spray entering and doing damage. It is to the introduction of rubber plants by this method that the Malay States owe their present great industry.—L. B.

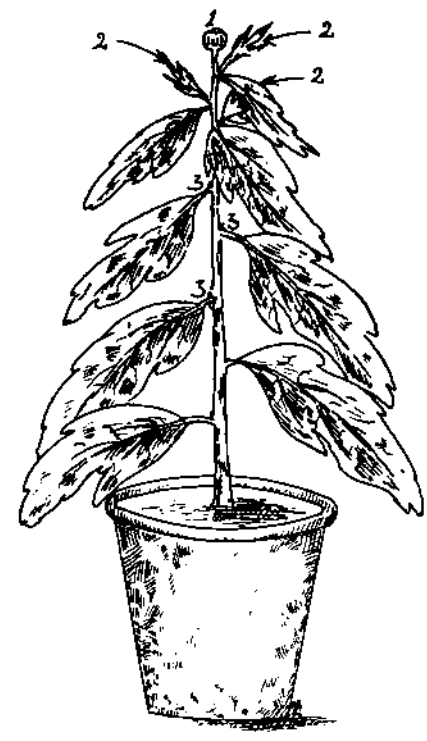
A MINIATURE GREENHOUSE FOR TRANSPORT PURPOSES.

POTTING AND STOPPING CHRYSANTHEMUMS.

THROUGHOUT March and April these plants will need repotting into 5in. and 6½in. pots if raised from cuttings inserted last autumn—November—and early in January. Those rooted first will be in good condition for placing in the 6½in. pots and the later ones in the 5in. pots. These remarks do not refer to cuttings quite recently struck but to forward stock intended for the production of exhibition blooms and specimen plants for furnishing greenhouses and conservatories. It is at this stage of growth that some varieties show the first crown, but which is termed the first "break." If the naturally early sorts, such, for instance, as Viscountess Chinda, show buds, the latter should be removed and new side shoots taken on, which will, in due course, show another bud—in May, probably—and these second breaks will cause more side shoots to form on which in August the desirable bloom buds will appear. Briefly, this is the treatment for early-flowering varieties that are required for exhibition late in October and early in November. The naturally late-flowering sorts, of which Mrs. Gilbert Drabble may be mentioned, require slightly different treatment. The formation of the first bud will, on a healthy plant, be delayed till, perhaps, a date too late to allow of the desired early crown bud being secured, so the cultivator should remove the tips of the main stems of these late-flowering plants early in April. In the accompanying sketch No. 1 shows the bud; Nos. 2, 2, 2, the three desirable side shoots to retain; and Nos. 3, 3, 3, denote where lower shoots must be removed altogether. Those side shoots, Nos. 2, 2, 2, if growing on a late variety, will be the ones to retain throughout the summer till August, when the crown bud forms on them. Plants of varieties to form specimens should be stopped a second time, in May, when the shoots will be increased to nine or a dozen, the flowering time being in November. The repotting should be carefully done at this stage, and finally. Use a good compost: fibrous loam two parts, rotted leaf-soil one part, old mortar rubble and rotted manure in equal proportions one part. To each bushel of the combined parts add a 5in. potful of bone-meal. Use clean pots and crocks and make the soil moderately firm.—GEO. GARNER.

CONCERNING SALVIA PATENS.

TO lovers of this rich blue-flowered border plant the following brief note attaching to its propagation may prove of interest. I have just recently potted off some autumn-rooted cuttings and some autumn-sown seedlings, both of which were put in last September. The cuttings are by far the stronger plants and bigger, especially as regards the tubers formed, it being necessary to use 3½in. pots to accommodate them, and this size was none too comfortable for a few of the best plants. On the other hand, all the seedlings, with one exception, would go into 2½in. pots, many of them into 2in. pots. The exception plant was the first seedling to come up—hence its better size—but even this could not reach the size of the cutting examples. I have never before experimented with seed of this sage, some of which was rather long in germinating. The seed was fresh gathered and sown in a slightly heated greenhouse. It remains to be seen whether there will be any ultimate difference between the two batches of plants; but perhaps nothing more than a little variation in the depth of colour of the flowers of the seedlings will be noticeable. It is sometimes recommended (I saw it lately somewhere) that early in the year is a good time to put old roots of Salvia patens into heat with a view to producing rooted cuttings for this year's use. This is perhaps the case, and from such practice no doubt quite passable plants are obtained. There can be no question, however, as to whether autumn is the better season in which to root cuttings of this plant, for these have a start over the spring-rooted plants of at least four months in which to be enlarging or forming the tuberous root-stock, without which vigorous bushy specimens of plants are not possible. Obviously, too, spring-sown seedlings stand but a poor chance of strong development and effective blooming during the same year, whereas, sown at the end of the preceding summer or early autumn, the gain in size of plant and quantity of bloom is very great.—C. T., *Ampthill*.



HOW TO STOP CHRYSANTHEMUMS.

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CYPELLA HERBERTI.

THOSE who are making out orders for half-hardy bulbs and such-like for spring planting should give Cypella Herberti full share of attention, for there are many things of the sort at four times the price which are not nearly so good. This is a South American irid of the utmost elegance and distinction, attaining, with its slender, but wiry stem and spare, grassy leaves, some two feet. At the tips of these growths the flowers appear in June, and these, over two inches across and in form somewhat like a tigridia, are a refulgent tawny orange, thus affording a note of colour which always attracts attention

Though the blossoms of C. Herberti do not last long, they are produced in extraordinary abundance, a good group yielding an unbroken succession from midsummer to autumn. Although classed as half-hardy, this plant appears to be quite robust enough for any conditions that a montbretia will endure, the soil, of course, being light and gritty and the aspect warm and sunny. The bulbs should be planted in March, 6ins. deep and about 4ins. apart in groups. C. Herberti is not a novelty, being introduced almost exactly one hundred years ago.—A. T. J.

BUDDLEIA ASIATICA.

MANY are acquainted with different forms of Buddleia variabilis, but few know what a desirable plant B. asiatica is for the cool greenhouse. It was introduced from India in 1874, but, so far, it does not appear to be a very popular plant. During January and February a few examples were making a fine show in the conservatory; they were about 5ft. high, with upwards of twenty-five sprays of bloom. The flowers are small and set in dense long racemes and sweetly scented. This is altogether a desirable graceful shrub. No doubt the best effect would be produced if it was planted out, but few have the necessary space, so the next best thing is pots and young plants. Old specimens do not respond well to pot culture, unless very large receptacles are used. When the plants have flowered they are cut back, and in a few weeks will produce numerous young shoots suitable for cuttings. These will readily form roots in a close propagating frame, and when rooted, should be potted off singly. If moved on as required they will make nice healthy specimens in 6in. and 7in. pots. A mixture of loam and leaf-mould will suit them.—T. W. B.

THE SELECTION OF TOOLS

BY R. V. GIFFARD WOOLLEY.

THE average amateur does not devote nearly enough thought to the choosing of his garden tools. Such proverbs as "Call a spade a spade" and "A bad workman blames his tools," seem to convey to some people the idea that all spades are much of a muchness, and that, in general, tools vary little in quality. Never were there more mistaken notions. A workman who has to use an unsuitable type of tool may justifiably blame it, unless, indeed, he selected it himself.

The most important of all garden tools is the spade. When purchasing one for one's own use, select a No. 1 size and see that it is by a good maker and properly finished off. It is important that the stock fits snugly into the straps above the langet, leaving no rough place to tear or blister one's fingers as they slide up and down, while the blade of the tool should be smooth front and back. The paint which is usually applied to the top half of the blade may cover a great deal of want of finish, but cannot conceal it if a close inspection is made. Above all, be satisfied that the tool comes nicely to hand and is well balanced. Since the weight of the tool comes upon the digger (plus that of a panful of soil), with every spit that is turned, it is advisable to get as light a tool as is consistent with rigidity and strength. The use of saw steel for spades is a modern development, important principally because of the saving of weight involved.

Some like treads on the top of a spade, others prefer a "clean" blade, which is easier to free from dirt and does not foul itself so quickly. Amateurs, as a general rule, seem not to like foot-irons, which are essential with an untreaded spade, but there is no reasonable argument against their use, and I strongly recommend the untreaded tool with a nice light (and short) foot-iron. Get the local blacksmith to make one to fit the gardening boot with which you dig—left if you dig right-handed, the right if you are "caggy." It is certainly advantageous to dig freely with either foot, but few can manage it.

Nowadays the garden owner very usually undertakes the purchase of tools for the staff, and there has, in consequence, been an increased demand for No. 3 spades and other out-sized tools. A "No. 3" is a fearful "weapon" for digging in heavy or even medium loams, and upon peaty or sandy soils there is no advantage in the use of so clumsy a tool, unless, perhaps, for shovelling. Buy the tools of the type favoured by those who have to use them—it is not easy to change one's working style to suit a strange tool—and pay as much attention to their finish and balance as if you had to use them yourself!

The fork is, compared with the spade, a fragile tool and even from the very best makers one sometimes buys a "dud." If the steel is a little too soft, the tines, or some of them, will bend, or the whole tool may "give" a little at the langet, in which case it becomes practically useless at once. If, on the other hand, the steel is over-tempered, the prongs are only too likely to snap in use. "Cheap" forks are even worse than "cheap" spades—avoid them! Forks are usually made with either four or five prongs, the former being better for heavy and the latter for light soils. A digging fork should be moderately straight in the tine, with a fair "lift" from the langet, but not too much. For lifting potatoes, herbaceous plants and so forth, more curving tines are desirable, but it is practicable to lift a crop with the digging fork, whereas one cannot dig with a lifting fork. For breaking up new ground, for trenching or bastard-trenching land with a stony sub-soil, a proper trenching fork with substantial tines, and strapped back and front right up to the handle, should be employed. An ordinary digging fork is almost certain to break or bend if used for the purpose, and if it does neither, one is wearing out at an excessive speed an especially good tool! A narrow "ladies'" fork is useful for pricking over the soil in a herbaceous border.

The three essential tools for working the soil are the spade, the fork and the hoe, and hoes are of two distinct types, the one which works on the push being called the Dutch hoe, and the other bearing the descriptive name of draw hoe. From time to time a controversy arises as to the comparative worth of the two types. On stiff loams wanting in lime, the Dutch hoe is practically useless and on *all* soils the draw hoe as commonly supplied for amateurs is next door to useless. On light and not too stony soils the Dutch hoe, in the hands of one who understands it, is invaluable and speedy in operation. On soils of awkward texture, or where paths have been tramped, a smith-made draw hoe with detachable plates—usually made from an old scythe blade or other cutting steel—is splendid, and a draw hoe is, of course, the proper tool for earthing up rows of peas and so forth. Four blades will be enough for most purposes, these being 4ins., 5ins., 6ins. and 7ins. long respectively. Most amateurs would do well to take a lesson in the proper use of both types of hoe from a skilled professional.

There are spades, forks and hoes made rather to sell than to use, but they do not force themselves upon one's attention quite so much as the tinned-iron trowels and impossible hand-forks which seem so plentiful in even good-class shops. A trowel should be made of the best steel so that it will ring musically if knocked and should be compact—I have just measured a very good one and it is only 11½ins. long from blade-tip to end of handle. It should be cranked and have a lift which brings the tip of the blade back approximately to the line of the handle-centre. One with a blade about 3½ins. wide is the most useful size, but a tool of otherwise similar construction, but with the blade almost flat and only 2ins. wide is useful for the rock garden, and also, if one does any, for "collecting." The hand-fork, except that it ought to have three flat tines, pointed at the tips, instead of the blade, should be of similar construction to the trowel. Hand-forks with the tines twisted to bring them parallel to one another choke badly in work.

Steel-shod dibbers are very useful for putting out cabbages and other plants which take root readily, but quite a useful dibber can be made from the handle of a spade or fork which has worn out or become a casualty. Dibbers for pricking off small seedlings should be made of boxwood and, so far as I know, one has to make them oneself or procure them

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from a working gardener who has had a box tree to grub up.

A garden line made of whipcord is very desirable, and the proper spool upon which to wind it convenient, yet many good gardeners never use anything but two sharpened hardwood sticks to carry the line, and with a little practice, one can wind it on to such a stick almost as quickly as on a reel.

Old time gardeners found a worn out muck fork with the tines turned over at right angles, or a garden fork similarly treated and mounted on a broom stick, a very useful tool for stirring the surface of the soil after rains had beaten it down. A better balanced device with spring-steel tines, bearing cultivator teeth and called the "Buco" has now been on the market some years and is very recommendable.

For all but the smallest gardens the Planet Jr. double wheeled cultivator with detachable and adjustable tools for hoeing, earthing up and so forth, is a big labour saver; its use is, of course, confined to kitchen garden, fruit garden and nursery or cutting beds. For places where potatoes and green vegetables are grown largely, perhaps on plough land, the Planet Jr. horse hoes are excellent. They may be used to cultivate and earth up, as well as to clear out weeds quite close to the plants.

Spades, forks and trowels should be freed from earth as the work proceeds with a small, home-made wooden cleaner.

Apart from the kinds used in working the land, garden tools divide themselves into two classes, lawn and path tools and those for pruning, trimming and grafting. The former partake of the nature of machinery and could not have justice done to them in an article such as this. Coming then to knives, shears and scissors, a good pruning knife should be available in every garden. I never use a knife myself to prune roses, but for trimming up wounds after the saw, for shortening stakes and for many other jobs which are always cropping up, this tool is invaluable. The more expensive makes are here, as usual, well worth the extra money. The amateur will be well advised to select a tool with a "good deal of draw," that is to say, with a reasonably hooked blade. As essential as the knife, where a good deal of heavy pruning has to be done, is the bill-hook, and for this purpose a rather light tool with a narrow blade is the most useful. It will come in, too, for trimming pea and bean sticks and such like. The question of secateurs is a vexed one; there are a hundred and one patterns, most of which have something to recommend them. I have a little pair of secateurs in use now with an attachment to enable me to reach over and pick a flower, gripping the stalk by an attachment on the head of the tool. Their really strong point, however, is that they do not pinch the fingers; at least, the makers say so, and I thought myself that the tool was "immune." I lent them to a friend to try and he pinched a finger badly inside two minutes! Perhaps that is why I really favour plain, springless pruning scissors. These have their drawbacks, however, due mainly to their want of draw-action, which means that unless kept really sharp they are difficult to use and bruise the wood badly.

Scissors and secateurs should be rubbed up on a suitable soft stone every few minutes during use, and need grinding pretty often if given at all heavy wear. For this reason owners of large gardens should always invest in those with detachable and renewable blades.

Pruning grips are another problem. Most of the makes on offer seem satisfactory, but the simpler-looking this kind of tool is, the better, as a rule, it functions. As regards hedging shears, for any but the smallest garden it is wise to buy a pair which adjust by lock-nuts and a spring washer rather than by a rivet. The former kind are, in addition, rather easier to grind. We have all noticed that the strongest parts of a hedge tend to get higher at each cutting in comparison with the weak places, and the time comes when we want to cut into the hard wood to level things up. That is where a "grip" arranged near the fork of the blades in some makes comes in very useful.

And now, what other edge-tools does one need? Well, all gardens, except the very smallest, need a fagging hook; not an expensive tool, but see that the blade is nice and tight in the handle; they often aren't! Long handled brushing hooks are quicker to use than a pair of shears for hedge-trimming and in skilled hands do better work, but they are awkward for a novice and few seem now to understand their use. A hedge should be brushed downwards, *not* upwards and in the writer's view, at all events, the blade should be only moderately curved. For grafting the pruning knife will come in handy, while for budding roses and fruit trees proper budding knives are sold. These are made of razor steel and tempered just like the barber's tool, and as they need frequent sharpening, their life, if used a good deal, is not long. They are made in various shapes to suit different tastes, but the beginner would do well to select rather a small one with the back blade longer than the front. There is little to say about pruning saws. One often sees carpenters' saws in use for the purpose, but this no doubt is a case of "making do," though they answer well enough except in tight places.

All tools should be thoroughly cleaned before being put away, and if they are not to be used again for a considerable time, should be wiped over with an oily rag, or better, with one smeared with vaseline.

CORRESPONDENCE

GERANIUM ATLANTICUM.

THIS species appears to be quite uncommon in gardens and one rarely sees it offered in the trade lists. It is, nevertheless, a geranium of no little distinction and one well worth a place in the mixed border, woodland or rock garden. As to its merits, G. atlanticum is, in the first place, an early bloomer, coming into flower in spring, the cup-shaped flowers borne on an erect stem some 10ins. in height are a violet-blue suffused with plum-red. Thus, in colour, they closely resemble those of G. ibericum, but they are of about one-fourth the size. The foliage consists of deeply and finely cut round leaves and a colony of the plant makes a dense mat of pale green verdure some six inches in depth after the style of the wood anemone.

At midsummer the foliage of G. atlanticum commonly dies down, to re-appear with the autumn rains. With us this leaf growth continues to develop during mild intervals throughout the winter and it appears to be frost-proof. G. atlanticum resents disturbance and it is obvious that the best time for planting is full summer, or as soon as may be after the leaves have disappeared. The fleshy, carrot-like root makes off-sets freely so that propagation is a simple matter. We grow this geranium in ordinary free woodland loam, enriched with leaf-mould, in partial shade. A cool, moist root-hold during the flowering season is desirable, but the soil can hardly be too hot and dry during the later summer. This combination may be a somewhat difficult one to provide, but it seems to be essential to free blooming.—N. WALES.

DAFFODIL OR LEEK?

IT is recorded, but how far authentically the writer does not know, that March 1st in every year is the anniversary of St. David, that St. David is the patron saint of Wales, and that on that day Welshmen wear or wore a leek in their caps by way of commemoration.

St. David is stated to have advised King Cadwalcar that his Britons taking part in the battle on March 1st should, to distinguish them from the enemy Saxons, each wear a leek in his bonnet or cap.

The sand-leek, which is said to be wild in Britain, is very rare, and as an emblem the leek (even as cultivated) would not be very prominent or distinguishing.

The point one wants to raise is whether the daffodil was not the distinguishing mark which the Britons wore.

It (viz., the common daffodil, N. Pseudo-Narcissus) was common in woods and thickets in most part[illegible]ountry.

"Daffodils which come before the swallow dares" should have been plentiful in Wales on March 1st, the date of the battle.

Moreover, the name is suggestive of David or Taffid. Perhaps some learned Welshman who knows all about the subject will enlighten us.—PARKER WOODWARD.

KING ALFRED DAFFODIL.

IT may interest some to know that Narcissus King Alfred is not always such a failure as described by the Rev. Joseph Jacob (page 132). My bulbs do bloom in the open, and a few years ago one perfected a full head of seeds. I sowed three in a pot, plunged outside, and in course of time had nine or ten bulbs, and one has given a real "K. A." bloom already, not having been crossed with any of its neighbours. I anxiously await further blooms. Very numerous are the seedlings which spring up, some in a "wild garden" in the grass—notably from a Swiss importation, and pallidus præcox also.—I. H. PÖE (Capt.), *Riverston, Nenagh.*

I HAVE read the Rev. Joseph Jacob's note on this fine variety (page 132), but I can assure readers of THE GARDEN that the Cornish climate is not a necessity. I obtained bulbs from Messrs. Carter and Co. more

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than twenty years ago, and, while they have not increased so fast as Emperor, I have now a good stock growing in the open border. It is the soil as much as climate that seems to be the deciding factor, with me at least. This daffodil likes, as far as I can make out, a good loamy soil, but does badly in retentive clay or anything approaching it. In very light soil it should be lifted and replanted more frequently to keep it vigorous. My practice is to lift all daffodils every second year, take such of the better bulbs as I need for pot culture to have early flowers in spring, and replant the offsets, which two years later have grown into good forcing bulbs.

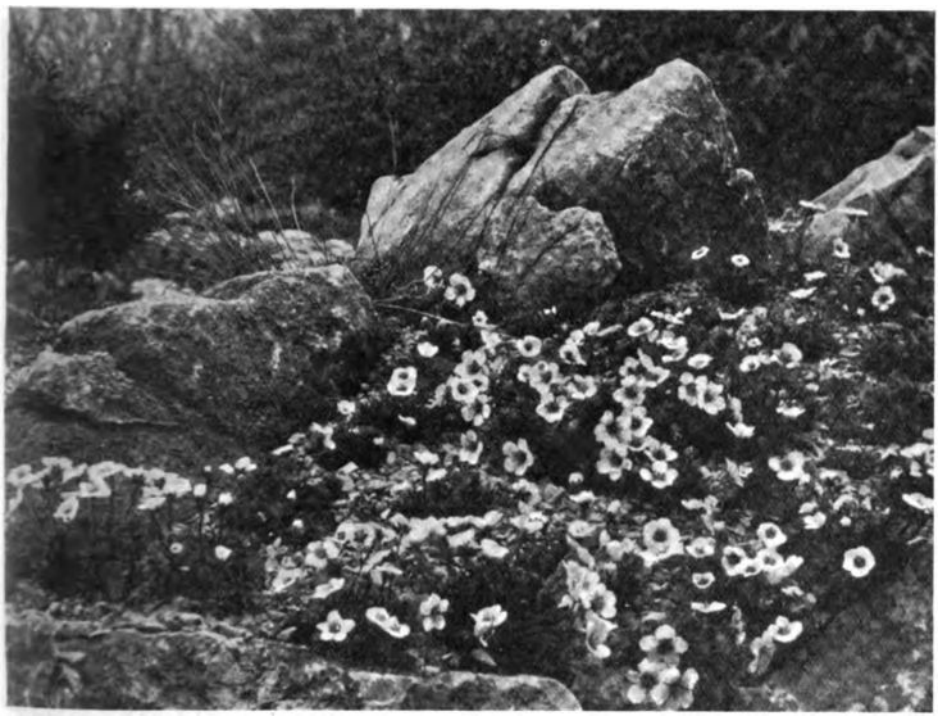
The climate here, in Kincardineshire, about six miles from the North Sea but sheltered somewhat from the worst effects of the east wind by a low ridge of hills, is far from being Cornish, but all the same it is not too bad to get good results in the garden, where there is shelter by belts of trees and the lie of the ground.—WILLIAM LOW.

SAXIFRAGA BURSERIANA.

I AM sending you a photograph of a group of Saxifraga Burseriana which I took in my rockery a month ago.

The plants were collected eighteen months ago in one of the steep gulleys running into the Adige Valley, and were planted out in a moraine mixture containing a large proportion of limestone grit a few months later.

The mild spell, which lasted for ten days or a fortnight before the present wintry weather, enabled the flowers to develop very well. My garden is within less than three miles from the centre of Birmingham, and, of course, the climate is cold and sunless.—ROY PINSENT.



A BEAUTIFUL DRIFT OF SAXIFRAGA BURSERIANA NEAR BIRMINGHAM.

DO WHITE FLOWERS OPEN FIRST?

THIS interesting question is raised in THE GARDEN (page 51) by "J. J." while discussing the merits of Hyacinthus amethystinus and its white variety. He says that the point was suggested by the late Miss Hope of Wardie Lodge, Edinburgh. The best way to settle this question would be to grow various plants and their white varieties side by side to see which would open first. With the flowers in different parts of the garden one does not readily notice which of the two actually opens its flowers first. I have noted a tall tree of the old white lilac (Syringa vulgaris alba) brightening a garden year after year, while its flowers became discoloured and were falling just as the common lilac came into beauty. It is my impression that this is merely a precocious variety, for Mme. Lemoine, which is double white, flowers later. This would apply to the single and double hawthorn. I have also grown the typical and the white Sisyrinchium grandiflorum, but not side by side. In the wild state I have seen Scilla festalis, Ajuga reptans, Campanula rotundifolia, Calluna vulgaris and their white varieties all blooming simultaneously, but that does not prove whether or not the white variety opened first. The red-tinted daisies seem most plentiful in spring, especially in exposed positions.—J. F.

WISTARIA BUDS DESTROYED BY BIRDS.

CAN any reader of THE GARDEN advise in this distress? For years an old wistaria smothered with its delicious trusses has been a delight. It is one of the joys of the floral year. For the first time last year, just as the stout buds were lengthening out, they were attacked, and practically every floret was nipped off. Sparrows are the suspected culprits — we hope the tits are guiltless— and were seen at the fell work. What is the remedy?

A Norfolk trap is at work, which means hard labour repeatedly letting out angry tits and flustered robins. Some of the sinners will not eat of wistaria buds again. But many, many sparrows are left, and possibly some preventive might be used.

Has any other victim suffered in the same way, or found a remedy? Has spraying with quassia or Horticol proved effective? This is not a little grief, for nothing can replace lost wistaria buds.—J. M. HOPKINSON, *Sutton Grange, Wansford, Peterborough.*

GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Lettuces are always in demand, and to keep up the supply a little seed should be sown every fortnight. Both cabbage and cos varieties should be selected, and directly the young plants are large enough to handle, thinning should be resorted to. If necessary, some of the seedlings may be transplanted. Lettuces need liberal treatment, and the ground should be well manured. During a dry period afford the plants plenty of moisture.

Radishes.—Frequent sowings should be made, and to secure crisp, succulent roots the resultant plants need to be grown quickly, and not allowed to suffer from lack of moisture. Protect the seeds from birds.

Celery.—Seed may now be sown to produce plants for the main crop. Solid White and Sulham Prize are both reliable varieties. Sow the seed in boxes containing light soil, and place them in a warm greenhouse to germinate; failing this, a cold frame arranged in a warm part of the garden will suffice. When the seedlings are large enough, prick them off in a cold frame which contains a few inches of loam and leaf-mould. Where only a small number of plants are needed, boxes may be used.

Beet.—A small sowing of a turnip-rooted kind made now, will produce useful roots during the summer months. Sow in lines 12ins. apart and if the seed is sown thinly no further attention will be needed beyond keeping the ground clean.

THE FLOWER GARDEN.

Single Asters.—These are rapidly coming to the front, both for cutting purposes and garden decoration and they will thrive in almost any position. They produce seed freely and if some is gathered at the end of the season it will be found useful for scattering in any part of the wild garden the following year.

Poppies.—The Shirley poppy is a very showy annual and seed may be sown any time during the next two months. It is advisable to sow the seeds where the plants are intended to flower, because the seedlings do not readily transplant. Bold patches or beds are the most effective, and the seedlings should be thinned to 6ins. There are many other useful annual poppies.

Sweet Peas.—Plants raised in pots will be ready for planting out, and seed may be sown in the open ground. Choose an open site and a rich piece of ground.

THE HARDY FRUIT GARDEN.

Wall Trees.—Specimens that have been planted this season will have sufficiently settled in the soil to enable the necessary tying of the shoots to be done. With all wall trees ample room should be left for the development of the growth when tying in, or the tie will cut into the bark and injure the wood.

Peaches and Nectarines.—Where the trees are well established the soil around the base of the stems may be lightly forked over, taking care not to injure the roots. Afterwards give a dressing of fibrous loam with which is incorporated a sprinkling of lime rubble. They may then be mulched with decayed manure.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.).
Castleford, Chepstow, Gloucestershire.

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FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Asparagus.—The soil should be well raked on the surface and rows taken out about 2ins. deep and 15ins. apart, and the seed sown. The two varieties usually recommended are Argentouil and Connover's Colossal. Sow the seed thinly, and so give the plants space to develop and grow, and thus avoid having to disturb the roots in future.

Brussels Sprouts and Savoys.—Plants raised from seed sown last autumn should be set out now on well cultivated ground, in lines 30ins. apart and 18ins. between each plant in the lines. Savoy cabbage and Drumhead should be planted at the same distances.

Onions.—If plants from autumn sown seed have done well throughout the winter, they should be set out in lines 15ins. apart and 6ins. or 8ins between each plant in the lines. Onions should be carefully handled and planted with a trowel. By using a trowel, sufficient soil can be taken out at each station to allow of the roots being well spread out.

Celery Trenches.—The ground from which Brussels sprouts have been cleared forms a suitable position for these trenches. The number to make must be regulated in all cases according to requirements.

Tomatoes.—If plants are grown in prepared beds, these should be made up now and the plants set out and properly staked. Continue to maintain a genial growing temperature.

THE FLOWER GARDEN.

Chrysanthemums.—Old plants should be lifted, and if very large split up. If the plants have not to be transferred to another border, place some old manure or leaf mould at the base of each station before replanting.

Gladioli.—Where corms have not been forwarded under glass they should be planted 4ins. deep in the beds or borders. If the soil is inclined to be heavy a little sand should be placed underneath each corm.

Lawns.—The mowing time is hastening on and the work of sweeping and rolling the grass should be taken in hand.

THE HARDY FRUIT GARDEN.

Apricots.—At this season we are stil liable to get frosts and snow and it is advisable to protect the flowers, as no doubt a few will be open here and there on the trees. Ordinary herring nets are often used, but we find that small birds get through these and pull off the flowers. A net with a ½in. mesh is therefore to be recommended.

FRUITS UNDER GLASS.

Orchard House.—Cherries, gages and plum trees should now be in flower, and the work of pollinating should be carried out daily, while the structure should be well aired.

Vines.—The bunches in the early house should have the shoulders, *e.g.*, side top portions, tied up with matting. This work if done carefully makes, as a rule, better shaped bunches, and to some extent lessens the thinning.

Strawberries.—These plants should be in flower now and the blooms should be gone over daily with a rabbit's tail to secure pollination; air, too, should be admitted on all favourable occasions. Careful attention should be given to the watering, as on no account should the plants be allowed to get dry at the roots.

DAVID ARMSTRONG.

(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Begonia Gloire de Lorraine and its varieties that were partly cut back early in the New Year for the production of cuttings should have now developed a quantity of shoots from the base suitable for cuttings. These will root readily if inserted in pots containing sandy soil and placed in a warm propagating case. It is important that the cuttings should be made from basal shoots; if taken from shoots off the stem they generally persist in flowering and never make free-growing plants.

Begonia gracilis is a tall graceful species, with beautiful pink flowers. This species is generally known in gardens as B. Martiana. The tubers should be started in a warm house, afterwards growing the plants in greenhouse temperature. As it finishes flowering this begonia develops bulbils on the inflorescence. These form a ready means of increasing the stock.

Begonia Evansiana (syn. discolor) develops bulbils in the same way. This is a very old garden plant, being introduced in 1812. It is almost hardy, and is very useful in the conservatory during August and September, when interesting and beautiful plants are rather hard to find. Fine examples can be grown in 6in. pots. This plant grows freely in any good potting compost, and only requires cool greenhouse treatment at all stages of its cultivation. Plants that have been kept dry and have started into growth should now be shaken out and repotted into small pots, afterwards potting them on as they require it.

Begonia fulgens is another beautiful variety which is deserving of more general cultivation. It has tuberous roots, which should be started into growth in a warm house at this time. When growth is a little advanced, this plant only requires cool greenhouse treatment. Begonia Davisii, with vivid scarlet flowers, and B. Pearcei, with yellow flowers—both progenitors of the present-day race of tuberous-rooted begonias—are worthy of more general cultivation for the conservatory, as both succeed under the same treatment as that accorded the ordinary tuberous-rooted varieties.

Tuberous-rooted begonias that have been placed in boxes and started into growth in a warm house should, when they have made 2ins. or 3ins. of growth, be placed in suitable sized pots, which will vary according to the size of the tuber; but care should be taken not to over-pot them at this stage These plants enjoy a light rich compost, and in their next shift a larger proportion of loam should be used. Young plants raised from seed sown early in the year should be kept growing freely, by giving them frequent shifts into a light rich compost. In their younger stages they are best grown in seed boxes or pans, afterwards planting them out in a bed of rich soil in cold frames.

Capsicums in their many varieties are very useful for furnishing the stages in the greenhouse towards the end of summer, as their bright and curiously shaped fruits always attract attention. Seed should be sown in a warm house towards the end of this month. The young seedlings, when large enough to handle, should be placed singly in small pots, potting them on as they require it until they are in 6in. pots, in which they will fruit. These plants should be grown in a house with an intermediate temperature. Unfortunately, these plants are very subject to attacks by red spider and begonia mite. The former should be prevented by a free use of the syringe, and the latter by the use of Campbell's Sulphur Vaporiser.

J. COUTTS.

Royal Botanic Gardens, Kew.

BOOK REVIEW

THE JOURNAL OF THE KEW GUILD.

PAST and present Kewites will, no doubt, welcome the 1924 Journal which has recently come to hand. Of outstanding interest to present Kewites should be Mr. Turrill's article on the London University B.Sc. degree in Horticulture. Perhaps the most valuable part of the Journal is that devoted to the names and addresses of old Kewites and what they are doing. The frontispiece is of Mr. John Masters Hillier, Keeper of the Museums at Kew. Mr. Hillier is the oldest present Kewite and he has just entered his forty-third year of service at the Gardens. The Journal is well got up and the illustrations are excellent. The new Editor of the Journal, (Mr. E. G. Dunk), is to be congratulated on his first issue.

*THE JOURNAL OF THE KEW GUILD, 1924. Secretary of the Guild, Mr. E. G. Dunk, 197, Kew Road, Kew, Surrey.

ANSWERS TO CORRESPONDENTS

THE GREENHOUSE.

Greenhouse Plants Unsatisfactory (N. M. P.).—So far as we can see, the trouble with the plants has arisen either from fumes from the heating lamps or from their being allowed to become dry for a while when the temperature was too high. No fungus or insect is responsible for their present condition.

ROSES UNDER GLASS.

Rose Trees Attacked (T. W., Notts).—The rose shoots sent for examination are very badly infested with mussel scale, and if many trees are infected they should be sprayed with paraffin emulsion. If few trees are attacked it will pay to go over them armed with a blunt stick and soft soap solution and remove the scale completely. Watch carefully for the hatching of eggs, and fumigate immediately the young insects appear.

Name of Plant (R. H., Worcester).—Iris unguicularis (I. stylosa).

CATALOGUES RECEIVED.

Messrs. C. S. Daniels and Son, Wymondham, Norfolk.—General List.

The Auto-Motor Engineering Co., 35, Southgate Street, Bath.—Lawn Mowers.

Mr. J. Lionel Richardson, Prospect Gardens, Waterford, Ireland.—Daffodils.

Rollinson's Rosery, Saltcoats, Ayrshire.—Roses and Fruit Trees.

Messrs. Maxwell and Beale, The Dorset Nursery, and Lavender Farm, Broadstone, Dorset.—Alpine and Rock Plants, Herbaceous Plants, Mesembryanthemums and Lavenders.

FORTHCOMING EVENTS.

March 18.—Croydon Horticultural Society's Meeting.

March 19.—Glasgow and West of Scotland Horticultural Society's Meeting.

March 21.—Eastbourne Horticultural Society's Meeting.

March 22.—Falkirk Horticultural Society's Exhibition.

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VOL. LXXXVIII.—No. 2731. MARCH 22, 1924

A CHARMING POOL IN A WOODLAND SETTING. THE CONTRASTING EFFECTS OF THE SOLID MASS OF THE OAKS WITH THE DELICATE GRACE OF THE WEEPING WILLOW ARE CLEARLY SEEN.

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MARCH 22, 1924.

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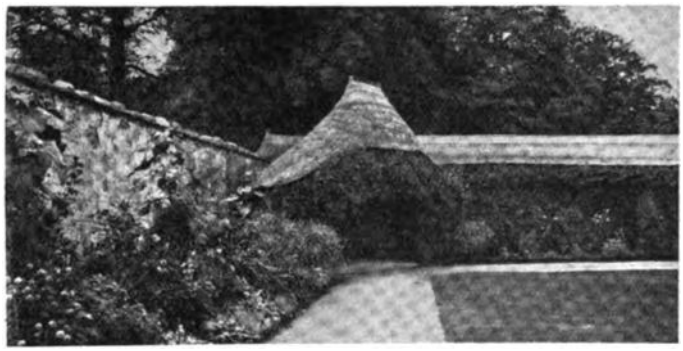

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HARDINESS

SPRING is abnormally late this year, so late that the gardening calendar has gone awry, a state of affairs which seems to be causing some hesitations and doubts among our readers. We have received several letters complaining that our articles are more suited to gardeners in the south than to those who live in the north and in Scotland. The idea seems to be that we mention flowering and planting dates suitable only to the south of England and the home counties, but we have to take a mean. It should not be difficult to add or subtract a few days according to the locality in which one is situated.

It might be as well to quote extracts from a most illuminating table in the October number of the Quarterly Journal of the Royal Meteorological Society. This table consists of the mean dates of flowering of fourteen plants in various districts of the British Isles. The figures are the number of days counting from the beginning of the year:

	England.					*Ireland.*	*Scotland.*	
	S.W.	*Mid.*	*E.*	*N.W.*	*N.E.*	*N.*	*W.*	*E.*
Hazel	31	37	38	33	38	47	55	59
Wood anemone	94	103	100	97	98	92	105	115
Horse chestnut	133	136	136	143	141	137	148	150
Dog rose	155	156	152	166	161	167	165	167
Harebell	192	190	188	200	180	199	199	192

This table proves, without fear of contradiction, that in the early portion of the year the variation in flowering dates is large between west and east and is greatest between south-west and north-east. As the months advance the variation lessens, until about midsummer it is nearly uniform, with a slight advantage in favour of the east. Naturally, at this time of year our articles deal with plants whose interest is topical; in other words, with those whose variation of flowering time is great.

These letters, however, open up a very much more difficult question, that of the general hardiness of plants. Non-hardy plants may be divided into two sections, those which are definitely soft at all times of the year, and those which are liable to be cut in the spring by reason of their early growth. The first section can be dismissed from this article, because their weaknesses are easily recognised throughout the country. They may be planted out in summer, but all gardeners know their shortcomings and deal with them accordingly.

The second section is a much more serious matter, for here the question of locality has a great deal to do with it. It is obvious that the comparative absence of spring frosts gives the west a great advantage over the midlands and east, and there are numbers of plants which will thrive in Cornwall, Wales and the west of Scotland which are useless in the midlands and in the east. It must be remembered that there are few countries so handicapped as we are in often having a pseudo-spring which brings a warm spell during January or February; the garden then sleeps again owing to wintry conditions in March or April. The majority of our garden plants come from abroad, where they are not accustomed to such treatment. This, again, brings us to the curious fact that many plants, particularly trees and shrubs, will grow equally well in Cornwall, which does not often suffer from spring frosts, and in the extreme east where the east winds retard growth and where the pseudo-spring has not sufficient force to make plants burst into leaf or flower. I have tested this several times in the case of rhododendrons and other shrubs which are perfectly healthy with me on the east coast of Scotland and yet are so badly cut in the home counties as to be practically useless as garden plants.

It is only too common an occurrence to blame a plant for not being hardy when the fault is not that of constitution but one of ignorance of proper cultivation and of error in situation. Gardeners are only too inclined to judge all plants by comparison with the easiest to grow, which is a mistake, for half of the amusement in gardening is in being able to diagnose the requirements of a plant.

This season has been so peculiar that gardens in the midlands and in the north have a distinct advantage over those in the south and west, for the weather in the former has been consistently cold while the latter have already had a mild spell and are now suffering severely from spring frosts.

We shall try in future to give more notes from gardens in the north and in Scotland, but we also beg our readers to remember that we cater for a universal gardening public, and that we try to strike a happy mean between the subtropical and the cold gardens by taking the climate of the home counties as an average, a climate which plays more tricks than that of any other part of the British Isles.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

VIOLAS, by H. H. Crane.
SHRUBS FOR THE ROCK GARDEN, by W. Irving.
TREATMENT OF RHODODENDRON SEEDLINGS, by L. B. Stewart.
VIBURNUMS, by A. Osborn.
LABELS AND THEIR USES, by G. Hillier.
NOTES ON EDRIANTHUS, by Henry Correvon.
SPRAYING MACHINES AND THEIR MAINTENANCE, by A. J. Macself.

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PLANTS WHICH ARE CURIOUS & FASCINATING

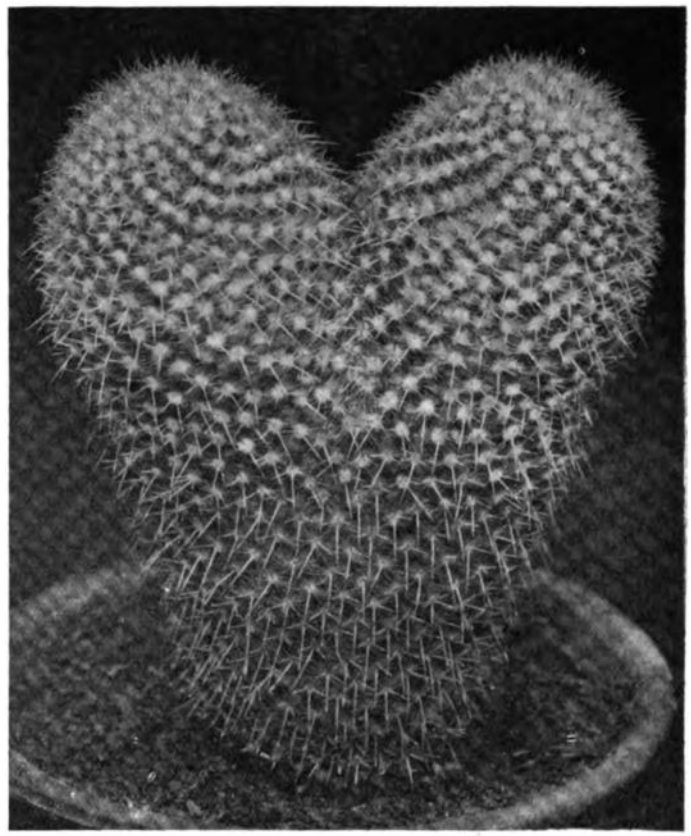
BY ROBERT W. ASCROFT.

CONSIDERABLE interest has been shown in the cacti and succulent plants exhibited at the Royal Horticultural Society's meetings by Mr. S. Smith of Falmer Road, Enfield. The study of cacti is a fascinating one, and it is a great pity that interest in these plants has been allowed to wane. In many parts of Europe the "craze" for cacti still continues, and there are growers on the Continent who list a vast number of species and varieties. Although well over a thousand species are now known, very few collections are to be found in this country, with the exception of certain botanic gardens, such as the Royal Botanic Gardens at Kew. The Carnegie Institution at Washington has published a very comprehensive monograph on this family, and another very fine work containing a vast collection of coloured plates showing the different species of cacti is a German treatise called "Bluhende Kakteen," by Professor Dr. Karl Schumann, over forty parts of which have been issued.

It is a curious fact, but one that exists nevertheless, that interest in any special plants—such as tulips, dahlias, sweet peas and cacti—rises and falls according to the popular fancy of the moment. The rich man and the poor man may grow cacti with equal success, and in the dry, heated atmosphere of small rooms, where most other plants are sure to fail, cacti will thrive and in due course produce brilliantly coloured flowers.

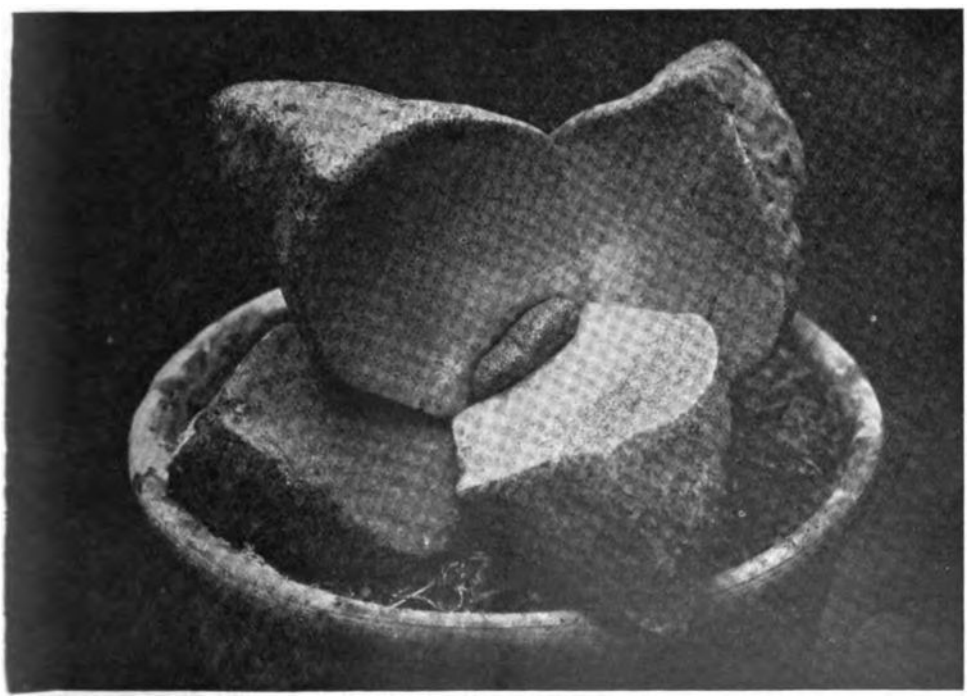
Cacti belong to the class of plants known as Xerophytes, and are mainly found growing wild in North and South America. The original form of cactus before it lost its leaves is the plant known as pereskia. The next stage is shown where the leaves are lost, the example being the prickly pear or opuntia, in which the so-called leaves are really branches. Seedlings of opuntia have one pair of fleshy seed leaves, while true cacti seedlings have none at all. A very curious feature about cacti is that the fruit is practically a bit of the stem with which the flower is incorporated. These fruits are very curious, and if placed on the surface of the soil will emit roots and form fresh plants.

We shall be sure to see many cacti this summer at the Wembley Exhibition, as collections of these plants have already been sent from Jamaica and other countries. In the Royal Botanic Society's Gardens, Regent's Park, there are some very interesting West Indian plants, and among them are specimens of the "Turk's cap" cactus, which belongs to the Melocactus group. These plants, which are oval in shape, bear on the top a cylindrical crown several inches high which, owing to its resemblance to a Turkish fez, both in colour and shape, has given the plant its name.



MAMILLARIA WALTONI RESEMBLES A SEA URCHIN.

Another curious cactus which is used extensively in Jamaica for making hedges, and which belongs to the genus Cereus, is the Dildoe cactus. This plant sometimes attains a height of 60ft.



MESEMBRYANTHEMUM BOLUSII. FAT LOOKING BUT ATTRACTIVE.

PROPAGATION BY CUTTINGS AND OFFSETS.—Although most cacti can be readily propagated from cuttings, it must be remembered that, owing to the presence of so much water in the plant tissues, any bruise is liable to form a source that may be subsequently attacked by the various species of fungi which cause decay. A sharp knife should be used in making the cuttings, and these should then be allowed to lie in a dry atmosphere for a day or two until a callus or cuticle has formed over the cut surface. The cuttings should not be inserted at all deeply in the soil or sand which is being used.

Mamillarias and some species of echinocactus may be increased by removing the offsets which form near the base of the stems, and these should then be treated in the same manner as has been described above. Species of cereus and opuntia can be readily increased in late spring and early summer by the removal of pieces of the young growth.

Light sprayings overhead will encourage rapid rooting. In many of the opuntias the fruits, if removed and treated as cuttings, will readily produce new plants. Grafting is frequently

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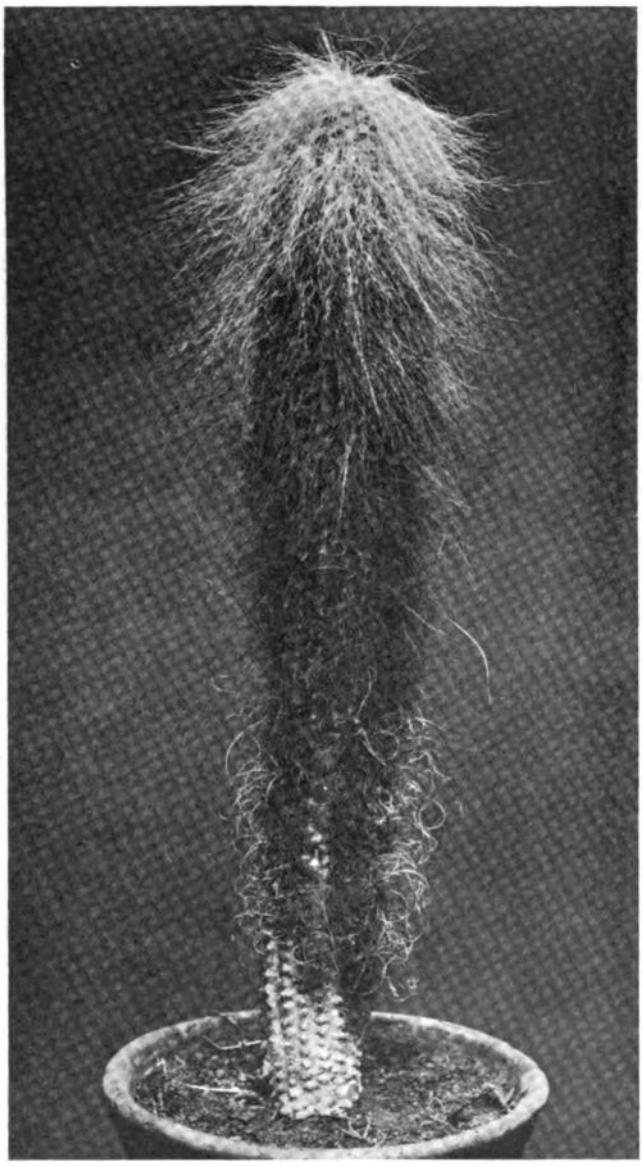
carried out, but amateurs will probably be content to confine their attention to raising plants from seed or by the usual method of cuttings.

REPOTTING.—When repotting cacti any old crocks should be removed, but the soil around the roots should be disturbed as little as possible. The surface soil should be stirred so as to remove any weeds or green algæ. The growing months are between April and September, and the plants should be kept perfectly dry during the rest of the year from September to April. Start potting the plants in April in a soil consisting of loam, leaf-mould, sand, and old brick and lime rubble. Be certain that the pots are clean before use and add plenty of crocks for drainage. The plants can then remain for two



CEPHALOCEREUS SENILIS, "THE OLD MAN" CACTUS.

or three years before repotting will be necessary. Remember that too large a pot or too much soil invariably means failure. Another very valuable hint to amateurs, when potting, is to place a little piece of stone just underneath the plant. Many of the cacti require very little heat, and the temperature can go as low as 45° in winter. It should be remembered that the cereus and opuntia types need a certain amount of lime owing to the fact that they secrete large quantities of crystals of oxalate of lime.

FRUITS.—In the case of many species of cacti it will be found that the fruits are of considerable value, and in some parts, such as in districts in Mexico, the cacti fruits are eaten in large quantities by the natives. The outer skin is peeled away and the inner flesh containing the seeds is then eaten in a similar manner to an orange. The fruits of some of the opuntias and cereus group are used for the preparation of jams and jellies. One of the most curious uses to which cacti fruit is put occurs in the case of a Mexican species of cactus called Cereus pectenaboriginum, where the spiny fruit skins are dried in the sun and then used by the natives as combs and hair brushes.

FLOWERS.—The flowers of some species of cereus and phyllocactus attain a considerable size, and are often of a beautiful soft colour. Some forms bloom at night and are very fragrant. Although in the case of these plants the flower-buds open in the evening and the flowers die early in the morning, it will be found that a succession of fresh buds will open for some considerable time. Quite apart from their flowers, cacti are remarkably attractive in other respects. As a rule symmetry is one of the most characteristic features, and hairs, spines, ribs, etc., occur in regular order. When, on the other hand, monstrosities are met with, the plants are very remarkable, and amateurs obtain considerable pleasure from showing these plants to their friends.

The stems vary in form from the tall columnar cereus type to the round or globular melocactus and mamillaria. It must be remembered that cacti are exposed not only to scorching sun, but also to drying winds, and the thick fleshy stems have only, therefore, a very limited number of breathing pores so as to enable the plants to survive where others less suitably adapted to these conditions could not exist.

Many species of cactus are subjected to very low temperatures during the winter, and many cacti enthusiasts endeavour to keep their plants in too great heat during the winter. If they kept them in a cooler temperature just safe from frost the plants would grow far more quickly when the spring came round each year. Tropical species of cacti, such as some of the phyllocacti, will, of course, need greater warmth.

PESTS.—The chief insect pests which are likely to trouble cacti are the red spider and the shield louse. In order to keep these parasites from attacking them the plants should always be placed in a position both during the summer and winter where plenty of air is able to circulate freely between the pans. Once the pests have obtained a footing the best means of getting rid of them will be to examine the plants carefully and to touch any insects that may be seen with a soft brush that has been dipped in fir tree oil. No other rememdy will be necessary if the plants are gently sprayed with soft water early in the morning on bright sunny days during the summer months.

The chief cause of failure in the cultivation of cacti by amateurs is watering the soil too freely or standing the pots where they are exposed to drip from the roof of the greenhouse, with the result that decay sets in. Water should only be given in the early hours of the morning, and during the winter months the plants will go without any watering at all for weeks at a time. When it is found necessary to water the plants a thorough soaking should be given and the plants should then be lightly sprayed so that they may be dry by the afternoon. This light spraying will keep the pores open and free from dust. If a decayed spot is noticed, it should be rubbed immediately with a little slaked lime. Dust spells ruination to cacti, as it blocks up the pores and prevents the plant breathing properly.

HANDLING CACTI.—The best plan is to use pieces of very stout manilla paper cut into strips and wrapped round the thumbs and fingers. The ends should overlap and then be stitched back. Gloves are not suitable, as they are easily pierced by some of the sharp spines.

NOTES ON SPECIAL SPECIES.—Mamillarias should flower every year, and this also applies to the echinocacti. These plants should be kept in full sun during the summer months. Mamillaria Waltoni rather resembles a sea urchin, while Mamillaria plumosa is probably the only cactus which has branched spines, and in this case the minute feather-like spines are arranged in rosettes on the top of each tubercle. The spines are more like down than spines and the flowers are white with bright yellow stamens, the plant resembling a ball of soft down.

Mamillaria micromeris is a little gem and is covered with tufts of pure white spines. The flowers are large and star shaped, and the long carmine-coloured berries remain on the plant all the winter. The plant is easily grown, but dislikes any excess of water and needs keeping under glass so as to keep it white and clean. The plant only grows about six inches

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high in forty years, and is found growing on very high mountains where no other vegetation will exist. When cultivated under artificial conditions it will be found that only about four applications of water a year are necessary.

Echinocactus Scopa rather resembles a bottle brush, and the whole plant is covered with short white spines. A rare and remarkable variety which is strikingly crested is Echinocactus Scopa cristata. Echinocactus minusculus is perhaps the prettiest of all the cacti with its numerous scarlet flowers, while Echinocactus Leninghausii is remarkable for its yellow hairs over a dark green cuticle.

Echinocactus Wislizeni is provided with very long and sharp spines which are bent in the form of a hook and account for the plant often being known as the fish-hook cactus. In North America the Indians use the hooks for fishing, and, as the spines when wet closely resemble worms in colour, no bait is necessary. The flowers are a greenish yellow colour, and are two or three inches in length and width.

Cereus grandiflorus and, in fact, all the varieties of this species bloom only at night, and the plants require shading in the summer. The flowers generally open about 7 p.m. and close again as a rule about midnight.

Cereus peruvianus monstrosus is one of the most strangely contorted cacti. Some of the branches swell out into curious crests many inches across, and the plant is most at home in a rather warm spot.

Pilocereus senilis is known as the "Old Man" cactus on account of the covering of long white hairs all over the plant and which resemble an old man's beard. Dust soon spoils the appearance of this curiosity of plant life, and for this reason the plant should be covered with a glass case if possible. Although in its native habitat specimens grow 20ft. in height, in this country it is a very slow grower. Opuntia cylindrica cristata closely resembles a cabbage leaf.

The Echeverias form a beautiful group of plants which differ greatly in the colour and texture of the leaves, while the mesembryanthemums belong to a very beautiful genus of succulent herbs or shrubs. The leaves are swollen and succulent, and the flowers are amazingly brilliant.

It is only possible to describe a very few of the many species, but I am sure that readers will agree that cacti deserve a little more attention than has been bestowed on them in the period since the war.

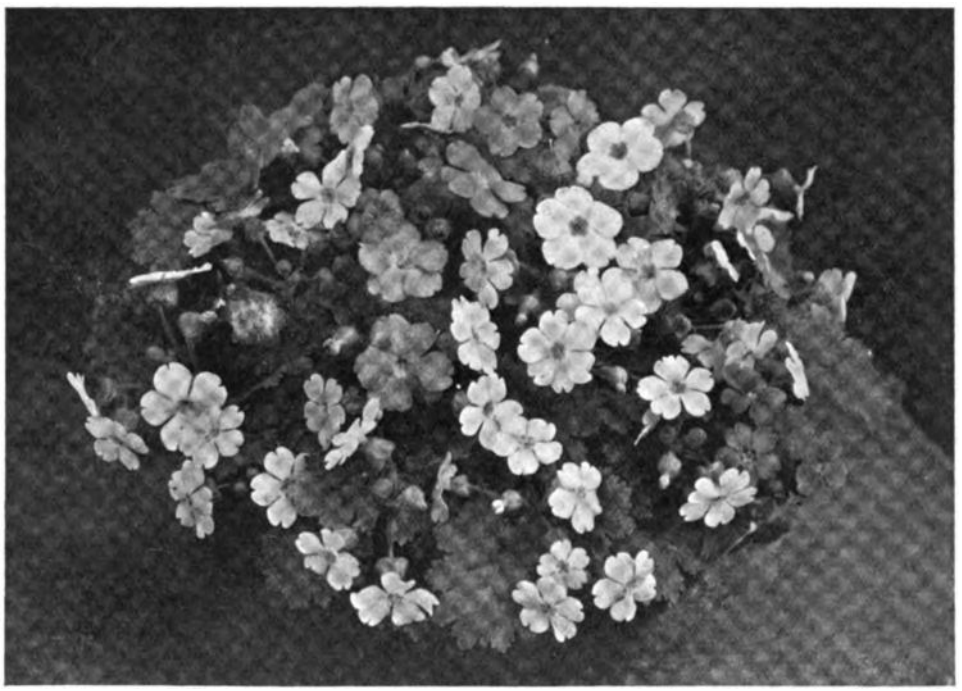
ATTRACTIVE BOWLS

A METHOD OF MASSING TOGETHER FLOWERING PLANTS GROWN IN TINY POTS IN A WAY WHICH IS BOTH USEFUL AND CHARMING.

FOR some years plants in pots and bowls have been growing more and more popular for house decoration, so much so that in many houses they have entirely ousted the cut flower. This is a move in the right direction, for growing plants last much longer in bloom and so are more economical. There are, however, one or two difficulties from which it is sometimes hard to escape, one is that of monotony of growth. The flower scape sticks upright in a pot, and is inclined to be stiff and ungainly. The days of those serried banks of potted greenhouse flowers towering up at the end of a Victorian drawing-room have disappeared and flowers for decoration are kept in smaller units, which are sometimes difficult to make attractive. Coloured and glazed pots are used, but are not always a success, and they do not assist in overcoming stiffness of growth.

At the Royal Horticultural Society's Show at Vincent Square on February 26th Messrs. Sutton and Sons had a small exhibit of Primula sinensis which was extraordinarily successfully arranged. It consisted of numbers of different varieties and colours of this primula grown in thumb pots and collected in large black bowls. So thickly were they grouped that each bowl constituted a tuffet of colour. The advantage of growing them in thumb pots is that the pots can be placed in the bowl at all angles and so any idea of stiffness can be avoided. The pots were packed in with moss, and the effect, as shown in the illustration, is very effective and with a grace which could not be obtained by growing the same number of plants in one pot. Also they are kept smaller in size in these thumb pots and are not allowed to grow long and lanky.

This method of growing plants for house decoration need not be confined to Primula sinensis. Many of the scillas and crocuses and such plants as small ericas and some of the dwarf varieties of begonia can be shown by this method with equal success. Crocuses, especially, will gain in grace, for if grown in clumps in one pot they are inclined to turn into a shapeless mass of colour and the charming shape of the flower is lost. By grouping ten or twelve thumb pots in a bowl the centre pots will be upright while those at the edge can be so placed as to stand at any angle to suit the flower and the contour of the bowl.



MANY SHADES OF PRIMULA SINENSIS ARE COLLECTED TOGETHER IN THIS ATTRACTIVE TUFFET OF COLOUR.

It is rather difficult to describe such an arrangement satisfactorily, but this method of decoration should certainly be tried, for a bowl of infinite variety in colour and shape can be arranged which will last in flower for a considerable period. Another advantage is that many shops keep tiny pots of flowering plants which can be suitably collected and massed together in infinite variety and at little cost.

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A SELECTION OF SHRUBS for the ROCK GARDEN

BY W. IRVING.

SHRUBS that might be included under this title are so numerous that I only propose to deal with a small selection of the most distinct and easily grown kinds. Low-growing shrubs, apart from the dwarf conifers, are very valuable adjuncts for adorning the rock garden, giving it a furnished appearance during the winter months, and providing a charming display of bloom in season. Many of the following plants naturally inhabit the cold Arctic regions or high mountain chains, and when transplanted to our lowland gardens they preserve their alpine character, which makes them fit associates for the other plants grown there. With few exceptions they are easily grown, and, if only pot-sown and established specimens are procured in the first place and well planted, there need be no real difficulty with many of them. It must, of course, always be remembered that some plants are partial to certain soils and situations, so that it is necessary to learn their requirements before placing them in their permanent positions.

Among the best of the close-growing deciduous shrubs of creeping habit is Arctostaphylos alpina. The leaves are small, slightly serrated, netted and wrinkled; while the white flowers are succeeded by black berries. On the Alps this species usually grows in high altitudes in peaty soil, mostly damp, but it is also found in sandy or gravelly soil. Collected plants are difficult to establish; seeds are the best method of propagation. A. Uva-ursi is a well known and pretty evergreen of fairly quick-growing habit. The plant is trailing, with thick, smooth leaves, and bears pretty rose or white urn-shaped flowers, which are succeeded in autumn and winter by coral-red berries. It is fairly common on the Alps of Europe, and is also found on the mountains of this country. A. nevadensis is an American species very closely allied to the above.

Alyssum spinosum is a silvery-leaved shrubby species that forms rounded hummocks up to 1ft. high and several feet across. It bears, in early summer, white or pink flowers in terminal clusters and is a very ornamental plant. As its name implies, the old branches are spiny. It is a native of France, and soon establishes itself in suitable situations by means of self-sown seedlings, which have a preference for rocky crevices.

There is a fine genus of small trailing shrubs called bryanthus, which is closely allied to loiseleuria. They require to be grown in sandy peat in a partly shaded situation. B. Breweri, from North-western America, grows about 9ins. high with numerous stems crowded with narrow leaves that have revolute, thickened margins. It is a charming little evergreen, with good-sized rose-purple flowers in short racemes during the summer. B. empetriformis, from the same region and of similar habit, has reddish purple flowers clustered near the extremities of the branches. It is only 6ins. high. B. erectus, from Siberia, grows about 1ft. high and bears red campanulate flowers.

The species of Cassiope are tiny alpine bushes somewhat resembling the heaths. There are four or five species in cultivation—C. fastigiata and C. selaginoides from the Himalayas, C. tetragona from Lapland, and C. hypnoides from Arctic Europe and North America. Until their requirements are perfectly understood they are not easy plants to grow, but when success is attained the plants are to be numbered among the choicest alpines for the rock garden. They appear to like a half-shady position and a moist peaty soil that is well drained; while stagnant moisture and drought are alike harmful. C. fastigiata comes from the north-western Himalayas where it grows at about 12,000ft. elevation. It is a beautiful free-flowering plant about 9ins. high. The flowers are solitary, white and bell-shaped, not unlike an andromeda. The five segments of the corolla are recurved and show the pink centre and curious awned stamens like the arbutus. The leaves are imbricated in four rows and have white membraneous margins. The other species from that region, C. selaginoides, is only an inch or two high, of moss-like habit, with white, bell-shaped flowers. C. tetragona is a more common but less attractive plant. The foliage has a more grassy green colour and the stems are more branching, while the flowers are only about half the size of those of C. fastigiata, and they are not produced so freely. It is easier to grow, and if the stems are pegged down they root quickly. The plant produces its little white, bell-shaped flowers in April, about a month before C. fastigiata. C. hypnoides is a creeping, moss-like plant bearing solitary drooping flowers on long stalks. It is very rare in cultivation and is one of the most difficult to grow in lowland counties. There is also another species in cultivation from North-western America, C. Mertensiana, of dwarf compact habit, but I have not seen it in flower.

A little-known trailing shrub is Chiogenes hispidula, with almost thread-like woody stems and small ovate leaves, light green and smooth, quite evergreen, the branches being covered with small bristles. The flowers are small, white, and in the autumn are succeeded by white berries. It grows best in a half-shady moist position in peaty soil. It is a native of North America, being found on the Alleghany Mountains.

Many of the daphnes are beautiful rock plants, such species as D. Cneorum and D. petræa when well established making charming groups. This genus was dealt with in THE GARDEN of May 26th, 1923, when all the different species in cultivation were described. All daphnes thrive best in slight shade, but will do without it if the soil is moist. Stones in the soil help to keep the roots cool and moist, and prostrate-growing species like D. Blagayana like their stems covered with large stones, these inducing them to root afresh. They are not deep-rooting plants, but usually make a mat of fibrous roots just below the surface. It thus follows that they are not able to withstand the dry conditions of a sunny aspect.

Empetrum nigrum is an evergreen of creeping habit with small linear leaves.

A DECORATIVE ROUNDED HUMMOCK OF ALYSSUM SPINOSUM.

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The flowers are somewhat inconspicuous, rose-coloured, and the fruit is black. It is easily grown in peat and loam and is useful on account of its evergreen character. It is a native of this country.

One of the prettiest of the dwarf trailing shrubs is Epigæa repens. It is variously known as the May-flower and trailing arbutus. It is far from common, and many find it difficult to cultivate. In its native land, North America, it loves sandy and rocky woods, and delights particularly in the shade of evergreen trees. It is of distinct trailing growth, and the wood is hard and quite wiry, rough, and covered with rusty hairs. The leaves are rounded or heart-shaped. The pretty flowers, produced in terminal or axillary clusters, are salver-shaped, white or, more often, flesh or rose coloured, and deliciously scented. This plant may be grown in sandy peat under the shade of standard evergreens, but it is difficult to establish in situations under the influence of smoky towns. As a pot plant, grown in frames under a north wall, it is charming for the alpine house. The propagation of Epigæa is best effected by layering after flowering, which is generally from March to May.

Although Erinacea pungens has been in cultivation since the year 1759, when it was introduced from Spain, it is still rare in gardens. It is, however, quite hardy if planted in a suitable situation on a sunny, well drained ledge. Under those conditions it forms a much-branched, spiny and almost leafless little bush about 9ins. high and a foot or more across. The flowers are produced during the summer months, six or eight together, on a short inflorescence, and they are of a bluish purple colour. It is a somewhat difficult plant to propagate, but this can best be accomplished if the cuttings are inserted in sandy soil in the autumn and placed in a cold frame, where some of them will commence to grow the following spring.

Erica carnea and its variety alba are beautiful winter and early spring-flowering plants that are indispensable in the rock garden. They are valuable for planting in large groups and masses.

(To be continued.)

DAPHNE BLAGAYANA, A PROSTRATE-GROWING SPECIES WHICH GIVES A PICTURESQUE APPEARANCE TO THE ROCK GARDEN.

RARE TREES AND SHRUBS

BY W. J. BEAN.

NOTHOFAGUS DOMBEYI: THE COIGUE OF CHILE.

SINCE the introduction — or rather, re-introduction — of Nothofagus obliqua and N. antarctica from Chile by the late Mr. H. J. Elwes in 1902, a good deal of interest has been taken in the southern beeches generally. Although they are so closely related to our northern beeches that many botanists have placed them in the genus Fagus, they have much smaller leaves and are really very distinct, but perhaps more so in general appearance than in purely botanical characters. N. Dombeyi is a large tree, commonest in Chile and the island of Chiloé, but also native of the Argentine. Near the Baths of Chillán, at altitudes of 5,000ft. to 6,000ft., Mr. Elwes told me he measured two trees, one 27ft., the other 22ft. in circumference of trunk. It is rather remarkable that the introduction of so fine a tree—one of the chief sources of timber in Chile—should have been so long deferred. Mr. Elwes brought home seeds from the Argentine in 1902, but none of them grew, and we owe its existence in Britain now to Mr. F. R. S. Balfour of Dawyck, who obtained seeds in 1917 and sent them to Kew, where a few germinated. These, so far as I am aware, represent its first introduction to this country.

It is evergreen in South America, but the young examples in cultivation sometimes lose a good deal of their foliage in winter. The leaves are ¾in. to 1¾ins. long, half as wide, ovate to lance-shaped in outline, finely and sharply toothed, leathery in texture, dark glossy green above, paler but also bright green beneath, speckled freely on both surfaces, but especially beneath, with minute dark glands; leaf-stalk 1-12th in. long. Seeds three-cornered, like those of our common beech, but only ¼in. long. The young trees in cultivation are very elegant, making long shoots annually on which are set, horizontally and alternately, two rows of small lustrous leaves. As regards hardiness, they have not been put to any real test since their introduction, but at present are perfectly healthy.

CARYOPTERIS TANGUTICA.

In a good many gardens, in the South at any rate, Caryopteris Mastacanthus has for many years been valued for the beauty of its flowers, more especially as they open as late as September and October. It was first introduced from China by Robert Fortune in 1844, but subsequently disappeared from cultivation until Charles Maries sent it to the Coombe Wood nursery from Japan in 1880. If given a sheltered place, such as at the foot of a south wall, it is hardy near London in all but the severest winters. This new species, C. tangutica was originally discovered in Western Kansu by Przewalski

the Russian traveller, but the credit of its introduction to cultivation belongs to the late Reginald Farrer, who sent seeds of it home in 1915. As Fortune found the older species wild near Canton, where, I imagine, the climate is very much warmer than that of Kansu, there is every probability that this newer one will prove considerably hardier. At the present time (February) the shoots made last year are entirely fresh and healthy.

C. tangutica is a bushy shrub described as 3ft. to 5ft. high in a wild state, the young shoots, the undersurface of the leaves and the flowerstalks all clothed with a close grey down. The leaves are ovate, ¾in. to 1½ins. long, the terminal half coarsely toothed, dull dark green above. The flowers are borne in short-stalked clusters in the leaf-axils and at the end of the shoot and open in September. Each flower is about ½in. long, the corolla bright violet-blue, with four short entire lobes and one larger, longer, toothed one forming a "lip"; the calyx is ¼in. long, its lower part bell-shaped, but dividing at the top into five pointed, violet-tipped lobes.

This shrub belongs to the Verbena family and, like so many of this group, has a pleasant aromatic scent when crushed. It bears considerable resemblance to C. Mastacanthus, but differs in the smaller leaves with blunter teeth. It is easily increased by leafy cuttings in late summer.

CALLICARPA GIRALDIANA.

Several species of callicarpa are or have been grown under glass, the best known of them being C. purpurea. Another species, hardier but not completely hardy, is C. japonica, sometimes grown out of doors and very handsome when well furnished with its violet-coloured berries, each about the size of a peppercorn. But, near London, I think this newer species, C. Giraldiana, will prove to be the hardiest and best for cultivation in the open air of all the callicarpas. It is a native of western China in the provinces of Szechuan, Hupeh, etc., and was discovered by Professor A. Henry in 1887. It was introduced by Wilson twenty years later.

This is a deciduous shrub of erect habit growing about 6ft. high, the young shoots at first downy, soon becoming smooth. The leaves are narrowly oval or lance-shaped with a slender point, toothed, 2ins. to 5ins. long, 1in. to 2¼ins. wide, dull dark green above, paler beneath, downy on both surfaces; leafstalk ¼in. to ½in. long. The flowers open in July on the leafy shoots of the current season, crowded in roundish clusters in the axils of the leaves. Each blossom is about 3-16in. wide, the corolla lilac-coloured, with four rounded lobes; anthers yellow. But, while by no means devoid of beauty of flower, it is in late October and November, when the fruits are ripe and in full colour, that this shrub acquires its full charm. The berries are pale blue-lilac, glossy, each one ⅛in. to ⅛in. in diameter, and they are borne in roundish clusters at each node (or "joint") of the shoots, several dozens in each cluster.

This callicarpa likes generous treatment at the root and an open, well cultivated soil, and it should be grown in full sunshine. I do not know how it would withstand a winter like that of 1894–95, but it has not been affected by cold since its introduction. From C. japonica, which has smooth leaves and flowerstalks, this is easily distinguished by its downy ones.

THE ART OF GRAFTING

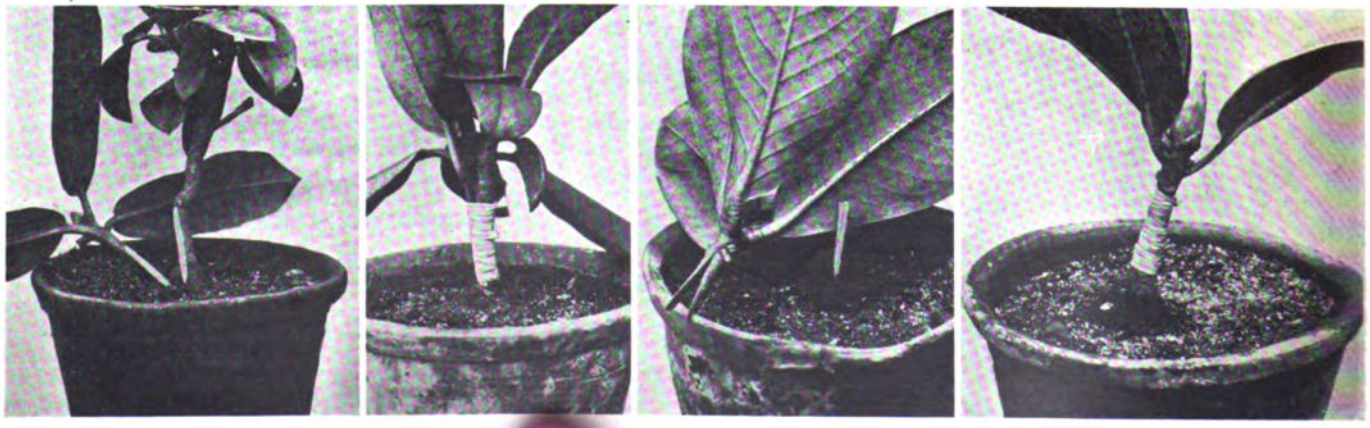
BY A. OSBORN.

GRAFTING is an important method of propagation. It is a means of increase which should be considered when seeds, cuttings, layering and division are not practicable or not in sufficient quantities to meet the demand. Important examples of grafting as a rapid means of increase include the large-leaved hybrid rhododendrons and the named varieties of clematis. Layering may be, and is in fact, a preferable method of propagating a few rhododendrons at home, but there are very few sufficiently large plants in nurseries to consider layering as a paying method of increase. The many beautiful garden varieties of clematis can be increased by cuttings and layering. To meet the yearly demands of their customers, however, nurserymen graft thousands annually. Letters appear in the horticultural Press from time to time attributing the sudden withering of clematis to grafting. There appears to be no reasonable ground for this statement. The trouble can usually be traced to the sun cracking, or the wind swaying and splitting, the fibrous bark of the lower parts of the stems.

The many varieties of hollies and flowering crabs can be readily and profitably increased by grafting. A certain amount of grafting is practised with the Japanese cherries, flowering peaches and roses, though budding in summer is preferable. The scientist regards budding as merely a form of grafting, but in the field of practice it is preferable to treat them as distinct methods of propagation. The nature of the wood of the prunus family in general does not lend itself to such a good, permanent and lasting union, the cambium of a single bud uniting better than a woody scion. On the other hand, we have the pyrus family in which there is nothing to choose between grafting and budding. Another reason for grafting is to infuse vigour into plants of weak growth and, if of weeping or prostrate habit, to get them up on stems well above the ground where their distinct habit of growth can be better seen and appreciated. Pendulous varieties of the beech, elm and holly may be cited as examples. Though some of the progeny of the copper beech or the cut-leaved beech may come true from seed, when grafting is practised we are sure of trees true to type.

With the increasing popularity of ornamental trees and shrubs the demands at the moment for a number of the new and rare kinds can be best met by grafting.

The skill of the propagator, however, in the practice of grafting can easily be overdone. There are some examples for which I can find no justifiable excuse.



THE FIRST AND THIRD ILLUSTRATIONS SHO[W] SCIONS AND STOCKS READY FOR SIDE AND SADDLE GRAFTING. THE SECOND AND FO[UR]TH SHOW THE RESPECTIVE OPERATIONS COMPLETED.

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Osmanthus Delavayi is readily increased by cuttings. Plants we obtained from the Continent were grafted on Phillyrea. Apparently it was done to obtain quick growth, but it is a perpetual source of trouble to keep cutting off suckers. The privet is sometimes used as a stock for lilacs, which are freely propagated by layering and cuttings. A third example may be cited, namely, grafting cotoneasters on thorns, when increase is easy by seeds and cuttings.

As a rule, one or other of the common species of a genus is used as a stock, but occasionally, in practice another genus of the same Natural Order is used, as, for example, grafting Cytisus Dallimorei and Spartium junceum flore pleno on the common laburnum.

In addition to the desire for rapid increase, grafting is sometimes of value when our soil, climatic or other cultural conditions are unfavourable. The grafting of Clianthus Dampieri on Colutea arborescens and Halimodendron argenteum on Robinia, or Caragana, are examples. I am also inclined to attribute the healthy growth of several plants of Rhododendron campylocarpum outside at Kew to the fact that they are grafted on R. ponticum. Plants on their own roots are not doing so well, though probably this result would not coincide with bushes in the south and west.

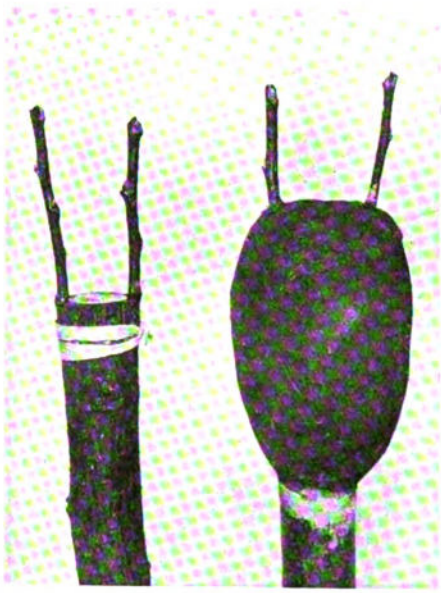
The best time for grafting most trees and shrubs is in spring, about April in the open, and from January onwards under glass, beginning and finishing with evergreens. Some grafting is also done under glass during late summer and autumn, oaks and rhododendrons being noteworthy instances As a matter of fact, the rhododendron is such an easy plant to graft that there is no reason why it should not be practised throughout the year, assuming increase is imperative from October to December, but not otherwise should it be done in the dull dark days of winter.

METHODS OF GRAFTING.—There are several slightly different forms of grafting, though the principle is the same, *i.e.*, the union of the cambium, or inner bark of the stock, and scion. The object, then, must be to so cut and fix the scion on the stock that as much of the cambiums as possible of both may coincide. With this end in view it helps very considerably when stock and scion are similar in size.

It being desirable for the sap in the stocks to be running freely, they should be placed under glass two or three weeks before the actual grafting is done. A larger percentage of successes may be looked for if the stocks have been potted some time previously. Outside, this advance of stock over scion is obtained by cutting off the wood for grafting and heeling it in the ground at the foot of a north wall or hedge early in January.

The average length of the cut surfaces on the scion and stock is about 1in., varying a little, more or less, according to the size of the wood and the kind of shrub or tree. The quicker the surfaces are united when the actual cutting is done the better.

In bush plants it is desirable to have the point of union low down so that there is less chance of sucker growths developing on the stock. When grafting on tall stems this objective cannot apply, but being a clean stem suckers are more readily detected than on bushy plants with branches near the ground. Another reason for grafting low down on the stock is that the point of union can be buried when replanting to encourage the



RIND-GRAFTING: MODE OF CLAYING.

scion to root and become independent of the stock in course of time.

When grafting under glass in a close, moist atmosphere it is sufficient to tie or bind the stock and scion together with raffia, matting or grafting cotton. Outside the point of union must be kept air-tight with clay or grafting wax.

SADDLE-GRAFTING is a favourite means of increasing the large-leaved rhododendrons. The stock is cut wedge-shaped, sloping on both sides as depicted in Fig. 3. The scion is cut up the centre and thinned to fit closely on the top of the wedge-shaped stock, hence the term "saddle" grafting. Care must be taken not to cut up the stem beyond the point of union desired with the apex of the stock.

SIDE-GRAFTING is the most generally practised method. With saddle-grafting it is imperative to have the stocks established in the pots. With this method it is also a great help, but as the top of the stock remains to draw up the sap until the union is assured the point need not be so closely followed. Fig. 1 shows the prepared cut surface of the stock ready to fix the scion resting on the pot at the side.

LIP-GRAFTING is a form of side-grafting, a groove or "lip" being made at the base of the cut surface on the stock into which the bottom of the scion will fit. This holds the scion more firmly in position.

If there is a difference in the size of stock and scion, place the scion on one side to ensure the union there of the cambiums.

TONGUE, WHIP OR SPLICE GRAFTING is a useful type of grafting, and one designed to hold the scion firmly in position. It is desirable that the sloping cut on the stock should finish just above a bud. A thin downward cut is made corresponding to an upward cut or "tongue" made in the scion. The parts are then closely fitted together and bound in position.

RIND-GRAFTING is largely practised with old fruit trees which through some cause or other it is desirable to graft with better varieties The branches are cut back a month or more before grafting time, leaving sufficient wood for a fresh cut to be made at the actual time of grafting. The scions may be 6ins. to 9ins. long. Cut 1in. at the base as is done with the ordinary side graft. The bark of the stock is next separated from the wood and the scion inserted. Several grafts may be placed round according to the size of the stem. After binding in position cover the points of insertion with clay or grafting wax. To keep the clay moist and prevent cracking, tie moss over the clay.

ROOT-GRAFTING.—This is the easiest and most adaptable of all forms of grafting. It consists in grafting small twigs or pieces of root taken from trees of the same species, or a closely allied genus. Important examples of trees and shrubs readily propagated in this way include wistarias, bignonias, tree peonies and clematis. It is a method of propagation giving abundant scope for the enthusiast to experiment with. Any tree or shrub proving difficult to increase should be tried. It is preferable to pot up all root grafts and start them in a close frame with gentle bottom-heat.

NEW GARDEN CLUB

THE very latest thing in London is the Garden Club—the resort of the best-informed and best-known people in the gardening world—and, judging by its long list of members, there appears to be little doubt that it is going to be extremely popular. At the inauguration reception recently there were present the Countess of Dartmouth and Lady Joan Legge, Lady Tenterden, Lady Eva Wyndham-Quin, Sir William Lawrence, Sir Ronald and Lady Russell and very many more gardening enthusiasts. Situated next to Princess Mary's town residence in Chesterfield Gardens, it was originally Lord Leconfield's house, and its position is ideal for a club. The furnishing of the beautiful library—with its original frieze of Cupids riding on dolphins, and its carved fireplace and bookcase to match—and of the dining and drawing rooms adequately conveys the title of the club. The floral loose covers to the deep-seated easy chairs and settees, the window-boxes in green and gold with growing flowers, and the latticework decoration to the walls of the lounge are in excellent taste. There are over thirty bedrooms for the accommodation of the club members, which have all been furnished in extremely good style, and the whole arrangement of the interior is most pleasing. A roomy lecture hall will be used for enlightenment on interesting subjects, and many new friendships among garden lovers will be made within the walls of this new club. The furnishing has been carried out by Messrs. Oetzmann and Co., Limited.

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GARDENS in the MAKING at WEMBLEY

BY G. C. TAYLOR.

IT was with feelings of wonder and amazement that I regarded the British Empire Exhibition at Wembley Park in its last stages of completion on a fine sunny morning last week. One could almost imagine that one had arrived at some industrial urban area. Thousands of workmen were scurrying to and fro like a hive of busy bees. Buildings took shape, and became a reality, while one looked on. Trees disappeared suddenly from one spot to make way for something more substantial and one rediscovered them growing happily in a more secluded nook perhaps two miles distant. Roads are being quickly fashioned, with grass lawns bordered with young trees running along their length.

THE DARK SETTING OF THE PINES LENDS A ROMANTIC TOUCH TO THE SCENE.

Owing to the kindness of Mr. A. C. Bartlett, the Horticultural Superintendent at Wembley, I spent a very pleasant few hours looking round the area of some two hundred and twenty acres, paying particular attention to the gardens which are in the process of formation and which, when completed, will add a natural and beautiful appearance to the Exhibition—the green verdure and the colour of the spring flowers showing up in striking contrast to the whiteness of the buildings. Even the most wonderful exhibit would appear drab were it not enhanced by a touch of colour from Nature's palette.

One often wonders at the marvellous skill of the engineer and the builder, and their accomplishments at Wembley call for further praise in that direction, but the horticultural staff also come in for their due share of credit. To be presented with a veritable sea of mud and instructed to form and lay-out beautiful gardens in the space of a few weeks is to be given no easy or light task. And yet, such is being done at Wembley Park. Already a number of gardens are completed, some are nearly so, while others again still await the harrow before they can assume anything like the form of a garden.

From the north-west entrance one is confronted immediately with a broad open vista, in the centre of which there is a large grassy lawn with broad paths about 18ft. wide along its edges. Rhododendrons have been transplanted at intervals of from 6ft. to 8ft. along the sides, forming a pretty avenue. They are fine, bushy plants and are growing well. At the corners of the smaller squares and rectangles forming this lay-out one finds transplanted cypresses (Cupressus Lawsoniana). These were only transplanted about four or five weeks ago. At present they are protected by a canvas screen on two sides to guard them against the north and east winds till they become thoroughly established and attuned to their new conditions. It is an exceedingly novel way of affording protection, as the illustration shows. Other cypresses will be planted in tubs interspersed here and there throughout the lawn.

Mention must be made of the exhibits of the many horticultural firms which are gathered together in one area, where are being prepared gardens of flowers, shrubs and fruit trees, surrounded by well laid out grassy lawns, bordered with narrow gravel paths. These exhibits, while, as yet, only in their infancy, will indeed be a picture when completed and will give one an idea of the correct methods to be applied in landscape gardening, the use of hedgerow plants and shrubs and their value to their less bulky neighbours in a border, of the skill required in the maintaining of a lawn, with the necessary and up-to-date tools to be employed, and various other difficulties which oft-times confront the gardener in carrying out his duties.

Each of the Dominion buildings will be surrounded by a garden containing many plants indigenous to that particular part of the globe which the Dominion building represents. The exhibits will be world wide in their representation and thus should evoke considerable interest and attention among a large section of the British public, as it will bring home to the visitor the untold wealth of the Empire in all the various aspects of horticulture.

The fruit display will be one of the finest ever seen in this country, contributions coming from Canada, Australia South Africa and New Zealand. All the various kinds and varieties for which our Dominions are famed will be on show, and the exhibit will be sure to prove interesting and instructive to those engaged in the trade in Great Britain. Oranges. lemons, pineapples and soft fruits (in preserve) will be found in the South African building: while the apples will come from their well known home—Canada. Australia will show her fruit products from the garden, orchard and vineyard, many of which will be exhibited in a frozen state. New Zealand's raw fruits will be largely represented by apples and pears. Fresh consignments of these fruits will arrive throughout the period of the Exhibition, so that an excellent standard is assured.

The aid which scientific research renders to agriculture and horticulture in its manifold branches will be demonstrated by the Ministry of Agriculture in exhibits dealing with plant pathology, plant breeding, the chemistry and nature of soils, and horticulture. Much useful information will be gained by a visit to this stand in H.M. Building, where the theories and the research of the scientist

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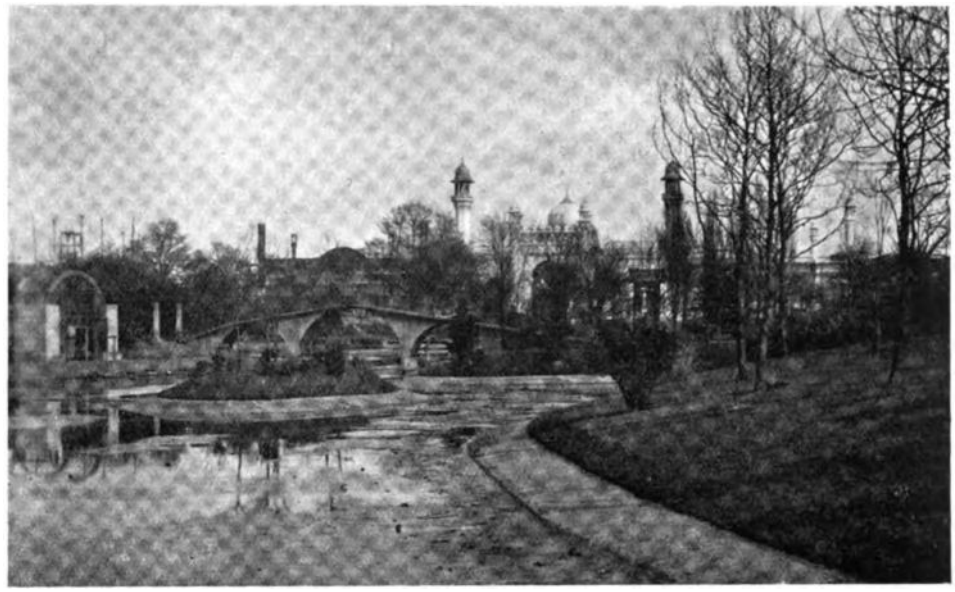
will be seen in their application to the present day practical problems.

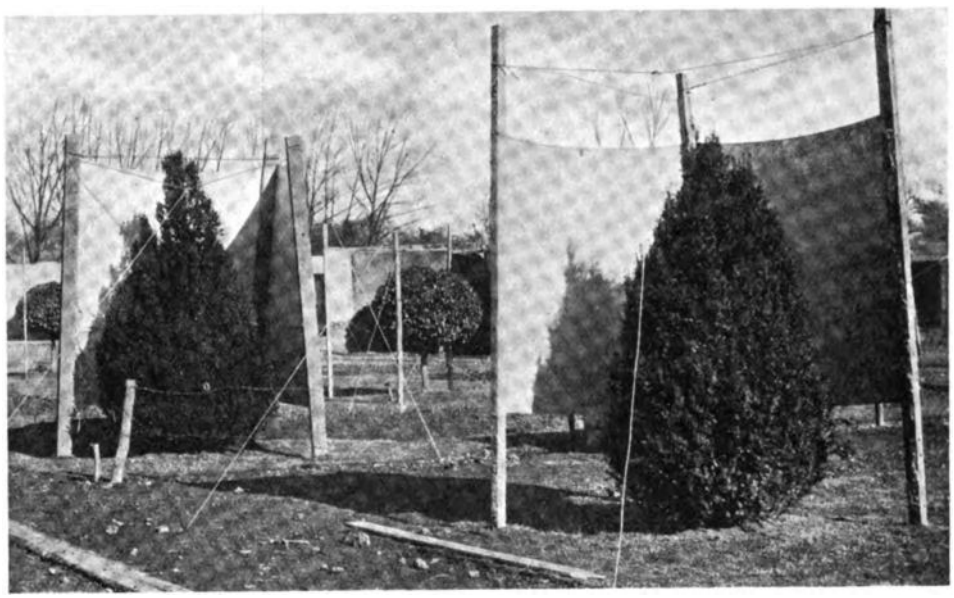
The Forestry Commission exhibit is taking the form of a village hall, a house and pavilion, built of home-grown timber, containing all manner of wooden articles manufactured in the country. All the various woods will be represented—Scots pine, larch and the English hard woods, showing their varied uses. The gardens surrounding the buildings will be laid out as nurseries in which young trees will be exhibited by Scottish nurserymen famed for their raising of young conifers. This Forestry section should prove of great value to the visitor in the great question of housing and lack of building materials, and will indicate the part which forestry can play in solving the problem.

On walking up the main avenue between the Palace of Engineering and the Palace of Industries one reaches an ornamental lake which is crossed by many small stone bridges. The north side of the lake is bordered with boxes containing periwinkles climbing over them. Towards one end, shrubs of various kinds have been planted. On the south side and towards the west end a small, picturesque rock garden has been arranged. It really forms a striking picture. No attempt has been made to furnish a covering of rare alpines to the rocks, but their absence is not noted, as the whole is clothed with dwarf shrubs and ericas, while hardy bulbs have been planted between the heaths which, on blooming, will lend a distinctive note to the rest of the colour scheme.

On the other side of the bridge will be found a grassy bank with rhododendrons, poplars, chestnuts, limes, and Picea pungens var. glauca, most of which are transplanted specimens. Truly a great feat. In summer such a bank will present a handsome appearance. A small island is to be found in this part of the lake with, as a background, a few tall handsome Lombardy poplars. To the left there is a small clump of Scots pines (also transplanted), their dark glaucous foliage lending a realistic touch to the picture. Bulbs have been planted indiscriminately along the southern borders of the lake. Already they are peeping above the ground and if the weather clerk is favourable one will witness the yellow of the daffodils in harmony with the varying hues and tints of the tulips, hyacinths and irises. When the bulb season is over, small garden shrubs and herbaceous annuals will be ready for transplanting—from a specially prepared nursery at Wembley, where at present they are being potted on—to their new home, to maintain the seasons in this Exhibition of exhibitions.



A GRASSY BANK WITH TRANSPLANTED SPECIMENS OF POPLARS, LIMES, AND CHESTNUTS.



A NOVEL METHOD OF PROTECTION AGAINST WIND, EMPLOYING CANVAS SCREENS.

THE ROCK GARDEN AT THE SOUTH-WEST END OF THE ORNAMENTAL LAKE

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ANEMONES

BY THE LATE MAURICE HEWLETT.

WINDFLOWERS ARE AMONG THE MOST CHARMING OF SPRING BLOSSOMS. THEY ARE FOUND IN THE WOODS OF ALMOST EVERY COUNTRY IN EUROPE; PERHAPS A BETTER NAME WOULD BE "WOODFLOWERS."

Anemones, which droop their eyes
Earthward before they dare arise
To flush the border, . . .

says the poet, and says truly, for I believe there is no exception to his general statement. The point is really one in the argument between the gardeners and the botanists, as to whether you are to reckon hepaticas as anemones. I shall come to that presently, and here will only point out that hepaticas do *not* droop their eyes—or hang their heads, as I should prefer to say. Let that be remembered when the scientist tries, as he is so fond of doing, to browbeat the mild Arcadian. Except for that remark I do not call to mind that the poets have sung about the windflowers. None of them has likened his young woman to a windflower. Meleager, indeed, when he is paying a compliment to his Zenophile, pointedly leaves it out.

ONE OF THE FINEST ANEMONES; THE CLEAR CUT ST[illegible] OF APENNINA.

Now bloom white violets, now the daffodils
That love the rain, now lilies of the hills,

he begins; and what lilies those could have been unless they were lilies of the valley (which sounds absurd), I do not know. But how could he talk about spring flowers in his country and leave anemones out? It is true, he was a Syrian; but politics do not interest anemones. No one is to tell me that Asia Minor is without Anemone fulgens.

Fulgens is the typical Greek anemone, anyhow, as coronaria always seems to me specifically Italian. It is a wonder of the woodlands—as of those between Olympia and Megalopolis, or of the yet denser brakes about Tatoi, where the late Constantine used to retire and meditate statecraft. Blanda, the starry purple flower of eighteen points is commoner in the open. Nothing more beautiful than the flush of these things under the light green veil of the early year can be imagined. The gardener in England who can compass anything like it is in a good way. Luckily it is easy, for these are kindly plants, seed freely, flower in their first year and are not so affected by climate as to change their habits to suit our calendar. Do not grow them in woods if you want them early. Our woods, *in quella parte del giovinetto anno*, are both cold and wet. Put them in the open, in light soil sloping to the south, and you will have as many as you want. One thing I have noticed about them is that in England fulgens is constant to its colour, whereas in Greece there are albinos, pure white and very beautiful, with black stamens. The pairing of those with the staple has produced a pink fulgens of great attractions. I have imported it, but it has not spread, and the seed of it comes up scarlet. Blanda has no sports, and is so proliferous that, if it is much grown in soils that suit it, very probably it will become a naturalised British subject. Here it is a weed.

Our own pair of windflowers is not nearly so easy to deal with as those two Ægean tourists. Nemorosa will only grow happily in woods, and even there does not readily transplant. Pulsatilla is subject to winter rot, as anything which lies out at nights in a fur coat must expect to be, and it reacts immediately and adversely to a rich soil. Now, nemorosa grows in the fields in Germany, even in water meadows; Pulsatilla in Switzerland will stand any amount of snow. But the snow in Switzerland is as dry as salt, and no flower objects to a flood when it is beginning to grow. The enemy in England is wet at the slack time. The best way to treat Pulsatilla is to grow it on a steep slope, for that is how it grows itself.

Talking of nemorosa, there is a harebell blue variety of it which I have seen, but never had, and, of course, the yellow ranunculoides, to be met with in Switzerland, though it is not a widespread plant. I found a broad patch of it under some trees on the edge of Lake Lugano; a clear buttercup yellow, not a dirty white. I do not call it an exciting plant, all the same, and am perfectly happy without it, and to know it is the only true yellow anemone that exists.

No offence, I hope, to the great sulphur anemone of the Alps, a noble windflower, indeed. I know few things more exhilarating than to round a bluff and find a host of it in stately dance. And I know few things less so than to try to dig it up. I have devoted some hours to the pursuit, notably after a night spent at Simplon Dorf. I rose early and toiled till breakfast. I had an inefficient trowel, bought in Florence, and an alpenstock, and with them excavated some two feet of Simplon. At that depth the root of the sulphur anemone was of the thickness of a reasonable rattlesnake, and ran like the *coda* of a sonata, strongly, and, apparently, for ever. Something had to give, and it was the anemone. I coiled up what I had, brought it back with me in a knapsack, and made a home for it among my poor rocks. Nothing to speak of happened for

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two years, except that it let me know that it lived. Then came a spring and a miracle. The sulphur anemone burgeoned; that is the only word for what it did. Since then it has never failed, though more than once the rocks have been rent asunder. In what goes on underground, this anemone is a tree.

I do not forget—am not likely to forget—coronaria, which in its (I must own) somewhat sophisticated form of Anemones de Caen is the glory of my blood and state in the little hanging garden I now possess. I own, it seems, the exact spot it likes. It is thoroughly at home, and proves it by flowering practically all the year round. In the dog days, I do not say. But who cares what happens in August? Except for that waste month—the only one in the almanac with nothing distinctive to report—I believe I have hardly failed of a handful of coronaria. Since Christmas I have not failed of a bowlful, and in this month of April, 1923, it is out in a horde. Wonderful things they are: 9ins. high, 4ins. across, with a palette ranging from white through the pinks to red and crimson, through the lilacs to violet and the purple of night. There are few better garden flowers. Untidy? Yes, they need care. Too free with their seed? They cannot be for me. I am open to the flattery of a flower's confidence, as, also, to that of a woman's. Another thing to its credit is its attraction for bees, with the range of tint and tinge which that involves. Your whites will be flushed with auroral rose or clouded with violet; you will have flecks and splashes of sudden colour, the basal ring of white—whence comes its cognomen, annulata—will be sometimes invaded. Even the black centre with its stamens is not constant. I have one with a pale green base and stamens of yellow. With these fine things fulgens goes usefully and happily. Coronaria has no such vermilion. A bank of the two together growing in the sun can be seen half a mile away, and will not look like scarlet geranium if there is a judicious admixture. To qualify that dreadful sophistication called "St. Brigid" I shall serve myself of W. S. Gilbert's useful locution; "Nobody," he said, "thinks more highly of So-and-So than I do; and *I* think he's a little beast."

A FINE TUFT OF ANEMONE PULSATILLA.

Apennina, I think, wants a mountain. I should like to try it in some favoured ghyll in Cumberland; and some day I will. I have it on a lawn, and have had it for many years. There is no less, but no more, than there ever was. It does not seed. The two colours, china blue and white, are delicious in partnership, though the blue is not so good as that of blanda, and the white not quite so white as nemorosa's.

And what am I to say of hepaticas, and how *écraser* the botanists? Who am I to deny them with my reason—entirely satisfactory to myself—that the *feeling* of the two flowers is distinct and separable? What does an anemone imply? A spring woodland on a mountain slope. What an hepatica? A wet cleft in a rock, sodden last year's leaves, ragged moss, pockmarked crust of snow—and out of them a pale star raying gold from blue. The anemone is gregarious, the hepatica solitary; the anemone is a spring flower, the hepatica a winter flower. And lastly, as a gardener, I say, the anemone can be moved and is often much the better of it; the hepatica should not be, and is always the worse. If you plant an hepatica root and leave it alone for fifty years, you will have something worth waiting for—a ring of it as big as a cart-wheel. I have not done it—but it has been done for me.

With all these distinctions, nevertheless, the two are intimately related, belonging as they do to the same Natural Order Ranunculacæ. They are both graceful flowers and pleasing to the eye and everyone should be happy indeed to see them appearing in the garden.

ANEMONE NEMOROSA BOSNIACA IN THE ROCK GARDEN, FORMING A PLEASING SIGHT IN EARLY SPRING.

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TOMATO CULTURE

BY EDWIN BECKETT.

IN the year 1596, four varieties of edible tomatoes, or as they were more familiarly known in those days, "Love Apples," were brought to this country from South America. It is very doubtful whether their introducer ever dreamed of their becoming popular other than as pretty, ornamental fruiting plants. Indeed, for nearly three hundred years they had but little other use, and yet, in less than half a century, they have become so important an adjunct to the culinary list that they now claim a trade all to themselves, and even the enormous quantities grown annually in this country do not cope with the demand, and we have to import many from abroad. Yet it is possible, where there is a fair amount of glass, for them to be grown almost all the year round, in fact, by careful arrangement I have had no fewer than four crops of fruit from one house inside the space of twelve months. Modern sorts lend themselves very readily to this work, and are of robust constitution, far in advance of their antecedents.

A commencement should be made by sowing seed thinly early in January, in a light, sandy compost, and germination should take place in a temperature of from 50° to 55°. It is as well to warm the compost to this temperature before sowing. See that the seed pans are well drained, and only cover the seed lightly with a dusting of the finer particles of the compost. Once the seedlings are through, place them close up to the glass of the house to promote sturdy, healthy growth. The next step should be to prepare a light compost comprising mostly leaf-soil and sand, with a very small amount of light loam. This should be mixed and put into the house with the seedlings to warm up, and the young plants potted on, singly, into thumb pots, before the second leaves appear, inserting them right up to the seed leaves in the compost. Water well in at this stage with tepid water and place up close to the glass. The idea of conducting these operations in the same house is that by maintaining a level temperature, risk of check is precluded, and the aim at all stages should be to promote and continue steady, healthy growth, for, otherwise, results will not come up to expectations.

Stage number three calls for potting on into 60 pots, under similar conditions, when the thumb pots are well filled with roots, and a slightly heavier (more loamy) compost should be employed, and transference into 48-sized pots should later take place, as increased root formation demands it, again with a little heavier compost, taking care now to employ a thin stick to which to tie the plant for support.

Care should be taken here to note that soil in the pots should never be saturated, nor the atmosphere of the house be too moist and stagnant, at any period, for these are the principal reasons for disease and lack of fruiting. When the pots are again full of roots, the final potting on should be done, using either 8in. or 10in. pots, or suitable sized boxes, and see that they are well drained. Employ for the work a compost of three parts fibrous loam, one part decayed leaf soil (as a substitute for this spent mushroom bed manure may be used) and, added to these, sufficient coarse sand to keep the whole thoroughly porous and open. Do not sift this mixture too finely, and make the plants very firm in it when planting. When potting it is only necessary to employ, for a start, a sufficiency of soil to cover the roots, and this should not be too rich in character. The plants should then be grown either supported to stakes or trained up the wires of the house, but in all cases as close to the glass as is possible. Feeding will not be required until fruit has set, and the top-dressing required from time to time, until the setting takes place, should consist of similar compost, added as root growth is apparent.

To assist fruit to set, the plants should be gently tapped two or three times a day when in flower, to spread the pollen. Failure to set is generally to be accounted for by the plants having received too much moisture, either at the roots, or through the atmosphere, during their young growing period, and through this error having formed sappy, rank, useless growth; yet another cause in this direction is inefficient or defective ventilation. When fruit commences to set, then richer compost may be added as a top-dressing, and after a quantity is apparent, use a reliable fertiliser as a dressing. Feeding with diluted liquid farmyard manure will be very beneficial, the strength of the liquid being increased with the quantity of fruit setting. When fruit commences to colour remove it from the plants in order to relieve their burden and so help them to perfect the remainder of the crop. Fruit removed will ripen well off the plant, if placed in a warm, dry room.

For the maintenance of supplies through summer and autumn and even beyond, three or four sowings at intervals during the spring will be necessary, and the cultural directions are the same as the foregoing. For winter work, sow in August, and use every effort to grow the plants as sturdily and healthily as possible in order that they may have efficient constitutions to perfect themselves under the more trying conditions of the shorter days and longer nights they have to go through. The house is an important factor for winter work, for it must be well and efficiently heated, the ventilation system good and in proper working order, and the glazing in perfect condition to admit every particle of light possible during the short days. Undoubtedly the best form of structure to cover these points is a full-span house. The final shift of the plants should be into pots rather than boxes, and a temperature of 55° to 65°, maintained. Careful and controlled ventilation should be allowed whenever weather conditions permit. Assist the setting of fruit by hand fertilisation with a camel-hair brush or a rabbit's tail on a short stick.

Fine crops may be grown during the summer in frames on a mild hot-bed; the plants being trained as close to the glass as possible, and ventilation, feeding, etc., carefully attended to. The plants should be placed in their pots at the front or shallow part of the frame for starting them on their career. This method may also be adopted, with profit, in portable frames, even where a hot-bed is not available.

As an open air crop the tomato is, at best, a very precarious one, though against a good, sunny, southern wall they are generally fairly successful in greater or lesser degree according to the season experienced. Raise the plants from a sowing made early in March, dealing with them in the same way as detailed above until the time arrives when careful hardening off should be undertaken whereby the plants may be ready for planting in the open at the end of May. Plant out at the foot of the wall, about 18ins. to 20ins. apart, secure to stout stakes, and only allow three or four trusses of fruit to set, after which pinch out the points of the plant, and at all times remove any side growths as they appear. If there is no wall and the plants have to be grown in the open, select the most sheltered sunny site, dig it well, but do not manure it, as this is fatal owing to the promotion of sappy growth. Allow 4ft. from plant to plant and 6ft. between the rows, and securely tie the plants to reliable stakes to prevent damage by heavy wind; also only permit sufficient fruit to set as will mature properly. In both cases remove fruit as it colours. Water plants in the open freely if weather conditions are dry, mulching slightly to assist this, but if the weather is wet and sunless, it is as well to shorten back the leaves to about half their length so as to aid the plant to perfect the fruit.

Pests are a trouble, but the worst of all under glass is the White or Snowy Fly, and immediately it is seen it should be tackled at once with a reliable fumigator, using this several times at intervals, so as to destroy the various generations of the pest that are in different stages of progress at the same time. This enemy attacks and destroys the foliage rapidly and thus prevents the plant ever being likely to fulfil its function of fruit production.

Fungus pests are mostly the result of too much moisture and inefficient ventilation, and affected parts should be removed from the plants and burned, and the plants dusted with black sulphur to prevent spread, and at the same time take the proper steps to remedy the cause of the ill.

A few words in conclusion will suffice to note a selection of varieties that may be relied upon for their utility, flavour and appearance for general work. Make a point to obtain the seed from a reliable source. For the early and main supplies under glass the following red varieties may be recommended: Comet, Kondine Red and Sunrise; while most distinct and

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novel in appearance, but to my mind one of the very best flavoured varieties is Peachblow. Of the yellow varieties for similar use, the best are probably Golden Perfection, Golden Sunrise (the yellow form of the red variety) and Sunbeam. Prejudice, I know, still exists against yellow varieties, but there is no question that for quality and flavour they are the equals of the reds, and will at times surpass them. For winter work, as mentioned earlier in these notes, I would recommend Winter Beauty, a variety which is especially fitted for this work, as its name denotes; while Sunrise is also excellent. Again, for out-of-doors growing, Sunrise scores, and should be employed for this work, and if variety is required, then select a good type of this class of tomato. A word or two as to new varieties before finishing. If it is desired to grow these when they are introduced, make a trial growing first, before using largely, to make sure that they will succeed well under your own particular conditions, as success or failure may be greatly influenced by environment.

TULIPS AND ORCHIDS AT VINCENT SQUARE

ALTHOUGH officially it was to be principally an orchid show at the Royal Horticultural Society's Hall, Westminster, on March 11th and 12th, it was really a spring flower show and the fine spring-like weather induced a very large attendance. The outstanding floral exhibit was a magnificent collection of early tulips, arranged by Messrs. Sutton and Sons, in the form of a large flower carpet in which they displayed a large number of brilliant-coloured tulips in very many varieties. This gold medal exhibit illustrated sound, well ripened bulbs of first quality and expert cultivation.

Brilliant colour was also provided by the large quantity of splendid greenhouse cyclamens shown by Mr. J. W. Forsyth. The silver-leaved varieties were very prominent and these bore better flowers and in larger quantity than is usual. The form of the flowers, too, was good. Scarlet Queen and a salmon coloured variety of this type are excellent examples. Mauve Queen and Simplicity, also of mauve colouring, were very charming.

Forced azaleas, especially indica and Japanese varieties, were plentifully shown. Mr. L. R. Russell associated them with Begonia manicata, Clematis indivisa lobata, bearing trails of starry, white flowers and the weird Tillandsia Zahnii, a bromeliad which has a cluster of yellow flowers surmounting a bright reddish stem. Messrs. R. and G. Cuthbert had a collection of Azalea indica varieties of useful sizes.

In a little rock garden of pleasant design Messrs. Wm. Cutbush and Sons displayed dwarf bushes of Japanese varieties of azaleas bearing countless numbers of small salmon tinted flowers. There were several other attractive plants on Messrs. Cutbush's stand, among them Andromeda polifolia, with masses of white bells; this species should be grown more in our gardens. Fine sprays of Cydonia japonica alba were also to be seen on this stand. Messrs. J. Cheal and Sons also had a small rock garden.

Azaleas of good types with taller bushes of double-flowered cherries, white brooms and other shrubs, with seasonal alpines, made an attractive display in the group of Messrs. Wallace and Co. Tall wistarias rose above massed azaleas, interspersed with palms in the collection of Messrs. John Peed and Sons.

The new white lilac was included by Mr. F. G. Wood in his exhibit, which also contained carpets of double lilac primroses and a large-flowered single blue variety, while several especially good lilacs, in pots, were set out by Mr. Endtoz.

In a collection of well grown pot roses, Mr. E. J. Hicks had a large centre stand of Climbing Lady Hillingdon, flanked by Columbia and Queen of the Belgians, the last named is a beautiful single variety of large size and lovely soft pink colouring.

Messrs. Stuart Low and Co. showed good hippeastrums with Acacia Baileyana, and among their carnations included

A VERY FINE LILAC, JAN VAN TOL.

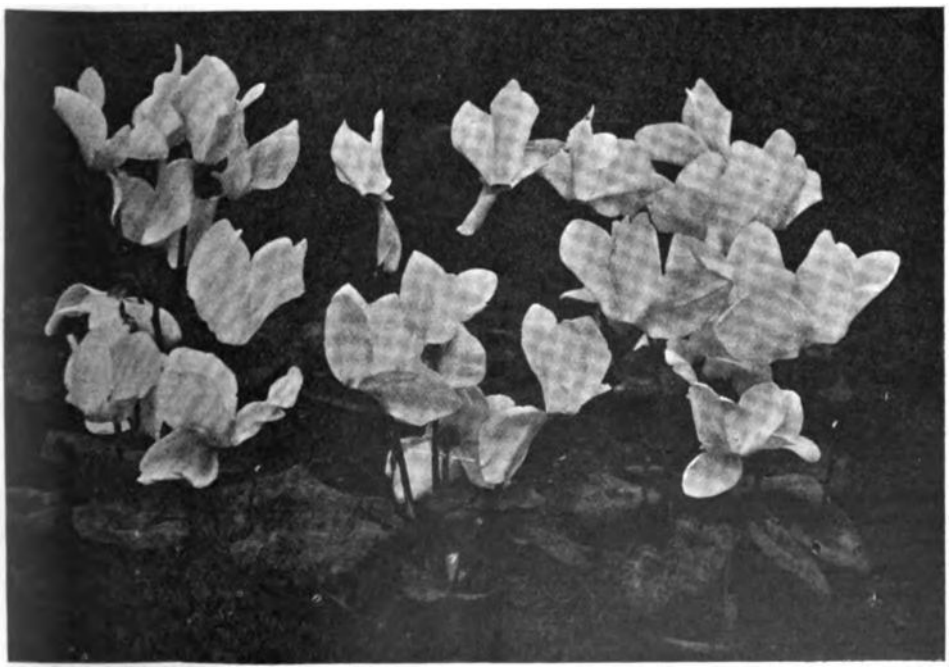
Sir Philip Sassoon, a new perpetual-flowering variety of good form and deep crimson colouring. Nearby they had a large vase of the rosy-cerise Reginald Cory. Messrs. Allwood Bros. had a large collection of their new perpetual border varieties of great merit and a selection of the ever-blooming Allwoodii hybrids. Messrs. Keith Luxford and Co. and Mr. C. Englemann also staged good carnations.

The first large collection of narcissi for the season was displayed by Messrs. J. R. Pearson and Sons, and this was an excellent group composed chiefly of such admirable large trumpet varieties as King Alfred, Lowdham Beauty, Florence Pearson and Cleopatra, with the smaller and more delicate Capella. The Poeticus and Barrii types were also represented by very good blooms. Messrs. R. H. Bath, Limited, again showed bulbs in fibre.

At the other end of the hall Messrs. Carter and Co., Limited, had a large collection of daffodils in pots, the chief varieties were King Alfred, Victoria, Lucifer and Seagull.

Messrs. Barr and Sons showed the smaller daffodil species with chionodoxas, Christmas roses, and well flowered bushes of forsythia. Messrs. Skelton and Kirby also showed forsythias and included some heaths and alpines.

Alpines and border flowers were shown by Messrs. Carter Page and Co., Messrs. Pulham Bros., Messrs. Bakers, Limited,



CYCLAMEN GIANT WHITE WONDER STRAIN WHICH GAINED AN AWARD OF MERIT.

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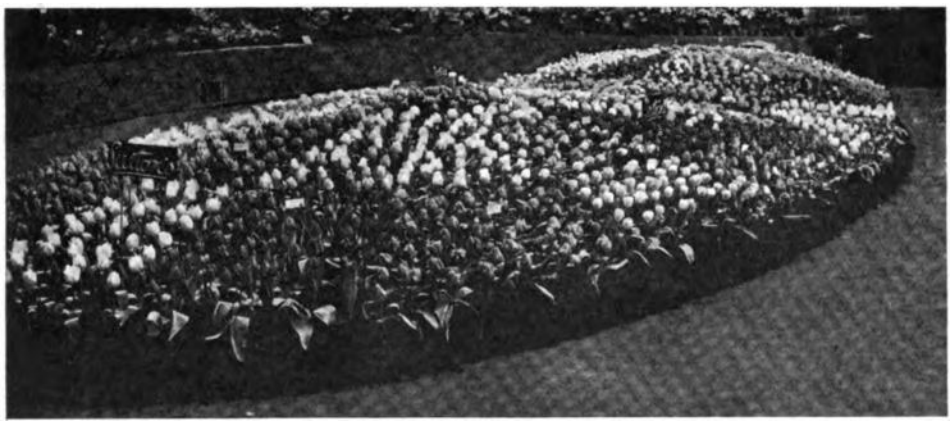
who included the golden flowers of Ranunculus montanus and Primula capitata; Mr. M. Prichard had a bright patch of Anemone fulgens and saxifrages in a low rock garden; Messrs. Waterer, Sons and Crisp, Messrs. Maxwell and Beale and Messrs. R. Tucker and Sons, displayed alpines. Such saxifragas as Irvingi, Burseriana varieties, kewensis, oppositifolia splendens, and dalmatica were shown in fine masses of flower. The Orpington Nurseries Co., had a sober but valuable collection of conifers and other shrubs suitable for the rock garden.

Sir Arthur Vivian, K.C.B., sent from his garden at Bosahan, Cornwall, many sprays of half hardy shrubs which excited a good deal of interest. The collection included flowering examples of Magnolia Campbelli, Berberis Bealei, with fragrant flowers, Clematis Armandi, Clianthus puniceus, bearing its curious large pear-shaped flowers, Azara microphylla, Nuttallia cerasiformis and richly coloured trusses of Rhododendron barbatum.

Sweet violets were shown by the Misses Allen Brown and Mr. B. Pinney, the former included especially good bunches of yellow and pink coloured varieties.

Messrs. G. Bunyard and Co. continued their exhibits of seasonal apples and on the present occasion staged dishes of Cobham, Sturmer Pippin, Calville Rouge, Calville Malingre, Claygate Pearmain, Rosemary Russet and King of Tomkins County. Messrs. Shearns, Limited, had another of their fascinating "shop-window" collections of fruits.



A MAGNIFICENT FLOWER CARPET OF TULIPS EXHIBITED BY MESSRS. SUTTON & SONS.

NEW AND RARE PLANTS.

CROCUS ÆRIUS VAR. CELESTE.—A rather short-stemmed variety which produces large, rounded flowers with milky-white centres, flushed with blush lilac towards the tips of the segments and on the exteriors. The filaments are orange coloured. Award of merit. Shown by Mr. G. Reuthe.

CROCUS TOMASINIANUS PICTUS.—This is rather a thin bloom with pointed tips to the segments which are heavily flushed with purple. The filaments are deep yellow in colour. Award of merit. Shown by Mr. E. A. Bowles.

CYCLAMEN GIANT WHITE WONDER.—The plant which received the award was of excellent type and very floriferous, but those in the group of greenhouse varieties were not so good, though the flowers were of large size and freely produced. The blooms were sprawly and had lost the fascination of the real cyclamen form. There is a distinct need for a really good white strain which produces blooms of good shape and it would seem that it could be evolved from the variety under notice. Award of merit. Shown by Mr. J. W. Forsyth.

SYRINGA JAN VAN TOL.—This is a magnificent single white lilac. The trusses were large, erect and shapely, and the individual, pure white flowers were well disposed. Award of merit. Shown by Mr. F. G. Wood.

VIOLA ODORATA ROSEA.—Often the pinkish coloured violets are not at all fragrant, but this is a welcome exception as the medium-sized blooms are deliciously fragrant. A couple of pot plants were shown and these displayed fair floriferousness, but the flower stems were a trifle shorter than most would like, though probably under frame culture the stalks would be longer. Award of merit. Shown by Mr. C. Duruz.

ORCHIDS.

AWARDS OF MERIT.

CYMBIDIUM PRESIDENT WILSON WESTONBIRT VAR.—The spike bore ten large flowers, bronze tinted with reddish shading; the cream-coloured lip has a dark crimon blotch on the apical area.

CYMBIDIUM MACAW.—A pleasing flower of brownish crimson tints, the lip bearing a V-shaped blotch of deep crimson.

CYMBIDIUM REDSTART VAR. ROSY GEM.—A beautiful flower, rose coloured, the broad lip white and speckled with rose.

CYMBIDIUM LINNET VAR. OLIVE.—This plant carried a spike of nine large flowers, in colour bright olive green, the lip slightly spotted.

CYMBIDIUM RING DOVE VAR. RUBY.—A charming hybrid of rose pink colour, the expansive labellum boldly marked with large spots and a median line of dark crimson.

The above five cymbidiums were exhibited by Lieutenant-Colonel Sir George Holford, K.C.V.O., Westonbirt (gardener, Mr. H. G. Alexander).

CYMBIDIUM ALEXANDERI VAR. PRINCESS.—A pretty flower of uniform rose-pink colour, the labellum having a crimson apex. From Messrs. J. and A. McBean, Cooksbridge.

CYMBIDIUM CERES VAR. RUBRUM.—One of the best forms of this elegant hybrid. Flowers of deep reddish rose colour. From Messrs. Sander, St. Albans.

ODONTIODA THE TORCH.—A fine result in which the flowers are above average size, the segments effectively blotched with crimson-rose. From Messrs. Sanders, St. Albans.

Gold medals were awarded to Lieut.-Colonel Sir George Holford, K.C.V.O., and to Messrs. Sanders for fine groups of cymbidiums, also to Sir Jeremiah Colman, Bt., for an excellent exhibit of Lycaste Skinneri and other choice species.

BUDDLEIA COLVILEI

THOSE of us who have the good fortune to possess Sir Herbert Maxwell's latest flower book, "Flowers: A Garden Note Book," look many times and oft at the illustrations in colour, reproductions of paintings by the gifted author. One which is of high interest to many is that of Buddleia Colvilei shown there. Sir Herbert speaks of it as 20ft. high on the walls of his laundry at Monreith, and his only regret seems to be that it does not flower with more freedom there. It is indeed a magnificent climber or wall shrub, far surpassing in the size and beauty of its flowers any other Buddleia in cultivation. That it does not flower everywhere is generally the fault of its environment. It is one of the shrubs which flowers on the wood of the former year, and this is sometimes so injured by frosts in winter that the flowers are not produced. It seems, also, to take a few years to attain flowering size. There are a few gardens in the south-west of Scotland where it does not suffer from frost every year, and with a mild winter the delight of its long, drooping racemes of rose flowers may be anticipated. The Monreith plant is a very fine one. The first time I saw B. Colvilei in bloom was in the garden of the late Mr. W. D. Robinson-Douglas of Orchardton, Kirkcudbrightshire. It was some time before B. Colvilei bloomed with him, but I had the great joy of seeing it that season—now a good many years ago—and it struck one as among the finest of flowering shrubs. The same plant, which was on a south wall, flowered annually for a good while until a severe, long-standing frost one spring cut it badly back so that it did not bloom again for a year or two. Thinking it was not likely to do any more good after being cut back another plant was procured, but the old one revived and in due course seemed little the worse of its having been crippled for a time. The claret-coloured variety mentioned by Sir Herbert in the above work is certainly not to be placed on the same plane as the one with the lovely rose flowers.

S. ARNOTT.

FORTHCOMING EVENTS.

March 25.—Royal Horticultural Society's Fortnightly Meeting (two days). Masters' Memorial Lecture on the first day at 4 p.m. by Professor A. C. Seward, M.A., F.R.S., on "Plants as Evidence of Climatic Changes."

March 27.—British Carnation Society's Exhibition, to be held at the Royal Horticultural Society's Hall.

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FRUIT-GROWING IN SMALL GARDENS.—V

BY RONALD G. HATTON, M.A.,
OF THE EAST MALLING RESEARCH STATION.

THE CONTROL OF DISEASES AND PESTS.

As to controlling the diseases and pests in your small garden, I will say straight out that, if you are taking your fruit-growing seriously, you must be prepared with some simple sort of spraying apparatus.

Do not be satisfied with the syringe that cleans the windows. A syringe, by all means, but one with a fine nozzle that will break up your spray and distribute it in a fine mist, underneath the leaves, on top, into the unopened truss, into the eye of the apple or wherever it may be needed. For several years I have sprayed quite successfully my growing cordons, and young gooseberries and currants with a simple garden syringe. If you have big, old trees in your garden, or your cordons are maturely developed, you may want to invest in a small knapsack sprayer..

I do not want to alarm people, but I want to make it clear that fruit trees and bushes are like human beings, some constitutionally strong, some weak. Often the choicest are in the latter class. Sometimes there may be an epidemic of disease, sometimes there may be a clean year, but if you let your fruits go under to the epidemic, it will almost certainly lose you good fruit for several succeeding years.

Now, I do not suggest a whole series of sprayings and a number of sprays, but an essential annual routine on your young trees should be followed. Once in three years they would benefit, just as the young leaves are bursting and before blossom opens, by a good covering lime-sulphur spray. This is a general cleanser, a tonic and, besides, helps to keep your apples clear of spot and crack, your gooseberries free from mildew, and your black currants free from "big bud." On apples liable to spot, on gooseberries liable to mildew, on black currants, and on any wall peach liable to leaf-curl I should make this an annual routine. The wash is non-poisonous, though it may scorch vegetable leaves. This will probably be about the first week in April, and the ground between your trees could then be clear of vegetable crops. Then, I should watch carefully for signs of young caterpillars and for the first mother green-fly, before blossom opens. If I saw any signs, I should be ready with a wash, preferably containing soft soap and nicotine (or any other harmless and effective insecticide), and this would be at my elbow until I had safely passed the season of the rosy aphids. Always spray before your leaves are curled. It is too late once they are curled. Nicotine is a vegetable poison and will do no hurt to other plants. As for harming individuals, I should certainly not care to eat lettuce, for instance, on which the spray had drifted, unless a good rain had supervened. But I believe this to be the safest insect wash for the garden.

Spraying nowadays has been made comparatively simple for the amateur. There is no trouble in mixing up various ingredients. A small tin of a proprietary lime sulphur or soap and nicotine, with full directions as to use, will supply almost all your needs. Only, remember that no spray can possibly cure everything. It has no miraculous power, it is effective just in so far as you hit your object at the right time in the right place, just in so far as you cover your leaves, shoots or fruit effectively. The cleaner you keep your garden, walls, fences, and trees, the less rubbish you have about, the less likely will you be to have epidemics of pests which find a ready harbour in such places.

MANURING.

Finally, remember that heavy manuring will cause too much wood growth for your top fruits, but that if you intercrop these with vegetables and starve the ground, you cannot hope to get good crops of either. Your raspberries, gooseberries, black currants and strawberries will always respond to generous treatment and, when you cannot get good stable manures, you need not be beaten. It is so simple to-day for the amateur to obtain the smallest quantities of the meat and bone meals, the rape dusts and fish meals that the commercial grower uses so much. They are so readily handled and easily sown. If the garden is in general good heart, it will almost certainly be good enough—if not too good—for your top fruits. If the ground runs together or dries out too quickly, you can improve it by digging in all the available green refuse matter or a crop such as mustard, when it is yet not too high. If the home has any refuse, such as small rag bits from the old piece drawer, any old spent feathers after the hen is plucked or the cushion discarded, do not forget what a high manurial value these things have in the garden and how the roots of your fruit trees will find them out.

In conclusion, may I refer you to helpful leaflets for the amateur such as those issued by the Ministry of Agriculture, on the "Control of Pests of Fruit Trees in Gardens and Small Orchards (Food Production Leaflet No. 39) and "Picking and Storing of Apples and Pears Grown by Small Cultivators" (Leaflet No. 283). After you have grown the fruit, you may easily spoil it by gathering too soon and by bad storage. Do not be in too great a hurry, favour rather the cool dark cellar than the warm dry attic. Fruit-growing in the small garden works in with the general routine of the home, it affords a ceaseless source of interest, and, if properly managed, a constant supply of fruits for the table. It will give you the appetite for still more. That natural magnetism of the apple tree for the boy really only expresess an hygienic necessity.

ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Plants for a Sloping Bank (M. B. T.).—The following kinds of plants are suitable for such a bank. They will spread and help to keep the soil in position. Achillea umbellata, Ajuga reptans, Antennaria tomentosa, Cerastium tomentosa, Saxifragas, Sedums, Sempervivums, Anemone japonica, Pinks, Alyssum saxatile, Montbretias, hardy Fuchsias, Euonymus radicans, Thyme and London Pride (Saxifraga umbrosa). Everlasting sweet peas are also suitable if allowed to spread on the bank without stakes. Periwinkles are charming for the purpose.

GREENHOUSE.

Climbers for Cool Greenhouse ("Tun Wells.").—The following plants will be found excellent for a cool greenhouse: Clianthus puniceus and its var. alba, Cestrum aurantiacum, Clematis indivisa, Lapageria rosea and var. alba, Mandevilla suaveolens, Lonicera sempervirens, Plumbago capensis, Senecio macroglossus, Solanums jasminoides and Wendlandii. If our correspondent has ample space plant also Cobæa scandens variegata, Tacsonia Van Volxemii and Passifloras cœrulea and Constance Elliott. The list could be further augmented with Abutilons Golden Fleece, Boule de Niege and insignis, also Fuchsias.

TREES AND SHRUBS.

Plants for Peat Bed (C. L., Hants.).—The following peat-loving dwarf shrubs would be suitable for this position. Daboëcia polifolia varieties; Calluna vulgaris vars. Alportii, Serlei and flore pleno; Ericas carnea and var. alba, darleyensis, ciliaris, Tetralix and var. alba, vagans and var. alba, Mawiana, cinerea and St. Keverne; Dwarf Rhododendrons impeditum, intricatum, Williamsianum, hippophæoides, flavidum and racemosum; Bruckenthalia spiculifolia; Bryanthus empetriformis; Kalmia angustifolia and Ledum latifolium.

MISCELLANEOUS.

To Make a Hard, Smooth Path (Lady R. C.).—If the paths in our correspondent's garden are near to the trunks of the pine trees, tarred paths may prove injurious. If they are 10ft. to 15ft. away and the trees are large, harm would not be done. The tar should be boiled in the open air, then poured into the centre of a heap of sifted ashes, all thoroughly mixed and spread evenly 3ins. thick on the dry, prepared surface. Roll with a constantly wet roller after freely sprinkling sifted gravel on the surface. A path of this kind will remain hard and smooth for many years. Gravel and cement, mixed, spread and rolled also answers well, but does not last as long as the tar preparation.

Names of Plants.—J. H., I. of W.—1, Colletia cruciata; 2, Cupressus Lawsoniana; 3, C. L. var. aurea; 4, Thuya dolabrata.

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CORRESPONDENCE

PEONIES.

I WAS very interested in Mrs. Harding's article (page 119) on peonies to find mention of "pie nanny" as an old name for these herbaceous plants. Near to Lancaster, at Halton in the Lune Valley, is a place not much more than a cottage called Peony Hall, and a Scotchman who resided in Lancaster persisted in calling this place "Pie Nanny" Hall, much to my mystification. Evidently this is a Scottish term. Mrs. Harding must surely have struck a rock gardening clique when she mentions being informed that an Englishman could not raise his eyes from his rock garden. I should class several subjects as taking precedence.—M. H.

VEGETABLE PLANTS—RABBIT-PROOF AND OTHERWISE.

HAVING read with much interest Sir Herbert Maxwell's useful article on "Rabbit-proof Plants" in your issue of March 1st (pages 127-128), it has occurred to me that some of your readers might be interested in a few notes of a similar kind concerning our ordinary garden vegetables. I am of course aware that rabbits have no business in a well ordered kitchen garden, but most of us know from sad experience that they do not always stand on etiquette and will, if they so desire, enter by the front gate, if necessary, to get a feed. The following notes are made from my own experiences as a gardener in four English counties (Wilts, Surrey, Bucks and Hunts).

Rabbit-proof Plants: Savoys, kales (all kinds except asparagus kale), spinach (generally), broad beans, shallots, pickling cabbages, parsnips, vegetable marrows, sage, mint, marjoram, thyme, horse-radish, turnips (generally) and seakale.

Otherwise (to be specially protected where necessary): cabbages (generally), cauliflowers, broccoli (including both purple and white sprouting), beetroot, carrots, leeks, onions, parsley, asparagus kale, lettuces, peas and kohl-rabi.

These lists might be amplified, but will probably suffice. Rabbits, too, appear to be very fond of young wallflower plants in some districts, and are very destructive through scratching (preparatory to making new burrows in the early breeding season) among flower borders and carpet plants, if these are not protected in good time in rabbit-infested districts.—E. A. SAUNDERS.

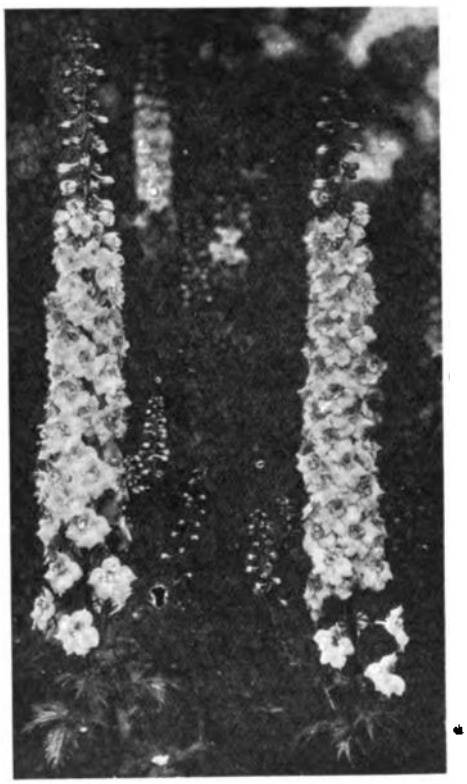
I HAVE read with much interest, as I always do, Sir Herbert's list of rabbit-proof plants in THE GARDEN of March 1st, but I am sadly afraid many of those mentioned, like a troublesome wife in the valley of Bong, would have but a short span of existence in my neighbourhood. The question of the rabbit's destructiveness really seems to come to this: it depends to a certain extent on the climatic and agricultural conditions of the district, what food the rodents have to depend on for their existence and, very possibly to a much more important extent, on the number of rabbits.

Where there are, say, three rabbits to the acre, the damage might be negligible; at thirty they would eat anything; and at three hundred per acre everything, in precisely the same manner as a starving man might struggle to exist on eating shoe leather if tossed in mid-ocean, but, placed under somewhat more favourable conditions, such as the dining-room of the Ritz Hotel, I think I can fairly safely hazard the opinion that that is not the form of diet he would be likely to select.

Apart from their destruction and wire netting, possibly one of the best preventives is Bentley's tree-protecting paint, manufactured by Joseph Bentley, Limited, of Barrow-on-Humber, which is excellent and will keep trees absolutely safe from the attacks of the rodents for at least seven months after application, and for young orchards it is all but indispensable where rabbits abound, but its application is rather difficult in the case of shrubs, etc., though this can be surmounted by surrounding them with old rope or something of that nature, attached to pins some 7ins. or 8ins. high, and smeared over with the mixture; but, most unfortunately, in localities liable to heavy snowfalls, the protection is lost just at the very time it is most urgently required.—FORMAKIN.

WHITE DELPHINIUMS.

IN March of last year you reproduced in THE GARDEN a photograph of a white delphinium which I raised from seed. THE



A WHITE SEEDLING OF EXCEPTIONAL MERIT.

GARDEN must have a very wide circulation for I have received interesting letters from New Zealand, Canada and other parts of the world, not the least interesting being one from a Quebec lady who has sent me photographs of her beautiful garden in that city. Last year several of my seedlings again proved to be white or cream-coloured varieties of quite exceptional merit, and I am now sending you a photograph of another one which perhaps you may be able to reproduce. The plant is wonderfully vigorous, the spike of bloom measuring rather more than 2ft. in length. It was raised, as the former was, from the seed of the blue variety known as Commandant Chapius, grown in close proximity to the white belladonna hybrid Moerheimi. This hybrid I have never known to seed, but it has occurred to me that its pollen fertilising the blue variety may possibly account for the number of white seedlings I have been fortunate in raising during the last two years.—W. C. BLAKEWAY.

DELPHINIUM AS A NAME.

I AM afraid no very conclusive answer will be forthcoming to Mr. Jacob's question (page 113) about the derivation of this name. In my classical library, which is fairly well furnished, I find no verification of the pretty American story which he quotes, of garlands of delphinium flowers being used in a procession to the temple of Apollo Delphinios. There certainly was a temple with this dedication at Athens, but little more than its bare name seems to be recorded. And I can find no corroboration of the assertion that blue was the favourite colour of the Greek deities, or of any one of them. Nor is it possible for anyone to know now that the supposed blue flowers of these garlands were "undoubtedly delphiniums." Hardly a flower named by classical writers, except the rose, the narcissus and, perhaps, the anemone can be positively identified. But the transatlantic Press is apt to invent where it does not know.

More than one species of delphinium (larkspur) are wild in Greece, and one at least was used medicinally, according to Dioscorides and other writers. But we cannot be sure whether delphinium was meant or aconite (monkshood), as they run into one another botanically and aconite is still used in medicine. In an enquiry into a plant-name it should always be remembered that sentimental or poetical derivations are unlikely to be true, especially of very ancient names. Thus, "heartsease" had at first no sentimental associations, but was a plant the decoction of which was supposed to give relief in cases of heart disease.

The "hood" of the monkshood, and the same part of the delphinium flower, especially in the bud, in shape might suggest the curved back of a dolphin, the Greek for which is *delphis*, and dolphins were, and are still, very common all round the Greek coasts; but to go a step farther back in etymology, and to jar upon our poetical notions, the root meaning in Greek of *delph* is undoubtedly "pig." The dolphin took his name from his resemblance to a pig; he is the "sea-pig," just as the porpoise, his near relative, bears a name that is a corruption and abbreviation of the Latin for "pig-fish"—porcus-piscus, porc-poisson, porpoise. And it is probable that the famous oracle-site of Delphi, despite its romantic associations, was originally simply "the spot where wild boars abounded." Similarly, "delphinium," if not so named from the dolphin-like (or possibly pig-like!) shape of its blossom, may have some other connection with wild boars or domestic pigs not now traceable—perhaps as pig-food or pig-poison (compare our "pig-nuts"). After all, it must be said that many plant names have come down, sometimes unrecognisably altered, from such remote antiquity that they belong to language-forms now extinct, and explanations can be only guesses. Scores of instances could be given. To take one only, what was the original meaning of "anemone"? Old writers connected it with the only Greek word they knew at all resembling it—*anemos*, wind. We copy them in our current name, "wind-flower"; but what have anemones to do with wind? Pliny says they are so called "because the flower only opens when the wind blows," which is absurd. Possibly the old Latin and Greek root *nem*, which means "wood," is embedded in the name, and the anemone should be called the "wood-flower," which is appropriate enough. But we do not *know*.—G. H. ENGLEHEART.

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NOTES FROM CONTRIBUTORS

PERENNIAL CONVOLVULUS FOR THE ALPINE GARDEN.

ASSOCIATION with that terrible pest, the common bindweed, is apt to recoil somewhat unfairly on the whole family of convolvulus, whereby many—who know them not—are apt to exclude a series of extremely beautiful plants. Beautiful in their foliage, beautiful in their flowers and possessing that delightful charm of clothing and draping the face of large rocks and boulders with sheets of the said beautiful flower and foliage curtain.

Before entering upon any discussion of varieties, let us make it quite clear that real success is only to be achieved by special culture. As befits the aristocrat, they must be given suitable homes and conditions; failure is certain if you just tuck them in and leave the rest to chance. Natives of warmer and sunnier climes than ours, a warm sunny bank with a light dry sandy, chalky soil and a raised position must be provided and—where this is done—we can promise you that you will never regret the introduction of the choicer convolvulus.

Let the soil, then, consist of fibrous loam to which a generous addition of sharp coarse sand has been made, and be sure that this is deep enough and, in addition, that the pocket where planting is done is well drained at the bottom by a layer of stones or gravel some 3ins. thick. It is stagnant moisture in winter that causes death of the plants, and these somewhat elaborate preparations are your insurance on the life of the plants and their health and well-being.

The mallow bindweed, C. althæoides, may be used either as a climber for covering a low wall or just allowed to trail over the ground where its shoots have about 3ft. of space in which to run. The leaves are remarkable in that the lower ones on each stem are heart-shaped and a beautiful silvery hue, while the upper ones are deeply cut into narrow segments of the same shining hue. Flowers, which are rose, are produced in pairs in summer. Propagation by division.

The bryony-leaved bindweed (C. bryoniæfolius) again may be used as described for the preceding species, and has leaves which vary somewhat in shape, but are mostly heart-shaped and very hairy on both sides. The flowers are very large, deep rose or reddish in colour, produced singly in summer. Propagation by seed or division.

The Cantabrian bindweed (C. cantabricus) does not twine, but branches freely and grows upright to a height of 1ft. or more. Both stems and seed vessels are densely covered with white silky hairs. The flowers, which are produced in summer, are very numerous and borne on long leafy stalks varying in colour from pale pink to rose or flesh colour and silky on the outside.

The silvery bindweed (C. Cneorum) forms an ever-silver shrub 1ft. to 3ft. high. The leaves are small and of the colour described, while the rose pink flowers are produced in clusters on the ends of the branches during summer. Propagation by seeds or cuttings.

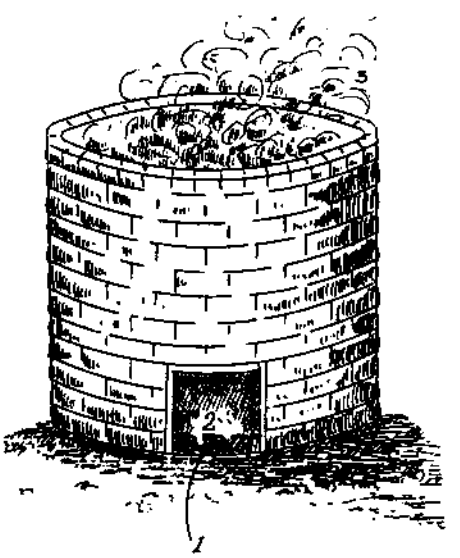
The pigmy bindweed (C. lineatus) is a charming diminutive, only 3ins. to 6ins. high, with very silky lance-shaped leaves. The flowers are rose coloured, generally in pairs and over 1in. across. This is the only member of the family that will live on a cold soil, thriving more or less on the stiffest clay, but even this flowers most freely on the lighter soils.

The blue rock bindweed (C. mauritanicus) introduces a change in colour, and these, although not large, are very freely produced. The habit of this is trailing and the stems so slender as to be almost thread-like, with round leaves that have to be examined very closely before the short white hairs, so conspicuous in other species, can be seen. You must provide a raised position for this, not only to allow for the trailing growth, but to make absolutely certain of the drainage. Propagation by division or cuttings.

The sea bind weed (C. soldanelloides) is splendid from the flowering point of view and also has the advantage that, beautiful as it is in the rock garden, one can grow it in the ordinary border and in ordinary soil. The habit is trailing, with roundish leaves which are rather fleshy. The flowers are pale red, very handsome and borne with great freedom during summer. Propagation by division.—H. W. CANNING-WRIGHT.

A USEFUL GARDEN REFUSE BURNER.

IN all gardens, refuse of various kinds accumulates rapidly, and, if left in heaps, it is not only unsightly but soon becomes offensive. There should not, however, be any waste of such refuse. If it is not convenient to burn the rubbish, the only alternative is to have all such carted away or treated with lime or salt and buried in the vegetable quarters. The cleanest way, however, is to burn all to ashes. The sketch shows a useful burner that would prove helpful in any garden, but especially in town and suburban gardens.



A USEFUL TYPE OF REFUSE BURNER

These structures may be of circular or square shape, built on the level ground or partly below it where the soil is naturally dry. Hard-burned or clinker bricks are the best; there is no need for many bricks to be left out to provide air passages in the sides when the burner is constructed as shown. A layer of loose bricks or stones should be placed to form a base and draught way, shown at No. 1. The lighting hole, No. 2, should have an iron frame, and, when the rubbish fills the receptacle, burn it when the smoke, No. 3, will blow away from a neighbouring dwelling-house, or the owners, so as to prevent a nuisance.

These rubbish bins of brick or stone will keep the contents dry as the latter are placed there from time to time, if a sheet of zinc is placed on the top, also the ashes, after burning, till they are cold and fit to store—a very important point. Furthermore, the zinc sheet can be used to regulate the burning of the rubbish by partly covering the top when the fire is well alight.—G. G.

DROPMORE IN EARLY SUMMER.

AS the days grow longer owners of cars turn their thoughts to expeditions from town for the day, and those who cannot motor or bicycle, think out walks. In June no better drive can be found than one of about twenty-five miles to Burnham Beeches and Dropmore. The Beeches are but a few miles from the garden and shrubberies of Dropmore. They can be reached either by the train from town to Taplow station (after all everyone does not own a car), three and a half miles distant and approaching by the road which leads from Taplow and Cleveden and so along the drive which passes wild bits of woodland and heath to the west of the house, or from East Burnham entering the Lodge close to Littleworth Common. The grounds are open on Mondays, Wednesdays and Saturdays from 11 to 5 and one is shown over them by one of the gardeners, after leaving the car or bicycle near the house. It is a good plan to enter by the Littleworth gate as Dropmore at the end of the eighteenth century was part of a gorse and heath covered common until bought by William Wyndham, Lord Grenville (1759-1834) in 1792, and one thus realises what his work was in planting and planning Dropmore, and how well exotic trees flourish in this country if managed with skill and care and if the soil is specially prepared for them.

Here we find spreading beeches and the elegant birch mixed with fine oak and elms, but rarer specimens are to be seen—cedars, the deodara extending its drooping branches high in the air, also pines of various kinds. Here and there an araucaria stands out with motionless stateliness against the sky. On the lawn is a Cedar of Lebanon which Lord Grenville planted in 1794, and throughout the many acres of grounds are to be seen pines which grew under his eye. Frost, his head gardener (who lived until 1887), when taking visitors round used to point out splendid trees which he gravely said he had once carried in his waistcoat pocket. The house, which was built by Lord Grenville, is hardly worthy of its beautiful surroundings.

No bit of copsewood was ever too small for Lord Grenville to take an interest in and his great understanding of landscape beauty is seen in what is known as "The Root Mount," which was built under his own supervision. One gradually climbs up to this ascent leading from shady walks of beech, honeysuckle and azaleas to a projection high above the trees, below one's feet are masses of rhododendrons, azaleas and a bush or two of scarlet camelias and beyond acres of green pasture land with here and there specially planted woods of beech, etc. In the distance a silver gleam curving in and out on the landscape denotes the Thames, with the towers of Windsor Castle standing high above it, and still further away on a fine clear day the outline of the Surrey hills can be seen. But the chief beauty of Dropmore in the early summer months is its multitude of azaleas and rhododendrons. Many people only know azaleas from seeing them grown in pots, or in small borders with specially prepared earth; here they grow in rampant and luxuriant bushes high above one's head, sheets of pale yellow, orange and flame colour. As one draws in deep breaths of their intoxicating perfume one wonders if Nature ever produced anything more beautiful. On the ground beneath and scattered far and wide are thousands of seedlings hastening to overtake their parents in growth. One wanders on and suddenly comes upon a lake where, hanging over the banks and reflected in its shimmering waters, are clumps of different coloured varieties of azaleas—EVELYN P. VENNING.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Potatoes.—The planting ot these will be fairly general, and it is always a good plan to get the main crop in by the middle of April, although I have occasionally set out tubers towards the end of May. The object of early planting is to allow lifting of the crop before the potato disease is prevalent. It is advisable to wait until the soil is in a suitable condition before planting. Clayey soils may still be wet and pasty, and therefore not ready; but light sandy soils are available at almost any time. Assuming that the tubers are sprouted, care should be taken when filling the holes or trench with soil or the young shoot will be broken. Plant the tubers several inches deep, and the rows should be from 2ft. to 2ft. 6ins. apart, according to the strength of the varieties chosen.

Spinach.—The summer variety of spinach may be sown in quantity between rows of peas or on any odd corner. If it is not required, it may be dug into the soil. The perpetual or spinach beet should certainly be grown wherever spinach is appreciated, because it is often in a thriving condition when the ordinary type fails, especially during a hot, dry period. Sow in lines 1ft. apart, and thin the seedlings to half that distance in the lines.

THE FLOWER GARDEN.

Mignonette.—Among annuals the sweet-scented mignonette occupies a high position, and it should find a place in every garden. It is easily grown, and may be obtained in various colours, such as yellow, white and red.

Eschscholtzias.—During the last few years, decided progress has been made with these charming flowers. Although it is usual to sow the seeds where the plants will flower, it is almost an impossibility with many of the new varieties, because the seeds are so few. In such cases it is best to sow in boxes containing light soil, and when the seedlings are large enough to handle, prick them off and finally transfer them to their flowering quarters. On no account should the seedlings become starved, as they rarely make fine plants after being checked.

FRUITS UNDER GLASS.

Early Peaches.—As a rule, peaches set plenty of fruit, and it is usually necessary to do a lot of thinning. Such work should be done gradually, and an interval of several days allowed between each thinning. First of all, remove the fruits that are on the undersides of the shoots; this is generally enough for the first thinning. Next time, they are further reduced to about three on each shoot, and these should be the best fruits and so placed that there is ample space for development. At the final thinning one fruit on each growth is sufficient. Over-cropping should always be avoided. Tie in the new shoots as needed. The trees should be well sprayed with tepid rain-water whenever the weather is bright, the best time being in the afternoon before the sun loses its power. The floors may be damped down twice daily, and a little air admitted through the top ventilators when the weather is favourable, viz., mild and sunny. A night temperature of 60° Fahr. should be maintained, with a rise of five or ten degrees during the day.

Keep the trees free from thrips and aphis, by occasionally vaporising the house. It is better to fumigate lightly two nights in succession, rather than overdo it by a single application.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Beetroot.—A few drills, 12ins. apart and about 2ins. deep, should be drawn out, and seed of the globe type sown, so that early roots may be obtained.

Cabbages.—Plants raised from autumn-sown seed should be set out now on well cultivated ground, in lines 18ins. apart and 15ins. between each plant in the line.

Carrots.—If one has found that the crop does well on a certain section of the garden, it should be grown annually on that part. No doubt the best roots are obtained when holes are made with a large dibber and filled with sand. This proves that carrots like a sandy soil. Although it is rather early to make the main sowing, part of the ground should be thoroughly raked and made fine, and drills drawn out 1in. or so deep and 15ins. apart, and the seed sown thinly. James' Scarlet Intermediate, Long Red Surrey and St. Valery are good and tried varieties.

Cauliflowers wintered in cold frames or on a sheltered border should be set out now in rows 18ins. apart and 15ins. between each plant in the rows; or they may be planted between the lines of first early potatoes on a south border. We have had seed of Early Snowball and Early London sown on the same date and planted out on the same day, and grown side by side; Snowball proved to be the earlier variety.

Cucumbers.—These plants may be grown in the melon house and trained to the wires, or they may be planted out in a hot frame.

Digging.—Borders from which various plants have been cleared should be manured and dug, and, after the ground is firmed and well raked, parsley and lettuce seedlings should be set in lines 12ins. apart and 6ins. between each plant in the lines.

Potatoes, Peas and Beans.—Continue to plant second early and late varieties, when the ground is in good order. Peas should be sown at intervals of ten or fourteen days, and broad beans as requirements demand.

THE FLOWER GARDEN.

Antirrhinums.—Frames from which partially hardy bedding plants have been cleared should be made ready and fresh soil added where required; also sprinkle a little sand over the surface soil and make smooth. On this prick out the antirrhinum seedlings 2ins. apart.

Bedding Plants.—Where the required numbers of plants have not yet been obtained, cuttings may still be inserted of ageratum, lobelia and musk.

Hollyhocks raised from seed sown last year and grown on in pots should be set out at the back of the borders. Enrich the soil with old manure or leaf-mould where the plants are to be grown.

Phlox Drummondii Sutton's Fireball.—This charming half-hardy annual is of dwarf habit, and seed should be sown rather thinly in boxes of fine soil and grown, after germination, in as hardy a way as possible. By this method no intermediate transplanting is necessary When the plants are sufficiently advanced have them transferred from the seed boxes to the borders. Care should be taken when lifting and planting.

Sweet Peas raised in long boxes early in February should now be sufficiently advanced and hardened to be set out on the prepared ground. Well water the roots before planting. After planting is completed support and protect the plants with small twiggy branches.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Impatiens Balsamina.—The double varieties of this plant have long been favourites for conservatory decoration, and by successional sowing may be had in flower over a long period. A start may be made now by sowing in an intermediate temperature. The seed should be sown thinly, as this plant soon spoils if at all crowded, the seedlings drawing up weak and spindly. Successful results depend largely on keeping the plants strong and sturdy at all stages of their growth. Thus the seedlings should, as soon as possible, be pricked off singly into small pots, putting them in right up to the seed leaves, as they send out roots freely from any part of the stem. They should be potted on as they require it, until they are in 6in pots, in which they will flower. Use a rich potting compost and make it moderately firm. These plants enjoy liberal feeding when in full growth, and after the seedling stage should be grown in an ordinary greenhouse temperature, and during the summer months in cold frames. Poor examples of this plant that one usually sees are generally due to their being grown in too high a temperature.

Impatiens Sultani, I. Holstii and their varieties are very useful for the greenhouse, and distinct varieties are usually propagated by means of cuttings, which root readily at any time in a warm propagating case. As they are quick-growing they soon make useful plants for decorative work. Stock is also easily raised from seed sown at this time; and in the case of I. Holstii a wide range of colour varieties can be obtained. They are best grown in an intermediate temperature until they approach the flowering stage, when they should be removed to a cool greenhouse.

Impatiens Oliveri.—This beautiful species from Uganda is very useful for furnishing large conservatories, either planted out or grown as large specimens in tubs. Such plants flower more or less all the year round. This plant is easily increased by means of cuttings, which root readily at any time in a close case. If grown on into 6in. pots, they make useful plants for the stages, potting on plants for specimens into large pots or tubs.

Celosia cristata.—This plant is by no means so popular as it used to be, although some still value it for its bright colours and extraordinary shape. C. cristata pyramidalis, with its plume-like growths, is excellent for decorative work. If several sowings are made from now onwards, these plants may be had in flower until early winter A pinch of seed according to requirements should be sown in a warm house, and in their younger stages the resultant plants are best grown in a temperature of about 55° Fahr., gradually inuring them to cooler conditions as they approach the flowering stage. Good useful plants can be grown in 48-sized pots, while the taller-growing strains may be grown on into 8in. pots, in which they make fine specimens some 3ft. in height. These plants are somewhat subject to attacks by thrips and red spider. The former can be prevented by frequent light fumigations, and the latter by the use of the syringe. They are also very subject to attacks by begonia mite, but this pest is easily prevented by the occasional use of the sulphur vaporiser.

Amaranthus tricolor splendens with its brilliant coloured foliage, succeeds under the same treatment as that indicated for celosias.

J. COUTTS,
Royal Botanic Gardens, Kew.

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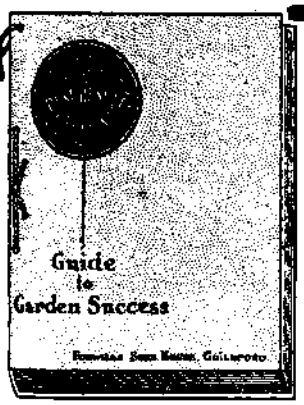

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EUROPEAN ORCHIDS ON SAND

AFTER the chalk district of Kent probably other limestone areas in England are the richest in orchids,as indeed is the case with most flowering plants in countries where limestone is prevalent, but not a few orchids thrive well on maritime and other sands.

In the interesting article by Mr. Hadden on "Some French Orchids" (page 46), he not only remarked that he did not see any bee orchids in France except in one wood where Cephalanthera rubra grew, but that this typically limestone plant (Ophrys apifera) does occasionally turn up in a district where there is very little limestone, and it is usually an exceptionally well developed and richly coloured specimen. I can substantiate this peculiarity by saying that the finest and most abundant bee orchis I ever saw in France was in April, 1913, growing on the sandy Isthmus de Gieus, connecting the mainland south of Hyères with the rocky and picturesque Presqu'île de Giens, surrounded by the blue Mediterranean. Here they were on pure sea sand among low grasses and other somewhat dwarf plants. I took several photographs of this colony.

On a corresponding strip of more bushy, but still sandy land on the other or east side of the extensive Salt Pans, the tall, robust and broad-leaved Orchis (Barlia) longibracteata, with its handsome but sickly scented flower spikes is conspicuous from January until the end of March. It is the earliest European orchid, and, often, its fleshy spikes can be seen at Christmas after pushing through the humus of decaying needles of umbrella pines. So abundant are these orchids in confined areas near Hyères that sometimes a sort of emulsion is made from the mucilage of their stems.

In Britain, though the bee orchis is so frequent on certain downs and poor pasture, chiefly on carboniferous limestone, chalk, lias and oolite, some of the finest and most brilliantly coloured specimens were growing last June amid marram grass on pure sea sand on the dunes north of Burnham, Somerset, and this plant was recorded as abundant from those sandhills in Watson's "New Botanist's Guide" (Suppl.), as long ago as 1837. Among the Bee orchids on June 7th I noticed a single plant of the pyramidal orchis, which in Somerset is most frequent on lias soil. The beautiful Epipactis palustris still grows on the damp sand bordering what once was a considerable pool amid the Burnham sand dunes, but which the exigency of golf has caused to be partly drained.

In the extreme South of France several species of Ophrys and most of the Serapias genus grow on rough ground overlying sand—both sea sand and sand of old geological formations. On the latter soil they are frequently amid pine trees or certain species of cistus. Probably on some sandy coasts, *e.g.*, between Burnham-on-Sea and Weston-super-Mare, the sand contains a fair percentage of lime in the form of cretaceous matter from the innumerable shells on the beach below high-water mark. The salt on such dunes is more easily washed out by rain than in certain other places.

In regard to the cultivation of terrestrial orchids, doubtless the recent remarks in these columns about the Snakes-head thriving best with the help and support of grasses and other suitable plants would apply to most of the orchids. In the same way nearly all the smaller gentians grow better in turf than on the gravel of moraines. Actually, in nature, it would appear that there is a reciprocity of accommodation among many of the phanerogams which is almost akin to that of some of the cryptogams And the increasing number of plants, especially among scrophulariaceæ, which have been found to be semi-parasitic, together with the study of saprophytes and the large number of epiphytes is an aspect of the subject not to be overlooked in modern gardening. The strange looking limodorum, mentioned on page 46, with its livid violet stem, bright violet and white flowers soon fading and turning yellow, is itself parasitic on various plants, especially the roots of pines. This orchid is beautifully coloured in Bicknell's "Flowering Plants and Ferns of the Riviera," where also Plate 57 well shows the distinction between the three European (and British) cephalantheræ. But there is a better plate of the great Orchis longibracteata in Moggridge's scarce and expensive "Flora of Mentone." It is not surprising that Mr. Hadden has never seen any illustration which did justice to the wonderful rosy blooms of Cephalanthera rubra, when we turn, *e.g.* to the miserable dull purple colour of the plate in "Sowerby," Ed. III. In the second and first editions of that work the colouring of this and nearly all the plates is far better, though some of the earliest colouring of the third edition is just tolerable. In France this was the orchid whose beauty appealed most to your correspondent, particularly when growing "beneath the noble plumes of Spiræa Aruncus." In such surroundings or when intermixed with the pure white blossoms of C. ensifolia, it is indeed a joy for ever. H. STUART THOMPSON.

BOOK REVIEWS

DISEASES OF CROP PLANTS IN THE LESSER ANTILLES.

THE treatment of the subject in this work* may be compared with that of Dr. Bewley's recently published "Diseases of Glasshouse Plants." In both cases the authors are convinced of the intimate correlation between the incidence of disease and agricultural or horticultural practice, and have used this fundamental theory as a basis for the connected presentation of the various diseases dealt with. Throughout the book one is conscious of Mr. Nowell's first hand practical knowledge of agricultural conditions in the West Indies, and their influence on the prevalence of certain diseases of crops grown there. For this reason the book will be invaluable to planters and plant pathologists, not only in the West Indies, but elsewhere as an up-to-date treatise on the principles of plant pathology.

The book is divided into two parts. In Part I the first section deals with the causation of disease by fungi, bacteria, infective viruses, phanerogamic parasites, eelworms and non-parasitic agencies, and includes a discussion of the relation between insects and plant diseases. The second section treats of methods of prevention and control. The various well known fungicides and their application are dealt with in detail, and chapters are given on certain special classes of disease such as wood-rot, "damping-off," and fruit rots. Plant disease legislation is also briefly discussed.

The second or special part of the book is prefaced by a general account of agricultural conditions in the Lesser Antilles. Then follow chapters on diseases of West Indian crops, classified as general diseases (not confined to one crop only), and those of permanent crops (such as cocoa and cistus), and arable crops (banana, sugar-cane, cotton, etc.).

The book is clearly printed and copiously illustrated by line drawings and photographs. —E. M. W.

* DISEASES OF CROP PLANTS IN THE LESSER ANTILLES, by William Nowell, D.I.C. Pages xix and 383, 150 Figs. Published on behalf of the Imperial Department of Agriculture by the West India Committee, 14, Trinity Square, London. Price 12s. 6d.

A MANUAL OF SPRAYING

MANY books have been published on this subject, but as our knowledge of pests increases, so also must the methods of control be altered and more advanced and scientific treatment be employed. This little book* fulfils many requirements in that respect and contains much that is useful. The tables at the end of the book are, indeed, of extreme service, permitting of a rapid way of determining the spray to be used. The book will appeal to the more scientific grower. It is rather expensive for its size, but merits a trial by anyone who wishes to have a handy and instructive manual on the subject.

THE CULTIVATED EVERGREENS.

A LONG-FELT want has now been filled in the horticultural and arboricultural world by the publication of this volume† by Messrs. Macmillan and Co. It is edited by L. H. Bailey, which is a hall-mark to its value. The book is more a compilation of a series of articles, each contribution having been written by an acknowledged authority on that particular subject. The volume, however, loses none of its excellence in having been so treated, as each chapter follows on readily to the previous one, giving a good connected account of the treatment and cultivation of evergreens.

The first four chapters deal with the attractiveness and richness which the conifers lend to the landscape, their cultivation propagation and adaptation,and last, but by no means least, the diseases, both insect and fungoid, which continue to attack these ornamental conifers. The chapter on the cultivation and propagation is somewhat brief, but deals with the subject in a clear and concise manner. The soils to be used, the transplanting and treatment of conifers, propagation by seeds, cuttings and graftings all being given a few words in turn. A most useful chapter to those intending to plant, is that on adaptation. The information has been collected from a wide knowledge and experience of different climates, topographical and soil conditions all over the States and their effects on the various species of evergreens. To each species is devoted a few lines, giving the important cultural points. More stress might have been laid on the chapter devoted to entomology and mycology, but, of course, American conditions differ from those found on this side, as indigenous trees are more fitted to withstand the attack of injurious pests and diseases. A most interesting and helpful systematic classification of these conifers, cultivated in North America, is to be found in Part II. The nomenclature is strict and an important point to the horticulturist is that all sub-divisions of a species have been treated as varieties. There is a key to each of the genera, with, in addition, a specific key.

A most useful chapter touching on broad-leaved evergreens brings one to the end of an interesting trip through the evergreens of North America. The genus rhododendron might have been dealt with more fully, since recent discoveries in China warrant its more intensive cultivation. The typography is good and the book is copiously illustrated. The half-tone plates are worthy of notice, while the illustrations in tint bring out the various points and detail with exceptional clarity, meanwhile maintaining a natural appearance. It is a book which one who is interested in horticulture and arboriculture would find of extreme value and service to have on his library shelf.—G. C. T.

* A MANUAL OF SPRAYING, by E. L. Cockerham. (The Macmillan Company, New York, 7s. net.)

† THE CULTIVATED EVERGREENS. A handbook of the coniferous and most important broad-leaved species planted for ornament in the United States and Canada. Edited by L. H. Bailey. Published by Macmillan and Co., Limited, London. Price 31s. 6d. net.

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VOL. LXXXVIII.—No. 2732. MARCH 29, 1924

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MARCH 29, 1924.

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EXPERIMENTAL GARDENING

IN the last issue of THE GARDEN I said something about the fact that half the fun in gardening is in finding out the requirements of plants. This may require some explanation, and may, indeed, offend the susceptibilities of some gardeners.

Gardeners may, perhaps, be divided into two classes: those who are satisfied with plants as they find them, and those who are always anxious to investigate new plants. The former love beautiful surroundings to their houses, and once they are obtained their interest in their garden is over for the season. They are worthy of all praise, for they consist of that solid class who have made our gardens famous throughout the world for an innate sense of beauty and a feeling of repose. The other class consists of those restless spirits who have at the bottom of their hearts an intense desire for discovery, that desire which makes us the greatest exploring and colonising nation. Many people consider this trait hardly respectable, but there it is; it is born in many of us. It makes no difference whether we crave for the discovery of new plants in the wild, or the trial of new and rare plants at home, or the formation of new varieties and hybrids: that feeling is there and it is impossible to smother it.

Sometimes the first class is inclined to become impatient with those who are keen experimenters. They say, or more politely think, that there are so many fine plants in the garden that it is needless to find or manufacture more. But, ultimately, even they have to fall into line, for new plants, whether species or hybrids, gradually percolate into general cultivation and they are forced by the constant repetition of the value of a plant to include it in their garden.

It is amazing how easily a plant gains popularity. The case of Lonicera nitida is typical. It was introduced by Mr. E. H. Wilson from Szechuan in China in 1908 and although eminently satisfactory as a hedge plant and easy to propagate, yet it languished in involuntary retirement until the last six months. The first seed of popularity was sown by Mr. Eley in his "Gardening for the Twentieth Century," when he says that it "stands out as one of the best for an evergreen hedge of 3-5 feet within the garden." The next jolt was given by Mr. Avray Tipping in the columns of this paper, where it was thought worthy of an entire article to itself as a shrub of quality for an evergreen hedge. Since then it has never looked back, and never will, unless something better comes along.

We have had letters galore about it, asking where it can be obtained, and for how much, asking if it is absolutely hardy, asking if it is wholesome to cows and poultry. And yet, if it had not been gently kicked into action, it would have remained in a staid and stately oblivion. It might have been shown as a rare Chinese shrub, only to be obtained from a few nurserymen at a cost prohibitive to mass planting as a hedge. Now the stock is being rapidly increased and the cost lowered. This would have been impossible but for the experimenter class.

On the other hand, there is the experimenter who overworks his subject: who is so obsessed with the value of some family that he turns into a collector pure and simple, a collector who might just as well be cornering stamps or silver spoons. Everything is meat for his appetite, and the good and the bad are as keenly sought after. But even he has his uses, for sooner or later he will come across some plant which will have a universal appeal, and, after he has titillated his fancy sufficiently, his innate sense of the fitness of things will conquer and he will throw open his find to the gardening public, who will benefit by it.

It is amazing how much still remains to be done in finding out when and under what conditions many plants will flourish to best advantage. Really very little is known about the plant world, and anybody with a garden, however small, can help to increase our plant lore by constantly keeping his eyes open.

As I have pointed out before, the gardening public is not a close corporation, and to keep up our undoubted superiority in this, the finest of all occupations, it is necessary that everyone should lend a hand as a member of the experimental class. Everything helps in horticulture and horticulture never sits still.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

BORDER CARNATIONS, by J. Coutts.
NOTES ON VEGETABLES, by E. Beckett.
BASKET PLANTS FOR THE GREENHOUSE AND CONSERVATORY, by H. W. Canning-Wright.
NEW AND RARE PLANTS, by W. J. Bean.
VIBURNUMS, by A. Osborn.
FULL REPORT OF THE SHOW AT VINCENT SQUARE.
SPRAYING FLUIDS, by A. J. Macself.

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VIOLAS AND PANSIES

BY HOWARD H. CRANE.

ALTHOUGH FLOWERS OF LONG STANDING IN GARDENS, MUCH HAS BEEN ACCOMPLISHED WITHIN THE LAST FEW YEARS IN IMPROVING THE VARIOUS STRAINS.

THE milder influence of spring should now be infusing fresh life into plants of violas and pansies. New growth will become apparent, both in the clumps of old-established plants that flowered last year, and also in the young plants which are the result of cuttings inserted in the frames last autumn.

Now is the time to get the ground allocated to these new plants finally prepared and made ready for their reception. No matter whether the violas or pansies are to be planted in masses in beds by themselves, or whether they are to be introduced in the foreground of a hardy flower border, the grower will be well repaid by giving particular attention to the soil on the lines to be indicated.

It is presumed that the ground has already be turned over and, where possible, trenched ; if not, it should be dug without delay, incorporating at the same time some well rotted manure, either vegetable or animal. If the soil is of a heavy character, road sweepings or other material of a sharp, gritty nature should be dug in as well. Light soils can be considerably improved by the addition of cow manure—and, indeed, to succeed in growing these plants at all well on land that is naturally light or sandy, it is essential that manure of a retentive nature be added. In any reasonably good garden soil they will do quite well.

Violas and pansies do best in a sunny situation ; a position where they are sheltered from the sun during the hottest hours of the day suits them particularly well. They will grow in a semi-shady place, but will not do so well as if planted where they get a fair amount of sun.

Planting should be taken in hand during the next week or so, unless there are indications that weather conditions are likely to be and to continue severe, in which case it is better to defer it for a while. Before the time for planting arrives, every effort should be made to get the young plants in the propagating frame or bed in good condition and growth. If the plants are in frames, the lights should be removed at every opportunity in milder weather, replacing them only in the event of severe frost or heavy rain. Except in the case of late-inserted cuttings or backward plants, it should soon be possible to dispense with the frame lights. It is very desirable for the young plants to be hardened off before being shifted. They will pick up and become established far more quickly than otherwise would be the case. Water should be given as occasion requires.

In the case of small or backward plants it is well to sprinkle a handful or so of sand or grit among them, and press the soil between the rows well down in the event of disturbance by worm-casts, etc. The thin edge of a board answers the purpose excellently. Where plants have not been propagated from the grower's own stock but are being obtained from the nurseryman, it is highly desirable that they should be put in as soon as possible after delivery. If it is not possible to get them in without delay, they should be unpacked and " heeled in " in a sheltered spot in the garden.

Ground already dealt with that has weathered the past winter should, with the approach of drier conditions, be in an ideal state for planting purposes. It should now be well

THE WELL KNOWN VIOLA MAGGIE MOTT.

THE RICH YELLOW BLOOMS OF SIR R. BADEN-POWELL.

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broken up and the surface soil well raked over until a fine tilth is obtained. If, at the time of planting, a handful of a special compost is placed around the roots of the young plants they are the more likely to become quickly established and go ahead at once. A suitable compost is one made up of equal parts of good loam and leaf-soil or well rotted manure and a quantity of sand or road grit sufficient to make the compost porous. The ingredients should be passed through a coarse sieve. Personally, I always have a compost of this nature at hand when planting violas and pansies. Plant firmly. Should the soil be in a dry condition, give water as soon as planted, except in the case of plants put in late in the day or when there is a likelihood of frost.

To reduce the risk of loss in the case of special or valuable varieties, it is decidedly worth while, in the event of severe

SHADES OF MAHOGANY AND BRONZE. VIOLA MRS. MARRISON.

weather, to afford them the shelter of boards or pots until established. Some varieties of pansies, especially, need attention in this direction.

Established plants of violas of last year's growth are, in the case of tufted varieties, now good sized clumps and will soon be ready to put forth a profusion of flowers. Fine early effects can be obtained by leaving these old plants in the border undisturbed for a couple of seasons. I always rely on obtaining a good display early in the year by adopting this course. The soil round each plant should be lightly forked over and, if possible, some old manure worked in. The response to such treatment will be apparent in due course and is well worth while. Any straggling growths should be removed. After the plants have made a display, they may either be cut back or moved to the reserve garden—to make room for other plants less hardy—and used for propagating purposes.

Stock may be increased at the present time by breaking up or dividing any old plants that have served their purpose last season. Varieties of compact habit and fibrous root growth are obviously the most suitable for use in this way. Such plants can be roughly divided either into fairly large pieces or into smaller pieces of single stems each with a root. In the former case such divided pieces may be planted straight away into fresh flowering quarters, but the smaller pieces will be better plants in a specially prepared bed, or, better still, inserted in a propagating frame. If the latter plants are given the protection of a frame-light for a week or so, they will grow rapidly and make good specimens for planting out later in the season—during May. Plenty of ventilation should be given in the frame.

Few plants in the garden give such a continued brilliant display over so long a period as do violas and pansies, particularly the former. Comparatively little cultural trouble is involved to obtain excellent results, and stock is maintained at a minimum of labour and expense. As is the case with most other flowers, the plants should be grown in masses to obtain the best effects. A dozen plants put in some 6ins. apart will, in the course of a season, develop into a mass some 3ft. across. To those who have not grown violas as a groundwork for other taller-growing plants I would recommend the trying of such an experiment. In many gardens one now sees violas used in this way in conjunction with roses and carnations, and there is no reason why their usefulness should not be extended. Beds that are otherwise uninteresting during the major portion of the summer or autumn can be made effective for a very much longer period by interplanting with violas and pansies of selected varieties.

Planting may safely be effected at any time now up to the middle of May and even later, but it is expedient to plant in good time so that the plants may become well established before the hot weather arrives.

Care should be taken to acquire and grow only such varieties as are of robust constitution and of as compact a growth as possible. Varieties of a straggling habit should be avoided. They lack the fibrous root growth that is so essential to the plant in hot and dry weather.

A note is appended of a few of the best violas now in commerce, all of which can be depended upon to do well and to serve a useful purpose in the garden.

One of the most popular white violas is Swan, a variety now largely grown by market gardeners and sometimes listed as " White Swan." The flower is quite rayless and the blossoms are borne well above the plant. It grows vigorously, but is at the same time fairly compact in growth. Snowflake is another useful rayless white variety, not quite so bright as the foregoing, but very free-flowering. A particularly charming flower is Peace. The colour is creamy white, delicately tinted blush towards the outer part of the upper petals. The rayless blossoms are large and circular, and the growth is very compact.

Mauve Queen is a robust variety of good habit, bearing flowers of a bluish mauve hue; a very useful sort. John Quanton is a light mauve flower and is a very free-flowering variety. It is a robust sort and of distinct value in large masses. Maggie Mott is a particularly well known variety of a lavender mauve tint. The constitution of this viola is very strong and the growth is peculiarly tufted. The flowers are, however, a trifle lacking in substance, and they wilt rather soon in hot weather.

The striking colour of W. H. Woodgate—a bright lavender blue—makes this variety greatly to be desired in most gardens. It approaches a pale blue more nearly than any other viola I have either grown or seen. The habit is good. Newton Mauve is a very useful sort with medium-sized flowers of lavender violet; a variety well worth growing for its colour, combined with a compact habit of growth. A distinct flower is Dunbryan. It has a tufted habit of growth, bearing, freely, flowers of a pale lavender colour.

Of cream and yellow sorts there are many good varieties from which to choose. Lady Knox is a refined flower of pale primrose, and Primrose Dame is a flower of somewhat deeper colour. Both are free flowering and good kinds for garden decoration. The flowers of Margaret Wood are lemon yellow and rayless. This variety is a good bedder. Luiggi is a robust-growing pale yellow sort and possesses a good habit. One of the most popular yellows is Moseley Perfection, a variety grown a great deal by market gardeners. The flowers are golden yellow, large and rayless. It grows strongly and the habit is fairly good. Baden-Powell is another very rich yellow sort of moderately good habit.

A very old, but nevertheless extremely useful, sort is J. B. Riding. This is crimson mauve in colour and of singular usefulness in the garden for massing. It is very compact in growth. William Daniels is a very fine variety of purple

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violet colour. The flowers are large and the growth compact. John Forbes is another variety of similar type to the before-mentioned, in colour a deep rosy violet, and of velvety substance.

Mrs. Chichester is a popular variety that always does well. Strong-growing but tufted in character, the large flowers of white ground edged or suffused purplish mauve are always much admired. Dr. McFarlane is a viola raised many years ago, but still one of the best of its class for good habit and free-flowering characteristics. A flower of velvety substance, upper petals mauve, lower petals dark bluish purple. An excellent sort is Mrs. Marrison in shades of mahogany and bronze.

With regard to pansies, any of the following standard varieties will be found exceedingly fine in respect of their individual flowers; they are also quite good for bedding purposes, but it must be remembered that the growth of fancy pansies is never so compact and tufted as that of violas: John Douglas, John Lister, John Mackinnon, Mrs. A. H. Lister, Sir John French, Sir Douglas Haig, Mrs. J. Johnston, William Gray and William Spalding.

Most of the leading seedsmen grow their own selected strains of fancy pansies in distinct sorts, which are of a very wide range of colour. I would recommend the gardener who desires certain colour effects in the garden rather than individual flowers conforming rigidly to certain set standards, to grow some of these special strains. The flowers are invariably large and handsome.

A SELECTION OF SHRUBS for the ROCK GARDEN

BY W. IRVING.

(*Continued from page* 183.)

THE genus Gaultheria is a large one, consisting of some ninety species of very ornamental, hardy or greenhouse shrubs, many of which have their home on the American continent. Others are found in the Himalayas, China and New Zealand, among other places. Some of the smaller-growing kinds are excellent plants for the rock garden, thriving well in a peaty soil, and easily increased by division or by layers. G. nummularioides is an ornamental, hardy evergreen from the Himalaya, suitable for clothing a rocky bank or ledge, in a shady position. It has numerous nearly prostrate wiry stems clothed with rounded leaves that have ciliate margins. These are deep green when growing, but change to a dull red in the autumn. The flowers are like those of the lily of the valley, but frequently tinged with pink, and are produced in the summer. These are succeeded in the autumn by very ornamental scarlet fruits. G. procumbens, known as the "Creeping Wintergreen," is valuable for forming a ground carpet beneath taller growing or standard plants that provide a little shade. It only grows about 6ins. high, with branching stems, terminating in tufts of oval green leaves that assume a bronzy tint in autumn. The white flowers are solitary in the axils of the upper leaves and are produced in July, to be succeeded later on by red edible berries. It is a native of North America, and is one of the most easily grown plants, soon making large tufts in suitable situations. On the larger side is G. Shallon, from North-western America and where there is a considerable vacant space this plant will come in very useful. It grows up to 3ft. or more high, the ovate leaves having a toothed margin, while the white pendent flowers are produced in racemes during May. The purple berries of this handsome shrub have a very agreeable flavour and are said to make excellent tarts. One of the smallest kinds is G. trichophylla. It is a charming little bush, only a few inches high, with dark green, shining foliage, the leaves being only half an inch long, with bristly margins. The flowers are pink or white, borne solitary in the axils of the leaves in May. The pretty blue berries are produced very freely, making the plant quite ornamental for a select position. This species is found on the Himalayas, as well as on the Chinese mountain ranges. Other kinds have been introduced into cultivation recently but the above may be considered the pick of the genus.

Another handsome shrub is Genista dalmatica. This Dalmatian broom grows about 9ins. to 1ft. high, with interlacing branches, forming a bushy plant covered with yellow flowers in summer. It is one of the smallest of the family, being practically a miniature of the well known Spanish broom (G. hispanica). It is easy to grow in well drained loamy soil and is best propagated by means of seeds, although it can be struck from cuttings.

A VALUABLE ALPINE BROOM, GENISTA DALMATICA.

Many of the junipers are ornamental evergreen plants, some erect, others of prostrate growth. Juniperus Sabina tamariscifolia belongs to the latter group. It is a low-growing, densely branched and trailing species, with bright green foliage. It is sometimes known as the "carpet juniper" and is an excellent plant for crowning a rocky knoll or bank. Others of this genus suitable for the rock garden are J. fastigiata compressa, a compact little shrub like a column about 1ft. high. It is very slow-growing and looks charming dotted about among other low-growing plants. J. hemisphærica is a curious and interesting little shrub of a dense rounded habit. It only grows a few inches high and is sometimes called the "hedgehog juniper."

Loiseleuria (Azalea) procumbens is one of the most charming of alpine shrubs. This plant only attains a height of a few inches and forms a much branched, tufted mat with small evergreen leaves, bearing pretty flesh or rose-coloured, bell-shaped flowers in early summer. It grows best in gritty, peaty soil, and in a fairly moist position. An inhabitant of the mountains of both Europe and North America, it grows in open, wind-swept positions on rocky ledges and banks, at a fairly high elevation.

Moltkia petræa is a member of the borage family and is closely allied to the lithospermums. Of bushy habit, growing up to 2ft. or more high, it bears a profusion of purplish blue flowers during the summer months. It is a native of Dalmatia, and is easily raised from seed.

A few members of the well known pentstemon family are of shrubby habit and valuable for the purpose in view. Among others is P. heterophyllus, which grows about 1ft. high, with narrow leaves and blue or purplish flowers. It is quite hardy and perennial on a well drained rocky ledge. Another handsome kind is P. isophyllus, from Mexico, which reaches a height of 2ft. or more, with scarlet flowers in long panicles during the late summer. P. Menziesii is a dwarfer plant with small leaves and rosy red flowers. This plant is being sent out now under the name of P. cristatus, but the latter is really a coarse-growing, erect species. P. Scouleri is a very handsome shrub, about 1ft. high, freely branching and evergreen. The large pale purple flowers are produced in great profusion during May. Like P. Menziesii, of which it is considered a variety by some authorities, it is a native of North-western America. Others might be enumerated, but the above comprise the best selection for general purposes.

The milkwort family (Polygala) contains two or three pretty evergreen, shrubby species that are hardy in the rock garden. P. Chamæbuxus is a plant of the mountain woods and is found in many parts of Europe. It grows about 6ins. high and bears, in early summer, cream coloured or yellow flowers tipped with purple. There is also a purple-coloured form. Both are easily grown in a peaty soil in shady positions. P. Vayredæ is a narrow-leaved form from the Pyrenees.

Rhododendrons are represented in the Alps of Europe by two distinct species, namely R. hirsutum and R. ferrugineum, both of which are common in Switzerland. The former species is always found on granitic soil, while the other belongs to the calcareous zone. They are similar in habit, growing about 1ft. to 2ft. high, of freely branching, bushy growth and both are commonly known as "Alpine Rose." R. hirsutum has green leaves that are hairy on the margins, while the leaves of R. ferrugineum are covered with rusty coloured dots beneath, and are quite glabrous. Both have flowers of a rosy scarlet colour, produced freely from May to July. There are also white-flowered forms of both species occasionally found in the Alps, but they are not common. These plants are easy to grow when planted in the soil suited to their requirements, either in full sun or partial shade. They are ideal plants for the rock garden. In addition to the above we have the choice of a large number of low-growing rhododendrons which have recently been introduced into this country from the mountains of western China. Several of these are now in cultivation and have proved of great value for furnishing rocky slopes or ledges. One of the earliest to be introduced was R. intricatum. This was sent home by Mr. Wilson when collecting for Messrs. Veitch and Sons, who flowered it in March, 1907. It is a densely branched shrub, which in its native habitat grows from 1ft. to 2ft. high, densely crowded with small leaves. Terminating the branches are lilac coloured flowers, mostly in clusters of five, very freely produced in the early spring. This species has proved to be free growing, easily propagated by cuttings and seeds. Closely allied is R. impeditum, also known as R. fastigiatum. This is one of Mr. Forrest's collecting, and is dwarfer and more spreading in habit, with smaller leaves and deep lilac-coloured flowers in which the stamens much exceed the corolla. R. calostrotum is a low-growing bushy species with large rose-coloured flowers and a still dwarfer species is R. prostratum, which Mr. Forrest found up to a height of 16,000ft. on the Lichiang range of mountains in Yunnan. Here it only grew a few inches high, trailing over rocks at the extreme limit of vegetation. It has hairy leaves and large, wide open, rosy purple flowers. These are only a few selections from this extensive genus and many others might be adapted for growing in the rock garden.

Rhodothamnus Chamæcistus is a handsome plant, closely allied to the above genus and often included in it. On the Alps of the Tyrol it is invariably found at altitudes of a few thousand feet on moraines with a little humus. It forms neat, compact and bushy tufts about 6ins. high and has evergreen, light coloured, rather small leaves covered with hairs. The flowers are saucer-shaped, large and vary in colour from deep purple to rose colour or white. It is a lime-loving plant and should be

THE DWARF PENTSTEMON MENZIESII.

CONIFERS, HEATHS AND OTHER DWARF SHRUBS IN THE ROCK GARDEN.

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planted in a sunny position in a crevice or small pocket between stones, which keep the roots moist and cool. It is not often seen in good condition as it is somewhat difficult to establish. A loamy soil suits it best, but perfect drainage is essential.

The bilberry or whortleberry family, Vaccinium, is a large one, and consists mostly of shrubby plants that are too tall for the average rock garden. Two or three species, however, are very useful for ground work in the shady parts, planted in peaty soil. The common whortleberry (V. Myrsinites), is a native of this country, usually growing in woods, copses, and heaths in hilly districts, flowering from April to June. It is a deciduous plant with rigid stems about 1ft. high clothed with ovate, toothed leaves. The rosy coloured flowers are succeeded by dark blue berries in autumn. V. Vitis-idæa (the cowberry), is an evergreen plant about 1ft. high, with obovate leaves that are dark green above. The pink flowers are borne in short, terminal, drooping racemes, while the round berries are red. It is also a native of this country, chiefly in the mountain districts. Both are easy to grow in soil that contains a proportion of peat, and are readily propagated by division or layers.

TREATMENT OF RHODODENDRON SEEDLINGS

BY L. B. STEWART

SINCE Mr. G. Forrest began his travels in Yunnan the amount of rhododendron seed he has sent home must have been enormous. Edinburgh, in common with many other Botanic Gardens, has benefited greatly through the kindness of Mr. J. C. Williams, who always gave us a liberal portion, thus enabling this garden to become enriched with those beautiful plants. It has been my fortunate position to handle all the seeds sent in since 1919, and as my late chief asked me to take a real live interest in the seed and young plants, I have endeavoured to do so.

My observations are as follows: I find that the seed which has arrived here can be placed roughly into three sections: We have what I call (1) the ordinary brown-coated seed; (2) the clear or greenish clear seed, usually without coat, but when coat is attached it is somewhat transparent; (3) the bridled seed, because it has a band which encloses the seed and finishes off at each end with small twisted tails. This section, however, up to the present, is a very small one.

The sowing is a very particular operation, and much of the success depends upon the amount of trouble that is taken. It is a general practice to fill the pots or pans at the bench, sow in the same place, and then cover without ever removing the pot. This system is always to be condemned, as it leads to a tremendous mixture of seed, and one can sometimes find as many as six or seven kinds growing in one pot. The method which is adopted here at present is to fill the pots at one bin of soil, where the soil is pressed to the required firmness, then the pot is moved along the bench to a clear part where the seed is sown. The pots are then set into a tank or large saucer of water until all the soil becomes thoroughly wet. The water should not be allowed to come beyond the rim of the pot, and should be of about the same temperature as the house in which the seeds are to be germinated. It will be found that after the first two dozen pots have been sown and immersed in the water the water may have fallen to a very much lower temperature, when the addition of a little more hot water will be found necessary. After they are removed from their bath they are placed on a floor and allowed to drain, after which they may be placed on the stage and the seed allowed to germinate. As we never cover our rhododendron seed here with compost, it is found necessary to cover the seed pots with newspapers, thus ensuring a subdued light which tends to hasten germination, and at the same time lessens evaporation. It is found beneficial to keep the seed pots sprayed with a very fine spraying syringe, as this prevents the drying up of the surface of the soil and saves any damping off taking place. As most gardeners know, the cause of damping off is the meeting of the dry and wet areas, therefore by keeping a constant moisture and never allowing the seed pots to get dry this evil is overcome. When the plants have established themselves and are beginning to make roots, they will need a more liberal supply of water to keep them fit. At this time of year, if the seed is fresh, good germination will take place in about twelve to fourteen days, but should the seed be weak it will take longer. It is often found where the seed is weak that it becomes infested with moulds, and it is in cases of this kind that the solution of permanganate should be applied and that at once (see THE GARDEN, February 16th, 1924, page 92).

When the seeds start to germinate it will be found that the ordinary brown-seeded ones have red hypocotyls, and ordinary treatment may be given to them, as they are more or less "good-tempered." They usually like a good quantity of humus in their compost. In the second group we meet with those with the clear hypocotyls. In this group I find they are not fond of humus, and in mixing up the compost only the smallest amount of leaf-soil is used and no peat. The rhododendrons in this group are those Mr. Forrest describes as found growing where peat was used; whenever the young roots touched the particles of peat they either died or were found to be very sick. At that time I made small sowings on pure peat, and none of them ever survived. At the present time I have got a lot of this sort potted in old lime rubble (three-quarters) and pure sand (quarter), and up to the present they are an exceedingly happy family! The third group I would not like to say too much about, as my experience is very limited, but I might venture to say that they look epiphytic and need a lot of air at their roots. The only species I know that is in cultivation is R. sino-vaccinioides.

In mixing up the compost for sowing rhododendrons have plenty of rough sand well intermixed with the soil, and this compost should be put through a quarter-inch sieve. The compost should vary according to the kind of rhododendron being handled—whether they are peat lovers or limestone plants.

After germination, they can be moved to a cooler house and there remain until the time for pricking off. This operation should be done at the earliest possible moment, as the less check the seedlings get the healthier they are at the end of the season. There is no doubt, however, when they are tackled at the very earliest stage a great deal of patience and perseverance has to be exercised, as it becomes a very tedious operation. It is, however, very much more satisfactory to prick off early than to leave the seedlings in pots until they become a fair size before pricking off. As each pan or box is pricked out it should be watered at once through a fine rose and thereafter removed to a frame or house where the lights or the ventilators can be kept closed. Allow the temperature to rise 6° to 7° to give the seedlings an extra good environment to promote root growth. After they have taken hold of the new soil the ventilators or lights may be gradually left a little more open to permit a free circulation of air; but never at any time allow a draught, as there are no outdoor plants which detest draughts more than rhododendrons, especially at this period of their existence.

It will be found by this time that the weather is becoming warmer, and it will be advisable to shade the seedlings which have been pricked off, and this can be successfully done with tiffany. If the house runs east and west, the tiffany should be left hanging down loose in front of the stage. If, however, the house is running north and south, another method will have to be adopted, and that is to tack the tiffany on the outside of the house. The use of the syringe should become "the order of the day" in sunny weather, and should be put away on dull sunless days.

The enemies of the gardener will be found to be very active at this time when much watering and syringing is going on (namely, the liverworts and funarias — the mosses). Hand-picking is about the only way of dealing with these pests when they are living alongside the growing plants. When they appear on the seed pots, however, one or two applications of hot water will kill them.

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VIBURNUMS

BY A. OSBORN.

IN common with many other families of hardy shrubs, the viburnums have been considerably augmented by numerous distinct and valuable additions from China. In "Plantæ Wilsonæ" more than thirty species and varieties are recorded. These were collected by Mr. E. H. Wilson during 1907, 1908 and 1910. A number of these had been previously named and described from dried specimens, but we are indebted to Mr. Wilson for the introduction of the majority as living plants in our gardens.

The viburnums are found in three continents—Europe, America and Asia; one species, viz., V. Lantana, extends into North Africa. They include both evergreen and deciduous shrubs, one or two attaining the dimensions of small trees. The smallest we have are V. Opulus nanum, a dwarf, tufted bush about 1ft. high, and V. Davidii, a distinct Chinese species of spreading habit, under 2ft. in height.

The three viburnums most freely planted in our gardens are VV. Tinus, Opulus sterile, and tomentosum plicatum. The last-named comes from Japan, and there are three other Asiatic species being very considerably planted: V. Carlesii, from Korea; V. fragrans, first introduced by the late Mr. W. Purdom, though best known as the viburnum described in such glowing terms by the late Mr. R. Farrer; and V. Henryi, introduced by Mr. Wilson. About eighty species and varieties are in cultivation at Kew, a very interesting and varied family of woody plants, attractive in flower, foliage and fruit.

CULTIVATION.—In good, deeply worked garden soil we generally consider the viburnums to be fairly easy plants to cultivate. There are, however, certain conditions which are desirable if we are to get reasonably good results. In reading of their native habitats we find frequent mention made of woodlands, thickets, forests, borders of swamps or streams and damp hedgerows. Perhaps because we liberally manured the ground and mulched the beds of VV. Opulus sterile and tomentosum plicatum, it was not realised until the dry summer of 1921 that the viburnums were such moisture-loving shrubs. Despite a fair amount of watering, it was a difficult matter to keep some of the plants alive on our dry soil, and a number of the bushes still show the ill effects of the drought coupled with the brilliant sun of that year.

THE GUELDER ROSE, VIBURNUM OPULUS.

THE YELLOW-FRUITED V. OPULUS FRUCTU LUTEO.

We have frequent evidence of the value of deeply cultivated and good holding ground for viburnums in the excellent exhibits of Chinese species seen at the London shows from the Aldenham House gardens.

In addition to the value of a number of viburnums for beds and groups in the pleasure grounds and shrubbery borders, all or nearly all have some distinctive merit in flower, foliage or fruit to add variety and interest wherever planted. By the waterside, in the open or thin woodland and the wild garden, viburnums may worthily find places. V. Tinus, the laurustinus, in gardens of the south and west, is a most valuable evergreen shrub, flowering in mid-winter. For a not too formal and closely clipped hedge the laurustinus is worthy of much more attention from planters.

PROPAGATION.—Seeds and cuttings provide ready and rapid means of increase. The evergreen species, with V. Tinus in particular, root readily in a close propagating frame during July or August; so also does the new V. fragrans from China. Layering provides an easy method of increasing viburnums in the open border. The dainty V. Carlesii can be freely propagated by cuttings, though nurserymen, for quickness, have increased it very largely by grafting, using a common species (V. Lantana for one) as the stock.

AS WALL PLANTS.—Several viburnums on the borderland of hardiness are deserving of attention as wall shrubs. They may also be cultivated in large pots or tubs, giving them a place on the terrace walks or steps in summer and wintering in an unheated greenhouse. VV. macrocephalum, coriaceum, japonicum and odoratissimum are best with this treatment. In

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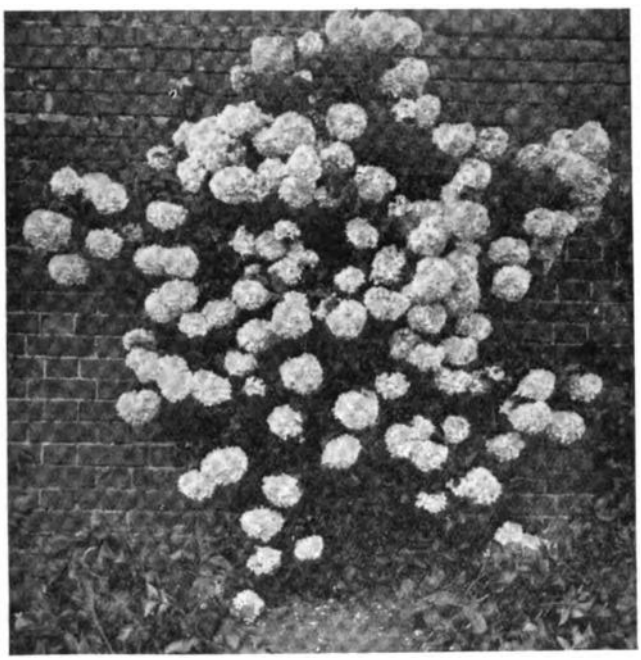
cold northern gardens the laurustinus is treated as a wall shrub, or planted in very sheltered positions.

THE EUROPEAN SPECIES.—Three viburnums are natives of Europe, two deciduous species growing wild in England, the evergreen, V. Tinus, being from the Mediterranean region.

The wayfaring tree, V. Lantana, is a free-growing bush up to 12ft. or more in height. Its value lies in the handsome leaves, which assume rich autumnal tints; large heads of white flowers in May and June; and, at first, red fruits, which ripen a lustrous black. For shrubbery borders, the pleasure grounds and woodland, the wayfaring tree is one of our most valuable native shrubs. V. Opulus, the guelder rose, because of its value for waterside and swamp planting, has been aptly named the water elder. Attractive from early June, when the white flowers are showy, until early winter, when laden with clusters of lustrous red fruits, this plant should be more largely grown. It is not uncommon seen as a large bush or small tree in damp English and Scottish woodland. The glowing red tints of the foliage are very beautiful in the autumn sunlight. As a shrub for the pleasure grounds the snowball tree, var. sterile, is a very valuable tall shrub. The flowers are all sterile, and instead of the flattish cyme they form a roundish head of closely packed blossoms, hence the name "snowball tree." For lawn beds and groups in the shrubbery borders the bushes are very attractive. Bushes of the yellow-fruited variety, fructu-luteo, are a delightful contrast in autumn to the rich red of the type. Sprays shown at one of the fortnightly meetings of the Royal Horticultural Society last autumn indicate how well viburnums thrive in the rich, deeply cultivated soil at Aldenham.



AN IDEAL WALL SHRUB, VIBURNUM MACROCEPHALUM.

The evergreen laurustinus, V. Tinus, a native of the Mediterranean region has been in cultivation in our gardens since about 1596. A free-growing bush of pleasing habit, it grows up to about 10ft. high, or more in the mild climate of the south and west. At Kew the laurustinus is one of the most valuable evergreens and, in addition, flowers most of the winter. Coming from southern Europe, sheltered positions are desirable when planting in our colder northern gardens. The laurustinus thrives in a lighter soil than the deciduous species, growing well in the full sun or partial shade. Its value for hedges has already been mentioned. At first dark or indigo-blue, when the fruits are very showy, they change to black when fully ripe. Several distinct varieties are in cultivation. The variety hirtum (or hirsutum) is conspicuously hairy, and not so hardy as the type; var. lucidum has larger shiny leaves, giving us a distinct and pleasing bush. An erect-growing form is grown in nurseries under the varietal name of var. pyramidale.

DECIDUOUS NORTH AMERICAN SPECIES.—The most convenient method of reviewing the merits and points of interest in their culture will be to take the species in alphabetical order, beginning with V. dentatum. This is a vigorous bush, 10ft. to 12ft. or more in height, with large, coarsely serrate leaves. The small white flowers are borne in flattish cymes 2ins. to 3ins. across, and are followed by blue-black fruits in autumn. This species is a native of eastern North America, where it is known as the "arrow wood," because the Indians used the sucker growths from the base to make arrows. The sheep berry, V. Lentago, is one of the most vigorous members of the genus, attaining sometimes to the dimensions of a small tree if limited to a single stem. The large ovate leaves are finely toothed. The small creamy-white flowers are borne during late May and early June in broad flat cymes 3ins. to 5ins. across. The fruits are blue-black, and in some seasons attract attention in autumn. It is a widely distributed shrub of eastern North America from Hudson Bay to Georgia and Missouri.

V. molle is of robust habit up to 10ft. or 12ft. high, with large, coarsely serrate leaves. The white flowers, borne in flattish cymes 3ins. to 4ins. across, are showy at the end of May or early in June. The small blue fruits are interesting in autumn. V. nudum makes a large bush 8ft. to 10ft. high, with ovate leaves, large clusters of pale yellow flowers and blue-black fruits. The tallest species of the genus with us is V. prunifolium (the black haw), a vigorous bush or small tree up to 25ft. or more in height. In favourable surroundings it is fast-growing, with showy cymes of white flowers in June, these being succeeded by deep blue fruits.

Among the smaller-growing bushes, V. pubescens is worthy of note as it forms a shapely bush 3ft. or 4ft. high, with ovate leaves, flat cymes of white flowers in June and purple-black fruits in autumn. It is found along the borders of woods from western Vermont to Wisconsin, south to New Jersey and Kentucky. In some seasons the dark green leaves change to deep purple in autumn, when they are very striking. V. venosum is a large upstanding deciduous species 9ft. or 10ft. high, with large, coarsely toothed leaves, showy white flowers and blue fruits. (*To be continued.*)

NOTES FROM FLORAIRE

BY HENRY CORREVON.

ROSES.

IN Miss Willmott's book on "The genus Rosa," the first plate has been dedicated to the rare and curious Rosa berberifolia (R. persica), which is the rarest of all those grown in Europe. I first saw it at Ryde in 1885, growing well against a south-facing wall. I brought it home but was unsuccessful with it here at that time. It differs from all the other roses by its simple unifoliate leaf and its abortive stipules. On account of these peculiarities it has been regarded by Lindley and Dumortier as belonging to another genus. It is a small scrambling shrub, 2ft. to 3ft. high, covering over the ground, and bearing, in June, numerous small yellow flowers, with brown red spots at the base of the petals. In distribution, it ranges from Persia and Turkestan eastwards to the Atlas mountains and the desert of Dzungaria, growing there as a pest between the stones and considered as dangerous to sheep owing to its possession of very acute thorns.

In some places R. berberifolia is a weed, while in others it is extremely difficult to grow. I was unsuccessful to begin with, both in my attempts to graft it on R. spinosissima and also in making cuttings.

From 1890 to 1893 I obtained several well rooted plants from Damman at Napoli, where the shrub was somewhat troublesome. It flowered all right in 1902, but died a few years later. At that time, it may be mentioned, the plant was out of cultivation in England and also in Napoli, and hence I was unable to obtain a further supply.

In February, 1906, however, I obtained seeds of it, and since that date the plant has become quite acclimatised here, flowers well, but never seeds. In one bad part of the garden

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is as troublesome a weed, as it was at Napoli in 1890. It runs everywhere and propagates easily by runners. I have distributed several plants since that time and I understand that it succeeds in many gardens. One of the first points to consider in its propagation is, that it requires a very dry place and a light soil, exposed to the sun. It may be remarked that here it is found running under a path composed of stones.

We also grew here a small rose which is the most minute of all those in the genus. I believe it is unknown in England, where I have seen some small R. Lawrenceana, but never such a dwarf as R. Rouletti. This is a tiny, bushy shrub, about two inches in height, covered with small carmine-pink sweet-scented flowers, not exceeding half an inch in breadth. It flowers continuously from May till December. It was grown for many years in a mountain village, Mauborget above Grandson (Jura), 3,000ft. altitude, but ultimately disappeared from there when the village was burned. It turned up, however, in another village near the Lake of Neuchatel, where I found it some years ago, thanks to the help of my friend, Dr. Roulet, to whom I dedicated this rose. The origin of this Liliputian plant (the smallest of all the roses), is unknown. The peasants at Mauborget say that it has been grown in pots on the windows for centuries, but never out in gardens. On looking over rose literature I found, in de Candolle's "Prodromus" (Vol. 2, page 600), a reference to a form of R. indica—called humilis (Seringe) and pumila (Redouté), which is said to be "minutis" and occurred at the beginning of the nineteenth century. This species which I have found and described above is still smaller than this.

It is planted out on ground well exposed to the sun, and it does fairly well there, although it does not flower so profusely as when it is in small pots. It seldom grows higher than four inches and the flowers as well as the leaves are never larger than those grown in pots and it thus remains the real dwarf of all the roses.

EDRAIANTHUS PUMILIO, A DWARF AND DENSE TUFT OF SILVERY LEAVES, WHICH IS COVERED IN MAY AND JUNE WITH HAIRY LILAC LAVENDER CUPS.

EDRAIANTHUS.

Difficulties in plant nomenclature are continually cropping up, and the case of Edraianthus is one in particular. Edraianthus has many synonyms—Hedranthus=Wahlenbergia =Campanopsis=Campanula of certain authors. The correct name is probably that of Hedræanthus. We have grown them for two years in our alpine garden on the Jura, where the calcareous soil and the dry situation appear to be very suitable for them. So we are now able to make a study of them and settle this vexed question.

From a gardening point of view, we can separate the Edraianthus series into two groups: (1) E. Pumilio, with one flower on each stem, the flowers being sessile and surrounded with more or less long bracts; (2) flowers in heads (capitula), after the type of E. dalmaticus.

The plants in the first group are some of the alpine cushion type, with masses of flowers, shortly stemmed, covering in the main the mass of leaves. E. Pumilio takes the form of a dwarf and dense tuft of glaucous silvery leaves, very short and acute, entirely covered in May and June by the slightly hairy lilac lavender cups. There is frequently no stem, but if present it is a very short one. It grows in the Biokovo Mountains of Dalmatia, where it was discovered in 1818 by Portenschlag in limestone arid rocks in the highest regions. Its cousin, E. pumiliorum (E. dinaricus), has longer leaves, grows in looser cushions, less silvery and almost always bristly with hairs. The purple flowers stand up from the main mass on slender and weakly stems. Professor Beck remarks that it might be a shade form of Pumilio. It was discovered on Monte Javor in 1832.

Another near relative is E. Wettsteinii, found on the Rumia summit in Montenegro in 1891. This species has stems up to 2½ins. in height, slightly leafy and richly hairy. Numerous bracts with fine hairs occur and are shorter than the flowers, which are purple blue and about ½in. long. The leaves here are shorter and broader than in pumiliorum.

E. serpyllifolius (E. thymifolius) is well known in English gardens and does not require any description. It was found in 1829 by Viviani in the alpine regions of Dalmatia, and grows commonly on grassy limestone slopes in Bosnia, Montenegro and Serbia. There are two varieties of it, one with white flowers, "albiflora," and one with a minute tuft of very small linear

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leaves, broad and smooth on the upper surface. These remain close together and are imbricate, just as are those of androsaces of the group Arelia. The flowers are hidden in the silvery foliage. It was discovered in 1861 by Owerin on the Erpeli Mountain in Darghestan, and is, therefore, the Eastern representative of the genus. Its place in the rockery is in a very dry situation, *e.g.*, in the crevice of a wall or in the moraine.

To the group where the flowers occur in heads belongs E. dalmaticus (E. caudatus), which was described by de Candolle in 1830. It is the most constant of all, keeping its characters better than any other. The leaves are about 2ins. long, hairy at their base, smooth near the top, and acute at both ends. The stems are partly ascending (4ins. to 6ins. high) and partly lying on the ground. The calyx is as long as broad and shorter than the corolla tube. The flowers are deep purple, almost an inch long, and number from three to eight on a head. The bracts are more or less smooth, rapidly contracted into a recurved point. It grows on limestone and rocky hills between Fiume and the Promina Mountain in Dalmatia, and is very abundant all along the coast.

Its nearest relative is E. serbicus, which differs in its upright habit. The stem is erect and varies from 7ins. to 8ins. in height. The leaves in this case are more ciliate and are narrower. The skin is richly foliate, almost glabrous, bearing blue-purple flowers a little over an inch long.

Then comes E. graminifolius, often confused with tenuifolius or dalmaticus. It has long linear leaves, very narrow and thin. The stem is variable in height, up to 8ins. Three to eight flowers occur in a head—purple-blue, rarely white, in colour. This plant covers the greatest area of any, growing from Sicily to the Transylvanian Alps. It is very variable in form, and permits of easy culture, as do the rest of the plants of this group.

E. niveus is the white form of it, found in 1892 by Beck in Mannaghetta on the Bosnian Alps, from 5,000ft. to 6,500ft. altitude. The leaves are shorter and broader. The stem is also short and thick, but notwithstanding, the plant is scattered over several districts. It is without doubt only a white variety. I am unable to speak of its reproduction, as I have never obtained seeds of it.

E. Kitaibelii has broader and shorter leaves, more or less linear. Larger heads of flowers occur here. They are deep lilac in colour. It grows on the Banat on chalk rocks exposed to the sun. It varies according to environmental conditions and differences in origin. The high alpine form is called alpinus by Wettstein; here the plant is a dense cushion of thin and short leaves bearing smaller flowers. In the Grecian Balkans grows a form with shiny hairy leaves and grey foliage, called mediterraneus by Wettstein.

Near to Kitaibelii is croaticus, with narrower lanceolate leaves, broad heads bearing two to five flowers, with oval bracts sometimes dentate. It grows on limestone Alps, in South Carinthia, Croatia, Bosnia and Dalmatia.

E. caricinus appears to be a middle form between croaticus and graminifolius. The flower heads are small (one to seven flowers), with hairy woolly bracts. The corolla is long and purple lilac in colour. It grows in Herzegovina and Montenegro on high limestone mountains.

E. stenophyllus is a very rare form which has very narrow leaves up to 4½ins. long. It is very hairy, like caricinus, but bears large flowers, eight to ten in a broad head. The bracts are broadly ovate. It seems to be an intermediate form between caricinus and tenuifolius, having the hairy leaves of the former and the large flower heads of the latter.

E. tenuifolius is generally confused with graminifolius, which is, indeed, a quite distinct species. The leaves are fairly long and narrow. The stem is variable in height up to 6ins. The flowers are bluish purple and of a moderate size. They occur ten to fifteen together in a large head (the largest of all). It grows on the Adriatic coast from Trieste to Montenegro, and on rather low rocky limestone hills.

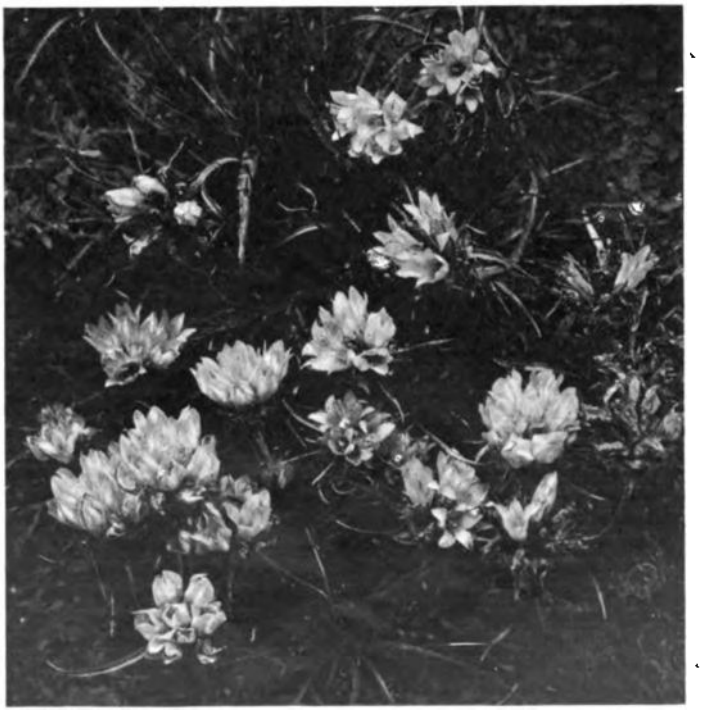
E. Wettsteinii from South Montenegro was recorded in 1891, but appears not to be in culture at the present time. The stem varies from 1in. to 4ins. in height. It is a humble-looking plant, the stems bearing a single—rarely two to three—flower, which is small and deep blue or purplish in colour.

There are several hybrids, of which Munbeckii (Kitaibelii) serpyllifolius, grown in 1910 at the Botanic Gardens at Wien, appears to be the one in cultivation. It is a small tufty plant with a thick root stock. The stem is long, bearing small leaves and deep violet flowers.

THE BEST KNOWN OF THE GENUS IN OUR GARDENS. E. SERPYLLIFOLIUS.

Edraianthus australis, bosniacus, elatus, pusillus and siculus seem to be only local forms and I have not found any descriptions of them.

[The above article by M. Correvon should be of invaluable help to gardeners, as he has done much to unravel the confusion which exists regarding these plants. The late Reginald Farrer graphically writes of these plants in the "English Rock Garden," and says: "One general picture paints the race—they all make rosettes of narrow leaves, from which radiate flopping stems bearing up bunches of purple campanulas at the end; and all, though rather lank in look, somehow, are bright and useful."—ED.]



EDRAIANTHUS DALMATICUS WITH FLOWERS IN HEADS.

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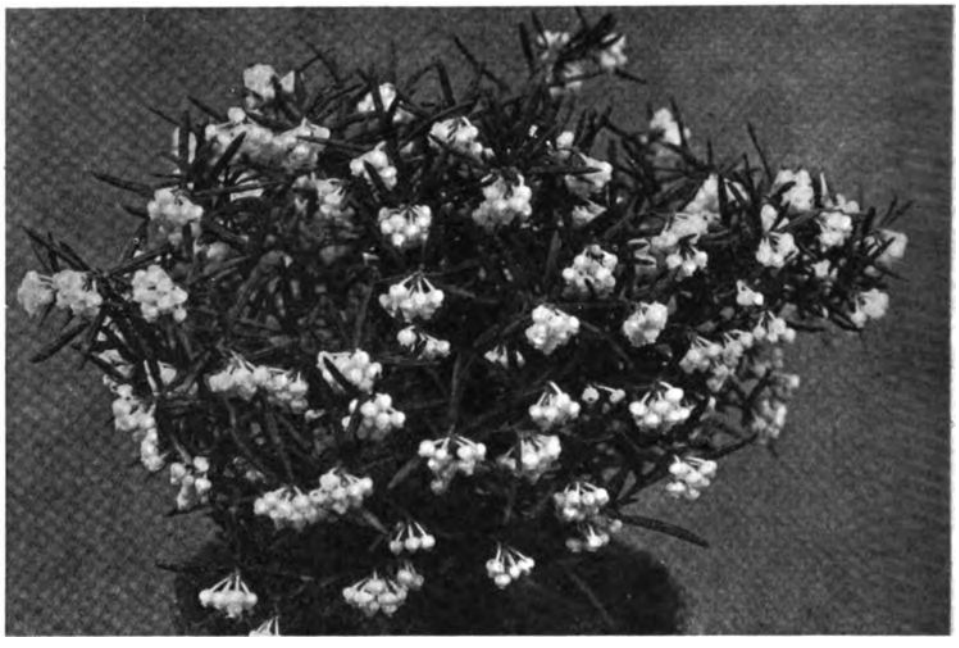
A DWARF SHRUB WHICH SHOULD BE MORE EXTENSIVELY GROWN

WE should like to bring to the notice of our readers a very charming and worthy little shrub, Andromeda polifolia, which is not often enough seen in our gardens. Technically, it is the only true Andromeda in existence, for those shrubs which are known in gardens under that name are really pieris, cassiope, leucothoë, enkianthus, etc. Heavily pruned of its species though the genus has been, yet the solitary species remaining is worthy of every consideration.

As will be seen from the illustration, it is a compact little shrub about 1ft. to 1½ft. high, with narrow leaves and compact clusters of snowy-white bells, which are produced in May.

It is a typical bog garden plant, and thrives best in damp peat. With the appearance of peat moss litter on the market the difficulty of obtaining peat in a suitable form has disappeared, for this latter when well broken up acts as an excellent substitute for the original article. In any case Andromeda polifolia must have moisture at its roots, and this must be conserved either by peat or a heavy mulching of leaf-mould.



ANDROMEDA POLIFOLIA, A VERY CHARMING LITTLE SHRUB.
This specimen was shown recently by Messrs. Cutbush, at Vincent Square.

It is a difficult plant to propagate by means of cuttings, but the roots can be divided and it is easily grown from seed. As in all ericaceous plants, seedlings must have perfect drainage, but peat litter passed through a sieve will satisfy all requirements.

SPRAYING MACHINES and their MAINTENANCE

BY A. J. MACSELF.

PROBABLY three out of four lawn-mowers are brought out just when the lawns are ready for first cutting, and some necessary repair is discovered which causes delay and annoyance. That may or may not be of serious consequence so far as the lawns are concerned, but when the same sort of thing happens with spraying equipment it is most highly probable that the results will be both serious and costly.

Delay in mowing a lawn will involve a deal of extra labour to rectify matters; but delay in spraying operations will most likely mean that the belated spraying will be futile, and the pests will have their fling.

It would be interesting to know how often it happens that a spraying machine is brought out for use when the wash is all mixed ready, the machine is filled, and the discovery made that it is not in working order. In eagerness to get on with the job, the machine is sent to the nearest tinker or, perhaps, to a cycle repairer or even a blacksmith, who, knowing nothing of the necessity for acid-proof washers and having no correct parts and fittings for such machines, just potters about with it and sends it back in a condition that means indifferent work, frequent stoppages, and a vast amount of irritation. All this means waste that cannot be afforded. A great proportion of the failures and disappointments of spraying might be traced to inefficient equipment, and the very first move in the season's campaign against garden and orchard pests should be to overhaul thoroughly every piece of the whole paraphernalia of the spraying apparatus and make good every defect.

There are sprayers that are never serviceable even at the outset. Goods that are simply made for sale at catch-penny prices cannot be overhauled to good purpose; but the best sprayers made cannot earn their money if they are treated with careless neglect.

A sprayer should never be put away uncleaned. Whether a caustic wash, a poisonous compound or a simple soft soap and quassia emulsion has been used, and whether the sprayer is to be put away for a couple of months or for twenty-four hours, it is unfair to the machine and extravagantly wasteful to put it away clogged and choked with adhesive emulsions and sediments. While the substances are still fresh and in suspension, a good flushing out with plain warm water will generally suffice to cleanse thoroughly the whole interior, while the exterior can be easily cleaned by sponging down and drying off with a duster. When put away uncleaned, acids will eat into plungers of pumps, washers and valves, and sediments will clog and corrode the threads of screws, nozzles, and all the vital parts of the machine.

The only thing to do where this has happened is to get paraffin into joints as well as possible, take the machine entirely to pieces, put every separate part to soak, and then thoroughly clean before reassembling.

Cleaning agents may comprise boiling water, washing soda, soft soap, or petrol, paraffin, or liquid ammonia; but where the chemicals that may have been used in the machine are not familiar and well understood, it is, perhaps, wiser to rely upon plain water and perseverance. Look carefully to washers and valves, and also to plungers of pumps. Wherever these are at all defective, replace with new. It is not economy to make do with any unsound washers. Be careful to get the right kind and the exact size required. Washers and plungers mean a great deal. I confess to a great preference for machines fitted with lead seatings. Leather, rubber and compositions are all right while new, and may retain efficiency a long time if kept scrupulously clean and frequently oiled or vaselined; but in a machine that has been neglected they soon perish.

There are machines on the market which are cleverly designed and well constructed, but which have so many gadgets and attachments, all of which are put on or sometimes inside the machine to ensure wonderful work, and provide a fluent representative or a ready pen with an excellent story to tell, but which all add to the difficulty of keeping the machine thoroughly cleaned, and make overhauling and readjustment a task for a gifted engineer.

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The well made machine that is freest from intricacies, and which, above all, has its working parts outside rather than inside, and therefore easily accessible, is the machine for lasting service with a minimum of trouble. Some will say it is mere prejudice that objects to a machine with an interior pump. The other point of view is clarified when one happens to be using a machine in an orchard miles from a town, and the pump goes wrong. It is a comparatively simple matter when the pump is outside the machine to get it unscrewed and adjusted; but more than a bicycle satchel of tools is required to manipulate the interior mechanism of some machines I have handled.

The three-gallon knapsack sprayer is one of the most serviceable instruments ever made for the establishment of medium size. It is equal to the work of an orchard of bush and pyramid fruit trees, a few hundreds of bush fruits or roses, or anything up to an acre of potatoes. With a long lance of light bamboo a knapsack will reach to a fairly tall tree, and most wall fruits, except, of course, occasional trees of great age that have mounted to the chimney-pots. Whether the knapsack should be pneumatic or worked by an attached pump is really pretty much a matter of personal taste. I have not for some considerable time seen the tubular pneumatic machine that was carried horizontally and was charged with an ordinary bicycle foot pump. It was a good machine, rode comfortably in the small of the back, kept the fluid self-agitated with every step, left both hands free for directing the lance, and spared the operator carrying the weight of a fixed pump.

In fairness to the attached-pump machine—and as I hold no brief for maker or merchant I want to be fair to all—it must be remarked that it can be refilled and restarted without loss of time in charging with compressed air, and the charging, even with a good foot pump, is much harder work than the gentle working of the hand pump while spraying proceeds.

The real essentials are: efficiency of power to ensure forceful delivery, sufficient length of lance to give a good reach, and a nozzle so constructed that a fine mist-like spray can be evenly dispersed, with "choking" reduced to a minimum. Whatever kind of tap is used, it should be fixed at the base of the lance in such a manner that the hand holding the lance can instantaneously stop or restart the spray.

Hand machines for small gardens are made in endless variety. Some are trumpery and of less service than a syringe of fair quality. Some are of beautiful workmanship, quite the thing for the lady amateur; but for real utility the hand sprayer needs a capacity of about three quarts, should be pneumatic, and should be fitted with a 2ft. lance. They are only suitable for small work, and a longer lance is, consequently, unnecessary and unsuitable.

For a limited amount of high spraying there is nothing more suitable than the bucket sprayer, fitted with strainer, strong pump and a length of hose with long lance attached. The base of the ejector should be covered with gauze of non-corrosive metal alloy, and in the best makes the pump works a small agitator to keep the chemicals in suspension.

Syringes have their own special uses under glass, while a good syringe is quite competent for outdoor spraying on a small scale and will do far better work than too small a spraying machine. The ordinary perforated rose cap on cheap syringes is quite useless for purposes of application of insecticides and fungicides. The fine spray nozzle is essential. If used for caustic washes the operator should wear strong gloves, for back-wash is practically certain to burn unprotected hands.

The plunger will require repacking very frequently, but with a little care to bind with perfect evenness this is quite simply done and ensures comfortable working.

Of wheeled machines for more extensive work than can be economically done with a Knapsack, there are good and useful machines of varying style and capacity.

Where narrow gateways and paths have to be negotiated, a one-wheeled machine may prove to be most convenient. Many two-wheeled machines are made of quite narrow gauge to facilitate passing between nursery rows of young fruit trees. The one danger of very narrow two-wheeled carriages is that with the tank nearly full of liquid, and the necessity to turn a sharp bend on a sloping path, the whole vehicle is rather apt to capsize. Until I saw this happen I strongly insisted that the wheel axles should be kept as close in as possible, and that the tank should be long and narrow rather than short and wide. The sight of twenty gallons or more of caustic soda wash rushing over a grass bank on to a lawn convinced me that safety first would justify wider passage at intervals through plantations of bush fruits, etc., so that wheel carriages might be set wide enough to maintain balance. If one wants extra long lances to reach tall trees, or two lances that two operators may work, he should see that a pump strong enough to keep a good pressure is provided. The shape and pattern of the tank count for nothing if the pump is unequal to its work.

ANSWERS TO CORRESPONDENTS

TREES AND SHRUBS.

Conifers for Timber Purposes (C. K. B., Sedbergh).—Of the trees mentioned, Scots pine (P. sylvestris), Douglas fir (Pseudotsuga Douglasii) and spruce fir (Picea excelsa) are all good for timber purposes, conditions being equal. We recommend Douglas fir, since it is of fairly rapid growth and gives clean timber when well grown. A good species of spruce fir is the Sitka (Picea sitchensis). It is also a rapid grower and it thrives well in this country, being immune from rabbit attack. The Austrian pine (P. Laricio var. austriaca) is of little or no value from a timber point of view, but it may be mentioned that its cousin, the Corsican pine (P. Laricio) gives good results. The Corsican pine is being planted extensively in this country and thrives in a rather moist area. It is also immune from rabbits. It forms heartwood more slowly than in the case of Scots pine. As regards maturity, the Douglas will reach timber size before the others, while the spruces would probably take second place. To a large extent, the question of maturity and timber value depends on the soil and climatic conditions. The trees mentioned are all more or less accommodating, and we should suggest that it would be advisable for our correspondent to obtain information in his own locality as regards suitable species which have been already planted. We understand that Corsican and Austrian pine have been extensively planted at Wortley Hall.

Shrubs for a Dry Bank (H. B. E.).—In making new plantings of shrubs the ultimate height must be considered; but the width they will eventually grow to is not important. As more or less immediate effects are desired, hence the shrubs will number at least double the ultimate requirements, thinning from time to time as required. Pruning also plays an important part in any group of shrubs, for by this means many shrubs can be kept much below their normal size with oft-times improved effects. Berberis Aquifolium reaches a height of 5ft. to 6ft., but planted 1½ft. to 2ft. apart and kept to a height of 2ft. to 3ft. the plants are evergreen and also attractive in flower and fruit. Hypericum calycinum, 1½ft. to 2ft. high, planted 1ft. apart, soon forms a carpet of growths studded with yellow blossoms from June to September. Two of the best heaths flowering in winter and early spring are Erica carnea and E. darleyensis; the former is 9ins. or 10ins. high, and may be planted 1ft. apart; the latter, 1½ft. to 2ft. high, planting 18ins. apart. The cytisus will give plenty of flower in spring; those from 6ft., to 8ft. or 9ft. high are C. albus, C. Andreanus, C. præcox and C. scoparius; plant these 4ft. apart. Spartium junceum, 8ft. to 12ft. high, plant 6ft. apart. Quite a number of the late summer and autumn flowering spiræas thrive on banks. Planted about 2ft. apart, the following are showy: S. Douglasii, 4ft. to 6ft.; S. japonica, 3ft. to 5ft.; and numerous varieties, including alba, 2ft., and Anthony Waterer, 1½ft. to 2ft.; S. Margaritæ, 4ft. to 5ft.; S. Menziesii, 3ft. to 5ft.; and S. salicifolia, 4ft. to 6ft.

ROSE GARDEN.

Climbing Hybrid Tea Roses (H. A. W.).—Plant the following six varieties on the trellis at distances of 5ft. to 6ft. apart: Climbing varieties of Caroline Testout, Mme. Abel Chatenay, Richmond and Ophelia, with Frau Karl Druschki and Zéphyrine Drouhin. If our correspondent prefers flowers for the garden rather than cutting, substitute Grüss an Teplitz for Richmond.

THE GREENHOUSE.

Tomatoes Attacked (H. T., Dorset).—The tomatoes have been attacked by the fungus Phytophthora cryptogea, which enters the plant from the soil and is always worst when the weather is dull and the plants almost at a standstill. The means of avoiding it are to give ventilation very freely on all possible occasions, to avoid the least overwatering, and to sterilise the soil by watering it with ammoniated copper carbonate before planting the tomatoes.

Name of Plant (F. E. W.)—Primula elatior, "oxlip."

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WITCHES' BROOMS ON THE COMMON GEAN

THE illustration on the right shows a peculiarity of growth of exceptional interest and one which is not uncommon.

The picture is of a cherry tree (Prunus Avium) growing in a garden in Perthshire. It is infected with a fungus, Exoascus deformans, which causes the characteristic deformities, ultimately forming what is now popularly known as a witch's broom. Secondary branches appear to have been attacked and have developed to extraordinary dimensions. These, containing the mycelium of the fungus, anastomose freely, and usually exhibit decided negative geotropism, while the basal portion is somewhat hypertrophied. Towards the base the branches of these witches' brooms are in many cases double the thickness of the branches from which they spring. Towards the apex, on the other hand, they become normal. In the case of this species only the leaves and the shoots are affected. There are many species of Exoascus, some attacking flowers and fruit, others, leaves and shoots. In all cases, however, the fungus causes hypertrophy of the part attacked. Very few species of tree appear to be immune, witches' brooms having been observed on beech, birch, elm, spruce, Scots pine, Weymouth pine (P. Strobus), larch, silver fir, robinia, prunus sp., poplar and others. The appearance of the broom does not enhance the natural beauty of the tree, but disfigures it to a certain extent, as is well shown. It is a feature which is to be found in different parts of the country, often occurring locally, in our woodlands, parks and policies, and readers may be able to recognise the damage since it has thus been brought to their notice. These abnormal growths are caused by various agencies, but in the majority of cases, the invading organism is generally found to be a fungus or insect. A small note dealing with an abnormal branch on Prunus Avium is to be found in the "Notes, Royal Botanic Garden, Edinburgh," No. XX, March, 1909, by Dr. A. W. Borthwick.

ONE OF NATURE'S FREAKS, THE WITCH'S BROOM.

G. C. TAYLOR.

THE DEPTH OF LILY BULBS

BY E. H. M. COX.

MANY people have complained about the poor showing which nomocharis are making in this country. Forrest, Farrer and Kingdon Ward have all remarked on the beauty of this Asiatic genus, so closely allied to the lilies. In China and Upper Burma they are vigorous growers, sending up strong stems often with several flowers to each stem, but in this country they have proved themselves to be decidedly intractable, with poor growth and sickly-looking flowers about a third of their proper size. Even at the Royal Botanic Gardens at Edinburgh, where their skill at growing Chinese plants is unrivalled, they have proved unsatisfactory.

A possible reason for their unenviable character is that the bulbs are not planted deep enough. Most collectors in the East have found the bulbs of Nomocharis pardanthina and of N. Farreri growing on an average at a depth below the surface equal to the height of the stem. I have commented on this fact in *Country Life*, and Kingdon Ward also notes it in his latest book, "The Romance of Plant Hunting." So far nomocharis have been grown usually in pans as a curiosity and in a few cases in rock gardens. In both cases conditions are not suitable for sufficient depth of planting. At Edinburgh, nomocharis have now been transplanted to a position where the soil is deep and where they can have freedom of action. It will be interesting to see the result this year.

I should think that even one year old bulbs should be planted in pots at a depth of 3–4ins. When germination is good it might be worth while testing the young bulbs at different depths at the end of their first year and seeing at what depth they give the best response.

It is not only in the case of nomocharis that the bulbs are found deep in the ground. Another deep-bulbed lily that Farrer and I found in Upper Burma was Lilium Thomsonianum, a Himalayan species. Here the bulb is a foot or more in the ground, and as it is always surrounded with little offset bulbules, it is reasonable to suppose that quite small bulbs, at any rate of this species, can be safely planted at a depth of 12ins. The bulb of Lilium polyphyllum is also found at a depth of a foot or more, while in the State of Washington, U.S.A., L. washingtonianum is found in cornfields beyond reach of ploughshares.

It is known that the bulbs of many of the South African liliaceæ are found at a great depth owing to absence of surface water, but this cannot be the reason in the case of Asiatic lilies. A possible explanation is that in areas affected by the monsoon or similar heavy rains the top surface, owing to the presence of quantities of detritus and rotting vegetation, becomes so sodden that to prevent its bulb from rotting the plant sends it down to a soil in which the drainage is more normal. I have always seen both nomocharis and lilies growing in Asia in pockets or on slopes with higher ground above them. This, of course, accounts for the depth of soil in which they grow.

An interesting problem is to find out the agency by which the plants send their bulbs down to this depth. Although my memory may be at fault, I cannot remember finding a single instance of pull roots such as are found on the crocus. Naturally, in country affected by very heavy rains there is constant movement of the upper surface of the soil and detritus will be deposited, but this cannot account for more than half an inch or an inch at the most.

I am certain that it would be worth while growing on yearling bulbs planted at a considerably greater depth than is done at the present time. This seems to be the best method of trying to approximate their natural condition, and certainly in the case of nomocharis there should be some chance of success.

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THE USE OF GARDEN LABELS

BY GERALD HILLIER.

THE question of labels is undoubtedly a vexed one. Labels scattered all over the place do not, perhaps, enhance the appearance of one's garden. However, they are necessary adjuncts to the keen gardener. Quite satisfactory results can be achieved by the judicious use of the right label. The question then arises, which is the *right* label? There is, as everyone knows, a multitude of labels in various shapes and sizes now on the market. In the following notes I shall describe the labels I have tried, practically all of which have proved a success. No doubt I shall be "called over the coals" by readers who have discovered something better! Of course, in botanic gardens and nurseries it is absolutely necessary to employ a far greater number of labels than in a private garden. Perhaps the most difficult problem of labels arises in the case of the rock garden. For example, it is not advisable to allow one's friend to scramble over rocks on which plants are growing. It is therefore necessary to employ legible labels on the higher part of the garden so that anyone standing on the path can decipher them. For such a position oblong lead labels bolted to legs are often utilised. After the names of the plants have been stamped in the lead the labels are rubbed over with a rag smeared with turps, and polished with a dry scrubbing brush. Afterwards, the letters are filled in with white enamel paint, a pointed stick being used for this purpose. Such a label will last about three years.

For lower parts of the rock garden a lead label, somewhat after the same style but having no leg, may be employed. In Fig. 1 this label is depicted on the left-hand side. The bottom of this label is tapered and is thus easily stuck into the ground. For saxifrages, sedums, sempervivums, etc., growing near the path, the ideal label, in my estimation, is the oblong glazed one. This is green with the lettering in black, and is mounted on a leg. Two of these are shown in Fig. 1 in the centre. No. 2 in the same illustration is also a good label. Here white letters are mounted on a black background. Wooden labels must, of course, be used extensively, especially so in the case of plants that are only in flower for a very short period and then die down. In the latter case the labels should be "about turned" so that the tyro is not confused with other plants that may be growing in close proximity. As regards the lead labels described above, they may, of course, be any size and the leg any length. The nature of the plant must be considered.

FIG. 1.—VARIOUS TYPES OF LABELS WHICH ARE DESCRIBED ON THIS PAGE.

Wooden labels should first of all be painted white where the name is to appear. After the paint has dried the name of the plant should be printed with a gardeners' special label pencil. The latter is obtainable from all horticultural sundriesmen. Fig. 2 does not depict a floral cemetery, but a corner of the rock garden where very minute rare plants are growing. These labels are made of a celluloid substance and are flexible. Waterproof ink should be used for these labels if they are to be placed outdoors. For indoor purposes the name may be written on with a pencil. By this method the labels may be used indefinitely, as the names are easily erased with india-rubber.

Now let us consider the labelling of trees and shrubs. Here the famous Acme label is ideal. These labels are cast and will last a long time. They

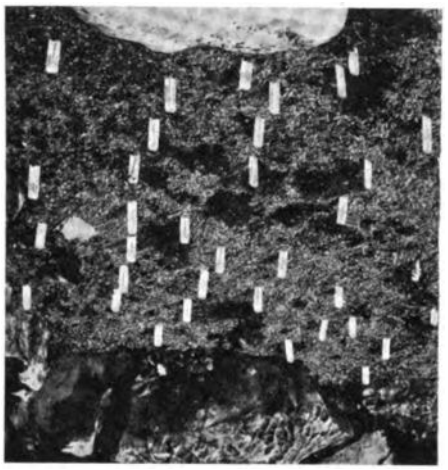

FIG. 2.—CELLULOID "IDENTIFICATION DISCS" FOR PLANTS.

are of various shapes and sizes, and may either be fixed on the plants or placed in the ground. The Acme labels will be found exceptionally useful for roses and fruit trees. One type of Acme label is shown in Fig. 3.

Let us, just for a moment, revert to Fig. 1 and look at the wooden label on the extreme right. At the top it will be seen that there are numbers. The first (75) indicates the seed packet number and the second one (05) that the seed was sown in 1905. Apart from these numbers it is always advisable to keep a log book. Many seeds take a long time to germinate, and it is exceedingly interesting to keep an account of a plant's life. Where exceptionally fine trees exist it is an advantage to have a descriptive label attached. At Kew many readers will have noticed the kind of label employed there. It is printed and enclosed in a small glazed frame.

A fine label, employed in a certain herbaceous ground, is, I consider, ideal.

FIG. 3.—A TYPICAL ACME LABEL.

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The names of the plants are burnt on earthenware slips, and the latter are then dropped into iron supports. It is, however, doubtful whether these labels are made at the present time. If they are they will, no doubt, be somewhat dear. There is no question as to their lasting capabilities, because some I saw recently are said to have been in use for fifty years, and they look practically new.

In many establishments labels are wired on to deciduous trees and shrubs in winter, and when the flowering season arrives the labels are in many cases hidden. It is important to inspect labels wired on trees occasionally in order to prevent the wire from cutting into the bark.

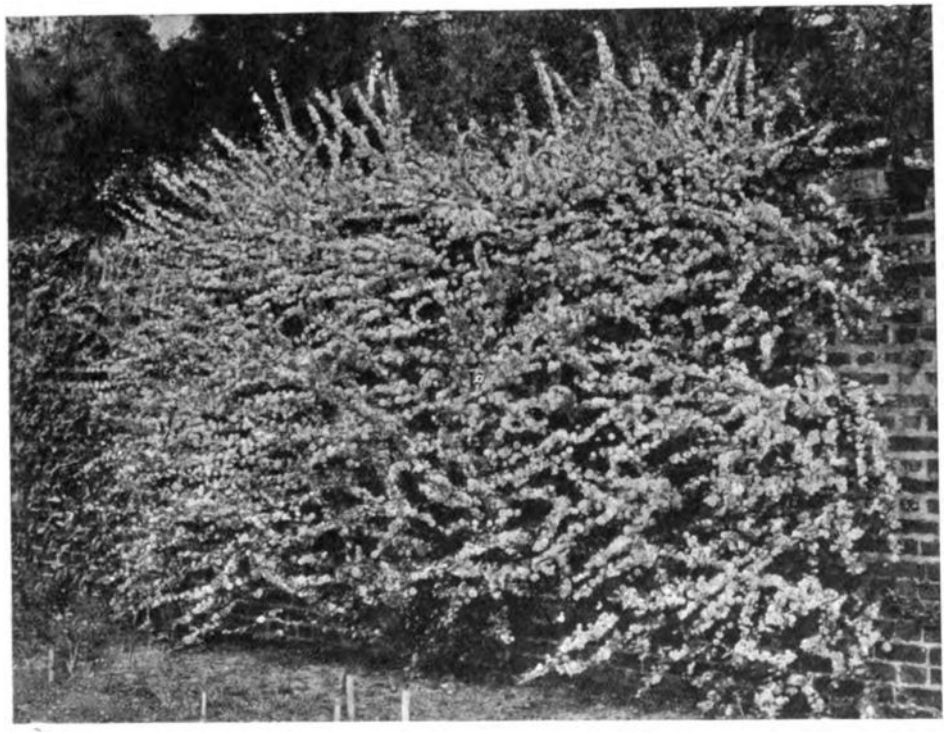
CORRESPONDENCE

THE SPURGE LAUREL.

I HAVE been taken to task so often for describing certain plants as rabbit-proof which have been found to suffer in other districts than that in which my experience has lain, that I hardly venture to add the evergreen spurge laurel (Daphne Laureola) to the list which I submitted recently. Bentham describes this species as doubtfully indigenous in southern Scotland, and I have little doubt that it was introduced to this district during the eighteenth century, when evergreen shrubs were scarce; but it is well established in our woods, spreading by self-sown seedlings, and I have never known it to be injured by roe deer, hares or rabbits. On the other hand. the deciduous D. Mezereum requires protection when first planted. Both species are now (March 17th) in full flower, the contrast between the richly coloured, fragrant bloom of the mezereon and the green, scentless flowers of the spurge laurel, being, in its way, one of the perplexing problems of spring. Hardly any winged insect life is abroad in early March; the spurge laurel hides its clusters of green flowers under its relatively large leaves, and there is no scent to betray their presence to insect visitors. Nevertheless, the plant produces plenty of black fruit, suggesting self-fertilisation. The late Lord Avebury shirked the question in his excellent treatise on British flowering plants. Of D. Mezereum he observes that "the flowers are sweet-scented, well supplied with nectar, and much visited by insects. Ludwig considered the flower to be sterile to its own pollen; Schulz, however, came to the opposite conclusion." Lord Avebury says nothing about the fertilisation of D. Laureola, but although I have detected traces of nectar in the narrow tube of the flower, I have never seen it visited by any insect.—HERBERT MAXWELL, *Monreith.*

THE PRUNING OF PRUNUS TRILOBA.

I HAVE been much interested in the article on the "Spring Treatment of Trees and Shrubs," in the issue of February 9th, page 67, by "A. O.," but I should fail in my duty to so lovely a flowering shrub as Prunus triloba if I made no protest against the recommendations to cut the year-old flowering shoots hard back in April. It is a cruel treatment, and I am sure that those who carry it out can never know what a beautiful shrub this is. The result of it is, in the case of a wall specimen, that an upright and down-straight effect is produced that is as stiff as the wall itself. I have had almost a life-long association with two wall specimens, and I fail to understand why these shoots, of commencing growth only, should be cut away without ever a chance of showing what they are when properly developed. They do not develop in one year, for in autumn there is a resting bud, as it were, at the apex, ready and waiting to continue growth the following year. This new growth is a stronger growth, but it is a continuation of the same shoot and should attain a length of perhaps 2ft. or more, covered with flowers from base to apex. In this there is something to admire; while a stubby and comparatively weak shoot of 8ins. or 9ins. long is nothing in comparison and does nothing to give beauty of form to the specimen. If my memory holds good, it is even the third extension that may be expected to give the fullest strength and finest magnificence. It is quite possible to prune so as to provide these fine shoots and also a succession for the time when it comes to cut them out. In this there is scope for art and skill in pruning, while cutting hard back is far too lamentably easy. I do not by any means condemn all hard pruning or cutting back, but it requires discretion, as anyone can see when a too hard-pruned shrub does escape the knife. It is quite contrary to Nature, which yields beauty only when helped in her own direction. I do not ask that anyone should take my word off-hand, but I do ask that those who have the opportunity should compare the world of difference in result between hard cutting back and pruning to maintain a fully developed and perfect shrub, suitable in size and extent to its position. Hard pruning, in the place of thinning and regulation and the removal of spent growth, is sometimes a great mistake, and I well remember the admiration shown by the late William Goldring of some fine effects which he found in the Cambridge Botanic Garden and accounted for by saying that with few men there was no time for pruning! THE GARDEN, some time ago, did a considerable service, I thought, by publishing on the cover a picture of neglected pear trees. It was an object lesson for the hard pruner, who forgets that he is not pruning a fruit tree. Neglected these trees were, no doubt, from a fruit-grower's point of view, and they would have been better, no doubt, for the regulating knife; but they had had the chance of their lives in showing how beautiful a pear tree can be. There are many rosaceous trees quite as fine if permitted to be so.—R. IRWIN LYNCH, *Chalston, Torquay.*



A WELL COVERED BUSH OF PRUNUS TRILOBA FL. PL.

THE TRIFLORUM SERIES OF RHODODENDRONS.

I HAVE read your article on the triflorum series of rhododendrons (page 168) with much interest, but I am afraid I do not agree with the remarks you make about R. triflorum itself, viz., that "its colour is a greeny yellow of no distinction, and it can be dismissed with no further description." Perhaps you are unaware that there are two forms of this species? The one, I quite agree, fits your description admirably, but the other, introduced at about the same time and to be found in Cornish gardens, has the most glorious bark of any rhododendron that I know; it is cinnamon-red in colour and peels freely, so that if you can get a bunch of plants with the evening sun shining through the loose bark you obtain a variety of colour in the autumn that is equal to many flowering plants.—LIONEL DE ROTHSCHILD.

[We do not quite understand Mr. Rothschild's statement that there are two forms of R. triflorum. According to the Royal Botanic Garden at Edinburgh there are no very distinct varieties of R. triflorum. No doubt, in good situations and climate, colouring of the stem takes place which is not so noticeable in districts which do not suit it. In any case it is the least hardy of the triflorum series.—ED.]

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DAFFODILS AT WARLEY.

I SEE an illustration in THE GARDEN, February 23rd, of daffodils at Warley. It depicts some rather interesting daffodils. They are the Scotch form of the wild Lent lily, Narcisus Pseudo-narcissus var. scoticus. They were collected some twenty-five years ago in Scotland and a little colony planted by the birch trees. Among them came up two double flowers, which persisted every year until the war. I have not noticed since, but I will look out for them when the daffodils come into bloom this year.—E. WILLMOTT, *Warley*.

THE KING ALFRED DAFFODIL.

I WAS surprised to read in THE GARDEN of March 1st that the Rev. J. Jacob cannot succeed with this magnificent daffodil, as I had no idea it was difficult to grow. I have had bulbs of it now for nearly four seasons planted in deep loam with a chalk subsoil, and the blooms keep their size and stamina and promise well for the coming spring. Perhaps my success may be due to an annual top-dressing in February of dry wood ash (from indoor fires) covered over with burnt bonfire soil, which I give all bulbs indiscriminately. Messrs. Barr supplied me with the original bulbs, and they are increasing rapidly. I planted some in turf three seasons ago, and so far they are strong and vigorous. I see also in your contributor's notes on the "Amaryllis Belladonna" that he states that it is a native of the West Indies. It is one of the many natives of South Africa, and it is a never to be forgotten sight in October (the Cape spring) to see the Belladonnas growing under the oak trees, standing up among the fallen brown oak leaves, by the streams of the Paarl valley forty miles from Capetown.—(Mrs.) BAKER, *Cobham, Kent*.

MY experience of this daffodil is, on the whole, unsatisfactory. It is about the only one of the genus that looks unhappy here.

Beds of its seedlings, growing side by side with it, are every one of them in vigorous health, but King Alfred itself languishes.

I have tried lifting it every year, giving it different soil and aspect, all without avail.

I remember that Mr. Ernest Crosfield told me that he could not do it in his garden at Wrexham (where he then lived) nor in a plot he had in the south-west, nor at his place in Scotland; and I have letters now from the late Mrs. R. O. Backhouse, saying that she could do nothing with it. Yet some grow it and exhibit it in excellent form, notably the late Miss F. W. Currey.

It is most unfortunate that such an eminently beautiful flower should be so fastidious in its requirements.—F. HERBERT CHAPMAN, *Rye, Kent*.

LENTEN ROSES.

I NOTICE in your issue for March 1st "Somerset" says "The late Mr. Archer Hind of Newton Abbot worked for many years at improving the Lenten Rose and raised many fine varieties. What has become of them now?"

It may interest him to know that the late Mr. J. S. Tatey of Newton Abbot, well known to many gardeners of the old school and an intimate friend of Mr. Archer Hind, once told me that two cartloads of plants were given to Messrs. Barr and Sons of Covent Garden, from whom I had a few plants some years ago and they were certainly very fine. No doubt Messrs. Barr could throw some light on the subject.—CHARLES PRENTIS.

THE WELSH NATIONAL FLOWER.

IN response to Mr. Parker Woodward's request for information in THE GARDEN of March 15th, the Welsh for the leek is "Ceninen" and the daffodil "Ceninen Pedr," which means "Peter's leek." There is no doubt it was Peter's leek that was worn in ancient times, as it is worn on anniversaries of St. David's Day now in ever increasing numbers.—W. A. WATTS, *The Welsh Bulb Fields, St. Asaph*.

A REMARKABLE HYACINTH.

I ENCLOSE a photograph of a hyacinth grown in water from one of the bulbs obtained from Messrs. Robert Sydenham, Limited. It is a lovely pink, and four of the blooms are specially large and perfect, the fifth quite a nice bloom. The bulb was a very small one. It has been very greatly admired, and more than one authority on horticulture declared it has never been excelled.—(Mrs.) COALSTON, *Haddington, N.B.*

AN EXCEEDINGLY PROLIFIC HYACINTH.

RABBIT-PROOF PLANTS.

GAULTHERIA SHALLON appears to be quite rabbit-proof, at any rate, when well established. I make this reservation because anything shrubby that is newly planted appears to have an irresistible attraction for rabbits—possibly for the sake of experiment. Gaultheria is one of the best undershrubs for peaty or sandy soils and will endure a good deal of shade, even of Scotch pines. It should be a valuable thing in places where pheasants are preserved, as it affords ample shelter and a good deal of food when the abundant berries are ripe. In some places it grows almost too freely. Here in woodland (West Surrey) not far from the garden, it was planted on both sides of a wood path. About 50ft. from this is another path, nearly parallel. It has not only invaded the original path and entirely filled and smothered it, but has stretched out widely to right and left. Year after year we have watched its approach to the second walk. Now, about twenty years after the original planting it has reached this, and has been made to understand that it is not allowed to go farther. In fact it has been grubbed up for a yard or two from the path edge, and, from here and from adjoining regions of encroachment, something like five cartloads have been torn up and burnt. This sounds ruthless and wasteful, especially when much of it comes up with a mass of fibrous root that looks fit for planting elsewhere. But, although when it has taken hold it grows so freely, yet it is by no means an easy plant to establish. When I send it to friends I have to look about for small, compact seedlings, for they seem to be the only ones that will endure a journey and prosper. There are still places about the wood where it threatens too great an advance; here, also, it would have been checked but for the difficulty of affording the labour.—GERTRUDE JEKYLL.

ARUM LILIES IN INDIA.

HAVE you ever seen arum lilies growing literally in thousands? It is a beautiful sight. At Ootacamund on the Nilgiri Hills in Southern India they flourish in all swampy hollows during the winter months in wonderful luxuriance. Ootacamund is 8,000ft. above sea level and its minimum temperature in winter is about 40° Fahrenheit. There is no snow, but of an early morning the grass is often covered with hoar frost. This nips the lilies a bit at times, but on the whole they seem to withstand the cold very well.

These lovely flowers are much used in church decorations and are particularly in demand for weddings. The writer recollects gathering 400 lilies from one marshy spot to deck the church for a friend's wedding and yet to the general aspect the lilies there seemed in no way diminished in number. The arum lilies in Ootacamund are noted not only for their numbers, but for their magnitude also. Both flowers and leaves grow to an unusual size. Arum lilies flourish best in soft, oozy soil and along the river banks. They seem to need plenty of water, when cut and placed in vases, to keep them fresh, as they soak up a good deal of moisture.—I. C. P.

FRUIT-GROWING IN SMALL GARDENS.

I WAS greatly surprised at the omission of Apple Potts' Seedling from Mr. Hatton's probable list of sorts he would grow (page 145), as the variety in question is much grown in private gardens and well spoken of by reliable nurserymen. I have a long experience of the behaviour of this apple in gardens of various sizes and have, incidentally, taken prizes for it at the Royal Horticultural Society's Autumn Fruit Show. Without hesitation I would recommend it to any would-be planter wanting a really good September to October culinary apple. It is also quite excellent for dessert purposes and I have sent it to table as such on many occasions, when it has received marked acceptance. Potts' Seedling comes into bearing early, while it is a free and dependable cropper, whether grown as a bush or half-standard. The variety makes but little wood so it is peculiarly fitted for small gardens, where space has to be wisely allotted. Mr. Hatton mentions the variety Stirling Castle, an apple, to my thinking, spoiled by its beastly sourness, but there is nothing to say against its fruiting faculty. We grow Stirling Castle here as an espalier and Potts' Seedling as a half-standard.—C. T., *Ampthill Park*.

FORTHCOMING EVENTS.

April 1st.—Croydon Horticultural Society's Meeting.—Royal Caledonian Horticultural Society's Meeting.

April 5th.—Blackburn Horticultural Society's Meeting.

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NOTES FROM CONTRIBUTORS

THE DELPHINIUM.

I AM sure that owners of naturally hot and dry gardens need not be deterred from the growing of this, the noblest of all perennials and probably possessed of the greatest future, by what Mr. Fraser (page 146) says about its need of water. The assertion that "delphiniums require a steady and ample supply of water all the summer through, especially during May, June and July," is certainly an over-statement. This reads as if they were thirstier than the run of perennials, which they surely are not. Their ancestors come from climates where the summer sun is fierce with little or no rain, and it has happened to me again and again to see my delphiniums in undiminished beauty while the plants on all sides of them were suffering grievously from drought. No doubt they accept water gratefully, but that "is another story." As to propagation, Mr. Fraser mentions division only. It is my experience that cuttings taken in March or as soon as the shoots are about 3ins. long give the best plants the third season. They root readily under a bell-glass without heat; a small bit of the old stock must be left on.

We are probably only at the beginning of developments of this fine flower. It is doubtful whether anything has been done in the way of artificial cross-breeding; unless I am mistaken, the best delphiniums of to-day are all the result of simple seed-selection. The structure of the flower makes it very difficult to manipulate for cross-fertilisation and they are quickly "set" by humble bees and other insect visitors. An obvious cross is that of our current florists' varieties with D. Belladonna. This I essayed year after year fruitlessly, owing to the infertility of Belladonna; but when I raised plants from seed of Belladonna offered some years ago by Messrs. Sutton, these in turn seeded in my garden and the cross which I had failed to make had evidently been effected by natural agencies, for the result was a series of plants running to 7ft. in height (Belladonna is comparatively dwarf) and from deep purples to the palest of silvery blues. And a great gain was that all the plants inherited Belladonna's glossy, dark green, much divided leaf, instead of the coarser and more "flannelly" leaf which I have always thought to be something of a defect in the florists' strain. Then came a tragedy. Of two long nursery beds containing some 800 selected plants, all but, literally, about a dozen were utterly blotted out by slugs in one memorable winter when even the wheat was largely devoured in this district. A friend living 200 miles away lost the entire stock of pale blues which I had given him from this same selection. And Nature has refused and my hand has failed to reproduce this cross. Last month I received from a relative resident in the highlands of British East Africa seed which is now growing well of a wild delphinium which varies from dark blue to white and is presumably hardy. I have not heard of anything in cross-breeding done with D. cardinale or Zalil.

In size of plant and flower we have perhaps reached the desirable limit or even exceeded it, if Mr. Jacob's "Hollyhock" delphiniums really approach hollyhocks in dimensions of spike and flower. I am, myself, quite contented, as to size, with such a variety as Alake. The ugly crowded spike, like a bulrush head or the woolly, cylindrical end of an old-fashioned bell-rope, is fast departing, but it is still well to avoid varieties catalogued as having "well furnished" spikes. The advance in colour has not, to my mind, kept abreast with the advance in stature and size of flower. There may be many, no doubt, to dispute the point with me, but I hold that many flowers have, each one, their own distinctive colour-note which it should be our main object to retain and enhance without adulteration. The distinctive and very valuable colour-note of the delphinium is *blue*. This may have an infinite range of shades and tones, varying by the subtlest degrees—which the eye learns to appreciate—from the deepest indigo to the very palest of "Cambridge" or "Eton" blue. Raisers should concentrate chiefly on these blues, aiming at pure selfs. I would not altogether exclude mauves and lilacs, but we are getting too many of these in washy or muddy quality, and over-much suffusion of pink and bronze in the blues. A weak point is the undue number of flowers with white centres. Some certainly give an effect of light, but they should be admitted sparingly or they give what I may rather vaguely call "a common look." Pure selfs are aristocrats in comparison. There is a great deficiency of very pale blue selfs, and the pale blue with dark bee is one of the most beautiful of all. There is only one true white known to me, Moerheimi, a quite lovely thing in its own way, but without the stateliness of the best florists' varieties. I agree with Mr. Jacob that we should be glad to see some of the Californian delphiniums, which apparently have a literature all to themselves, and some of the whites in particular. Moerheimi has a charming pale blue twin sister, identical with itself except in colour. Moerheimi will occasionally "sport" into a branch of Capri or into a single flower half white and half blue, but the converse seems never to happen. I once only found three seeds on Moerheimi which gave me three blue plants, one a fine thing of great stature and the richest deep blue colouring.

Buying delphiniums (and most things) from a catalogue without seeing them is mostly a disappointing business, and how can one judge of colour from print? In one list now before me I find sky blue, rich sky blue, richest sky blue, bright sky blue, dark sky blue, soft sky blue, brilliant sky blue, lovely sky blue, and not one of these epithets brings a definite colour to my mind's eye. But once, some three seasons ago, I bought of Messrs. Tucker of Oxford, from their mere description, a couple of plants of Blue Bird. The first bloom disappointed me, and I supposed I had once again been caught. The next summer I had been some while from home and returned to the full bloom of my delphiniums. Then one morning I found myself contemplating a new miracle of beauty, perfect in its tall, slender, tapering spires, perfect in the form and spacing of the flowers, and absolutely perfect in colour, a splendid, luminous small blue, the nearest to a true self I had ever dreamed of. Indeed, I can hardly imagine a more consummate thing, and I advise all who do not possess Blue Bird to hurry and get it. It is better all round in blue than Alake is in purple, and that is saying a good deal. But will someone give us a pure white Alake with black bee?—G. H. ENGLEHEART, *Dinton, Salisbury.*

GARDENS: OLD AND NEW.

THERE are some common features about all gardens—old and new. Seclusion, quiet, restfulness, are qualities alike possessed by the gardens of lordly palaces enclosed by lofty walls and the humble plot of the cottage adjoining the village street. For the pleasure to be derived from a garden is not to be measured by its stateliness or its style. A tiny pot such as almost anybody may cultivate may become "a lovesome thing." The garden of the poor may lay claim to possess similar delights to that of the rich, for flowers are no respecters of persons. "Flowers," says Ruskin, "seem intended for the solace of ordinary humanity; children love them; quiet, contented, ordinary people love them."

I may now tell you of one or two old gardens. Over three hundred years ago a writer described his own garden as "a little plot, void of all cost in keeping," and containing "a variety of simples," for you must know that old gardeners grew plants for salads and physic as well as for flowers. The people of those days believed very strongly in the value of herbs, and we, with our greater knowledge of medicine, cannot say that they were often wrong in their belief.

In a delightful essay written by Sir William Temple late in the seventeenth century he tells us that "in every garden four things are necessary to be provided for—flowers, fruit, shade and water, and whoever lays out a garden without all these must not pretend to any perfection. It ought to lie to the best part of the house, so as to be but like one of the rooms out of which you step into another." Now Sir William was an expert in garden making. He laid out his own garden at Moor Park according to the Dutch style then in fashion. It consisted of some six or eight acres, which he formed into grass plots and gravel walks relieved by fountains and statues.

Much might be said of old gardens; but coming to modern times, we notice that many changes have taken place, not only in the arrangement but in the cultivation of plants. Bedding-out or, as it is sometimes called, carpet-bedding was once very fashionable, and even now you will find this style of gardening is adopted by those who have plenty of space and can afford to change their plants from time to time to suit the varying seasons. But for the many, for those who love flowers for their own sake, for those who want "a garden of delight" to reproduce their beauty and the infinite variety of form and colour, it is best to follow the simple way of Nature. Ordinary people do not want their flower-beds to look like carpets. This style of gardening may be very well suited for public gardens where uniformity is required and where colour is one of the chief attractions. But you want a spot where you can walk or rest beneath the shade of an old wall or an overhanging tree. You want to gather a few flowers now and again without the fear of spoiling your carefully designed beds. It is well, therefore, to arrange your plants so that they may appear as naturalas possible.

I will conclude with a few general remarks which you must not forget if you wish to have success with your garden. To secure the best results there must be constant circulation of that great food carrier—water. Stagnant soil means unhealthy plants. For it is well to remember that nourishment is derived from the water itself, which gains its nutritive qualities from the ground and the air. A chalky bottom, if kept moist, is better than a clay bottom, because in the latter there is danger of the soil losing its sweetness.

With regard to the aspect of the garden, it is not always possible to secure what we would wish. But if fortune would have it so, let the slope be south-eastern, because, speaking generally, this is warmer and drier than any other. One more word: a garden should not be congested; it should contain just as much as it can grow, and no more. We may, indeed, be tempted to covet too much. Let us be satisfied with sufficient, for we shall then have both utility and beauty. —J. C. WRIGHT.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

VEGETABLES UNDER GLASS.

Cucumbers.—The plants from an early sowing are making headway and producing numerous fruits, and so they may be fed with liquid manure or Clay's Fertiliser. More seeds may now be sown to furnish a succession and take the place of plants that have ceased to be profitable. Seeds will germinate freely in a temperature of 60° to 65° Fahr., and the plants should be planted out before they become pot-bound. No difficulty ought to be experienced in growing cucumbers at this season. A moist, buoyant atmosphere should be maintained, a little air admitted from the top ventilators when the weather is warm, and the growths frequently stopped to encourage the fruits to develop. These are the principal factors in successful cultivation. White fly is often troublesome, and it is a pest that should be held in check, either by fumigation or spraying.

THE HARDY FRUIT GARDEN.

Spraying.—Now is a good time for spraying fruit trees with cleansing washes. Paraffin emulsion and lime sulphur may be safely tried on black currant bushes to combat the ravages of the mite which causes what is known as big bud. Leaf curl is one of the chief pests of peaches outside, and it should be dealt with in its early stages by spraying the trees with "Medela," an effective spray when properly used. For small gardens it is safer and cheaper to purchase the washes in small quantities as needed, and then strictly carry out the instructions given with the materials.

THE FLOWER GARDEN.

Gladioli constitute a charming race of showy flowers which are suitable for beds or borders and also for cutting purposes. A deep loamy soil is preferable, and it should be free from wire-worms, which are very partial to the young growth. The corms may be planted in rows 18ins. apart, 10ins. between the plants, and 3ins. or 4ins. deep. Where the soil is on the heavy side, a little sharp sand should be placed around each corm. Further plantings may be carried out till the end of May, thereby prolonging the flowering season.

Grass Seed.—It occasionally happens that bare places exist on the lawns, and that it is not always possible to turf them. Here, then, grass seed should be sown, and directly the soil is in a workable condition such work may be carried out. Bare patches should be pricked over with a fork, but where trees have been removed or beds dispensed with the soil will need levelling, making firm, and raking till a fine surface is obtained. Seed should then be sown and covered with a little fine soil. Roll the ground, and protect the seeds from birds.

THE KITCHEN GARDEN.

Broccoli are very valuable during the winter and spring months, and now is a suitable time to make the principal sowing. Sow the seeds thinly in lines 1ft. apart. The turnip fly is often troublesome to the young seedlings, but a sprinkling of soot or lime along the rows while the morning dew is still present is generally effective. To maintain a succession suitable varieties should be chosen, and even then a gap in the supply may occur, as so much depends on the season. The following I have found satisfactory: Early White or Favourite, Snow White or Leamington, Late Queen and Model, the latter being the best late variety I have grown.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Asparagus beds should be cleared of all manure and strawy material, which has been used as a mulch throughout the winter, and the beds made clean and trim.

Lettuce.—Young plants if fairly well advanced should be set out in lines 12ins. apart and 6ins. allowed between each plant in the lines on a south or west border. If severe weather follows place frame lights above the plants.

Parsley raised from seed sown in boxes three or four months ago and brought on under glass should be planted out in lines at the same distances as stated for lettuce. Parsley should be grown on well manured and deeply cultivated ground.

THE FLOWER GARDEN.

Carnations.—The border in which these plants are to grow should be deeply dug and if the soil is heavy a good dressing of old lime, sand and wood ashes should be applied. Fork this into the ground and tread to firm the soil. The surface should be well raked and the young plants set out in lines 12ins. apart and 8ins. allowed between each plant in the lines. The rooted layers should be lifted carefully so that the roots of each plant are kept intact.

Crambe cordifolia.—This hardy herbaceous plant, belonging to the seakale family, is very effective in large borders. Like the vegetable seakale it can be increased by root cuttings, which should be secured and inserted now in sandy soil.

Daisies.—Double red daisies when in flower make an attractive edging to a pathway. If young plants were raised from seed sown last year, these should be planted 6ins. apart in well firmed, but not over rich soil. Firefly is a very fine coloured variety.

Gypsophila elegans.—This hardy annual when in flower is very useful for decorative work. Seed may be sown about ½in. deep in prepared beds. Seedlings, if properly handled and carefully pricked out among pentstemons and antirrhinums, etc., in borders and beds, give quite a pleasing and graceful effect when in flower.

Lavender.—Young plants raised from seeds or cuttings should be set out on a west border in lines 12ins. apart and 4ins. or 6ins. between each plant in the lines. Pinch the growing tops of the plants when they are 3ins. or 4ins. high so as to obtain a bushy habit. If the plants are to remain permanently in the border they should be given more space, or every alternate one taken from the lines before they become crowded.

Mignonette should be grown on firm ground and where plenty of old lime and sand has been worked into the surface soil. The seed may be scattered over the bed or dropped into lines and covered with ½in. of fine soil. Mignonette does equally well with a south or western aspect.

FRUITS UNDER GLASS.

Peach Trees grown in unheated glass structures should now be in flower, and daily attention given to pollinating the blooms with a rabbit's tail. All watering necessary within the structure should be done in the early part of the day, so that everything is kept as dry as possible in case of frosts.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Veronica Hulkeana.—This beautiful New Zealand species, although hardy against a wall in the west, requires the shelter of a cool-house in the colder parts of the country. This veronica is easily propagated by means of cuttings inserted at this time, standing the cutting pots under a bell glass in a cool-house. Plants rooted now and grown steadily on during the summer in a cool greenhouse or cold frame, should make good flowering specimens for the stages the following April. Such plants grown on for another year will make fine specimens some 3ft. in height. These large plants require careful watering and treatment, because they are by no means easy to grow on. Thus, a batch of young plants should be raised each year.

Veronica speciosa, of which there are so many fine varieties, should be more generally grown for flowering during the autumn and early winter in the conservatory. Plants that were flowered in 48-sized pots last autumn, if potted on into 7in. or 8in. pots will make fine specimens for standing in the beds. If cuttings are put in at this time they root readily, and the resulting plants are very useful for the stages during the autumn. During the summer months these plants are best grown in cold frames, from which the lights can be removed. As the plants are free rooting they require ample supplies of water.

Buddleia asiatica.—This graceful plant with its fragrant white flowers is very useful for flowering during the winter. Stock can be increased by means of cuttings. The latter root in a close propagating case at this time and if the young plants are pinched once it will induce them to branch from the base. In their first year they make useful plants for the stages. After flowering they should be shortened back, and about this time shifted into 8in. or 9in. pots, in which they will make fine large specimens. If bushy plants are desired the strongest shoots should be stopped once. The plants, if allowed to grow without pinching, make long graceful shoots 8ft. to 10ft. in length. During the summer months the plants should be stood outdoors in a sunny, sheltered position.

Buddleia officinalis, is a bushy species, which succeeds under the same treatment as B. asiatica. It has lilac-coloured flowers with a yellow eye, which are strongly honey-scented, and for this reason the plant is worth growing. This plant flowers during the winter.

Pelargoniums of the show and regal types should be growing freely. Young plants should now be placed in their flowering pots, making the compost fairly firm, as this ensures good hard growth. The plants should be given a position in a cool, airy greenhouse. Pelargoniums are very subject to attacks by aphis, which should be prevented by frequent light fumigations. Where pelargoniums of the zonal type are grown for flowering during the winter, cuttings should now be rooted to provide the necessary stock. Plants used for this purpose during the winter, if cut back and started into growth, will make good plants for the conservatory towards the end of summer. The young plants intended for winter flowering should be potted on as they require it, and during the summer months stood outdoors in a sunny position, as it is important to have the wood well ripened.

J. COUTTS.
Royal Botanic Gardens, Kew.

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PLANTS WHICH CAN BE PESTS

IN dealing with a subject with which most gardeners are only too familiar, two reservations must first be made, viz., we have to recognise the fact that a plant which is an ungovernable nuisance in one garden may be quite a respectable member of society in another. Also, it is essential, in common fairness to the malefactors presently to be dealt with, to bear in mind that those attributes which render a plant so undesirable in, say, the rock garden, may be, and often are, the very one's to prove most estimable elsewhere.

To proceed, it is but natural that those pest-plants from which one has personally suffered most deeply should receive first mention, hence I do not hesitate to give the place of honour to Meconopsis cambrica, which, once it gets entrenched in rock garden, steps or between flags, will resist expulsion to the extremity of its last and deepest root. Even so, the Welsh poppy is a fine woodland or wild garden plant, and the bronzy-buff form (not the double) is still better, but less enterprising.

Convolvulus althæoides (of the lists) is a plant of much charm and elegance, but woe be unto the rock gardener who once gets it firmly established. Its white, threadlike roots will wander under boulder and path and appear 6ft. away in the form of a rosette of green leaves which look like those of a young ragwort and they are an hundredfold more dangerous. C. althæoides is a worse terror than Kenilworth ivy (Linaria Cymbalaria), worse than any of the other pretty creeping toadflaxes, worse than L. repens, a peril for which I have a profound respect. Crucianella stylosa belongs also to this particular band of burrowing usurpers.

Epilobium nummularifolium is a surface creeper of too venturesome a disposition for association with decent company, and E. glabellum is only a little less lively. Helxine Solierolii we can suffer gladly since a timely snub, administered by frost, is sufficient to curb its career without destroying it outright. Of Arenaria balearica, which some say can only be eradicated by a frequent application of the scrubbing brush, we have never yet had enough, but Cotula squalida has long ago ceased to be a plant one would present to a dear friend. Veronica filifolia is a cheerful thing that will take undue advantage of a soft heart. Herniaria glabra, so useful as most of these little things are for carpeting, cannot be given a free run in the rock garden, and there are places which are better without Lysimachia nummularia.

Oxalis corniculata rubra is a plant of much charm, but a very "serpent in the grass" to the unwary. Very lovely also is O. obliqua, both in flower and foliage, yet what a nuisance it can be broadcasting its legions of bulblets and maze of underground runners in the most holy ground and that in an incredibly short time. An eruption of lesser celandine was never fraught with such peril as a single plant of O. obliqua in the wrong place. Some of the ornithogalums and alliums are also subjects which lie in wait for the unwary.

The acænas may sometimes offend by travelling beyond bounds, but they are easily removed. Their most troublesome possession is their burrs which, if allowed to ripen, have an annoying affection for one's clothing. But, happily, some of the most delightful species—A. Buchanani, for example—does not offend in that respect. In a cool place or bog Cardamine prætensis, fl. pl., can be really aggressive, forming wide, dense mats by layering its lower leaves. Albeit, one can not wholly ostracise such a particularly lovely plant, and it is after all, no more given to redundancy after its own peculiar fashion than are many of the astilbes and meadow-sweets after theirs. Erigeron mucronatus is a dangerously lively seeder in some gardens, and during the last year or so Apera arundinacea has shown symptoms which suggest that this beautiful grass needs careful watching where one does not desire a crop of hay.

Epilobium angustifolium and its pushful nature is well enough known to everyone who has ever tried to get rid of it, and in some places E. hirsutum may be nearly as bad. The red valerian (Centranthus rubra), splendid old plant as it is in a safe place, can be a heartbreaking plague where it is not wanted, and the same must be said of not a few of the knotweeds. Indeed, the whole of the genus Polygonum needs to be treated with caution, save the climber, P. baldschuanicum, and that beautiful trailer, P. vaccinifolium. The common or garden montbretia (Tritonia) must also be herded among the undesirables, and the gardener will be well advised who never plants an alstrœmeria, save where it may remain anchored to the bowels of the earth until the end of time. Hypericum calycinum (St. John's Wort) can be a "holy terror" where its presence is not desired, and, as for the shrubby spiræas, Douglasii, tomentosa and salicifolia, these can be vengeful invaders in a congenial soil. The last mentioned has usurped acres of moorland in some parts of Wales. Vinca major is a plant that can become an intolerable pest in shrubberies, walls and hedgerows, and Symphoricarpus vulgaris will never be planted by the gardener of discretion where its wiry, far-reaching suckers are likely to give trouble.

A. T. JOHNSON.

BOOK REVIEW

THE ROMANCE OF PLANT HUNTING

MR. KINGDON WARD in his latest book, "The Romance of Plant Hunting" (Arnold, 12s. 6d. net), has again dipped into the storehouse of his experiences in Yunnan, Upper Burma, and South-east Tibet. This book is full of interest and of information, useful both to the botanist and the horticulturist, but he is too much inclined to let his feelings run away with him.

He begins with a savage attack on nurserymen, who, he says, make capital at the expense of the poor plant collector. This attack is unfair and beside the point, for the collector sends the seed home to the members of the syndicate who finance the expedition. If this syndicate care to give seed to nurserymen to grow on and sell for profit, that is the syndicate's look out. The collector has been paid for goods he has delivered and there his liability ends.

It might be as well to point out that collectors would aid growers in this country if in their notes they would give fuller details as to the situation of the plant, the soil it grown in, how much it is sheltered from the wind, and so on. It is not sufficient to say that a plant comes from a rocky scree at an altitude of 1,300ft. A great deal of labour and ingenuity is wasted by growers owing to the paucity of information obtainable about plants.

One would wish that Mr. Ward was rather less free with his metaphors and similes. Here is a sample: "A fortnight's sunshine in genial March, and out they come, blithe as a kitten. Then in May, spent winter, with a wicked leer, turns on them as did the Normans on tricked Harold, and rends them. Whereupon, in high dudgeon, they miff off." It is all very "high-falutin," but it would have been more forceful if it had been a trifle more simple.

His book is so good and so full of interesting and useful matter that one could have wished that it had been a little better. We may hope that in the volume which he writes on his present expedition he may free himself from those little mannerisms which detract from the great charm of his previous books.

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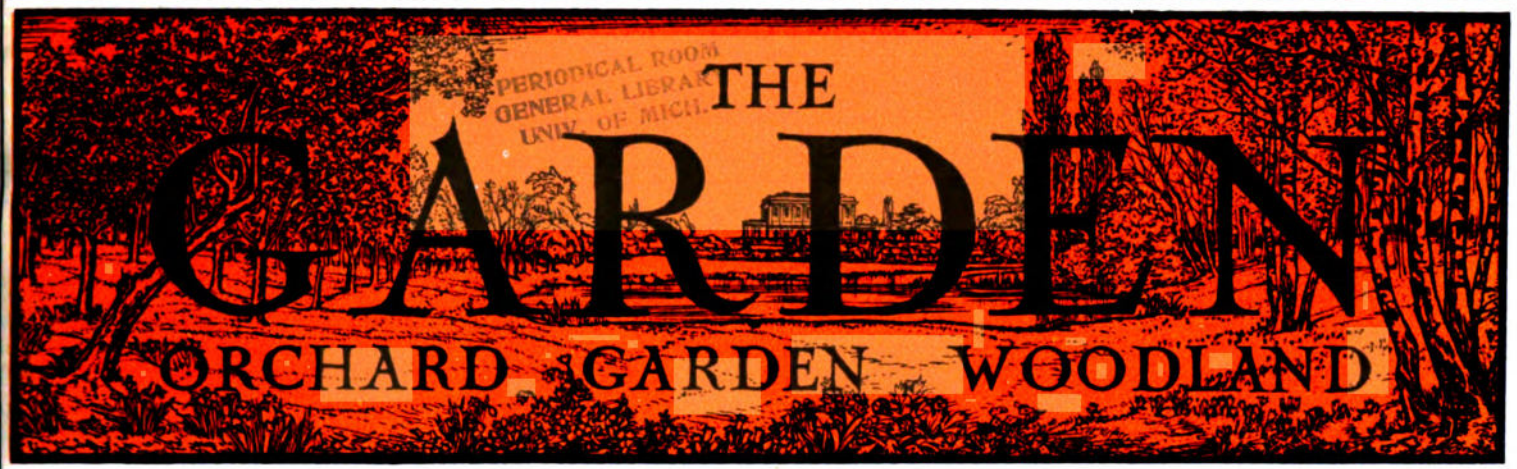

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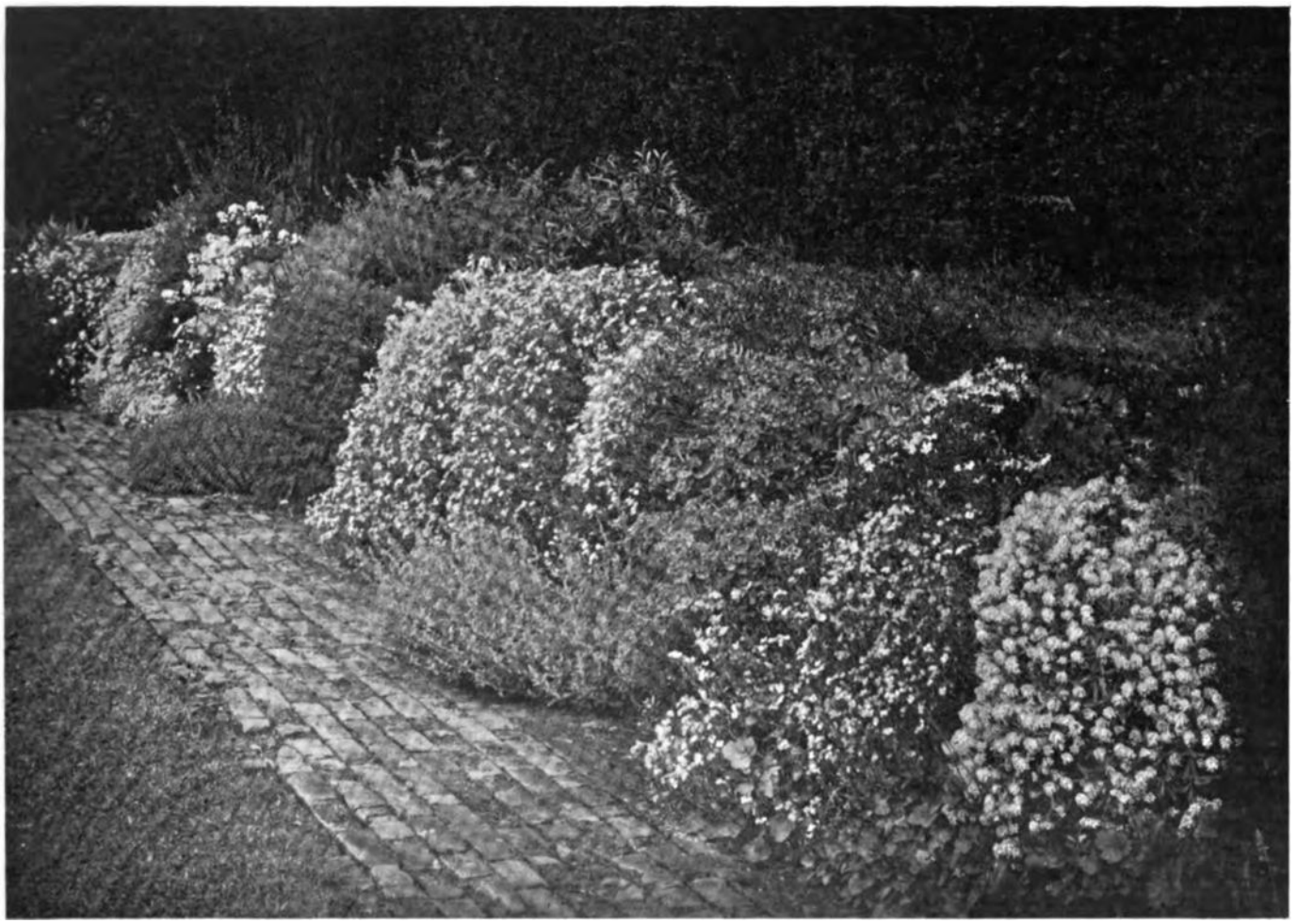

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WINTER DISAPPEARS

I HAPPENED to be visiting my garden in Scotland when winter disappeared. The biting east wind and hard sunshine with frosty nights were gone in a flash and in their place came down that famous addition to our normal climate, what is called a Scotch mist, or more locally a harr; everything was soaking in moisture and the climatic conditions for growth were made more perfect by an occasional drizzle. Could anything be better for plants in early springtime? There was nothing boisterous or vulgar about the change; the moisture came gently with no splashing or tearing of the surface of the ground by a heavy downpour. The temperature remained cold, rarely above 45°, but at least it was consistent.

The ground absorbed the moisture like a dry sponge, and I could feel the change that was taking place in the plants. They were drinking their fill with every sign of enjoyment and in two days they had combed their hair and were spruced up ready to take the plunge into life and vigour whenever the temperature should rise a few degrees.

This winter has been abnormal with its persistent cold, hard weather, and so two days of moisture were bound to make a change; but almost every year there is a definite break, when life quickens of a sudden and plants strain at the leash. To my mind these few days of change are among the most interesting of the year, for there is nothing so fascinating as the final movement before the buds burst.

Those plants which I found reacting quickest to the change were deciduous berberis, spiræas, philadelphus, deutzias and cratægus. The berberis shot into leaf so fast that I could almost see their leaves expanding. One of the finest to my mind, but, unfortunately, rare because it strikes badly from cuttings, is B. kansuensis. It was introduced by Farrer from north-west China in 1914, and my plant was given to me by him in 1919 before we left for Burma. It is now 4½ft. high, a perfect-shaped bush with straight, slender shoots and villainous thorns, often an inch in length. The leaves are oval, up to 2ins. long, while the flowers are clear primrose yellow bells. So far I have not seen the fruit. It is no exaggeration to say that the buds were tight on the Friday night, while on the Monday afternoon they had burst and ¾in. of leaf was visible.

This plant now grows at the rate of 12ins. to 18ins. a year with no signs of stopping. Farrer left no description that I can find and I am unable to tell its ultimate height, but to my mind it is easily the best of the deciduous berberis. Probably a number of plants are scattered throughout the country, but are, perhaps, unknown by name. Wherever it is found it should be treasured.

One of the most remarkable of winter plants is Viburnum fragrans, which has been rather left in the lurch by the supposed superiorities of V. Carlesii. I find that V. fragrans is an infinitely better grower with me than V. Carlesii. It is true that in its young stage it does not flower freely, but once it is over 4ft. it is in continuous bloom from the New Year to the end of March. Here again I have one of Farrer's original plants, now a giant 6ft. high and 4ft. through. It is obviously going to grow into a bush equal to those he found near Siku, 14ft. high and as much in diameter. Night after night it has stood ten or more degrees of frost without turning a hair or losing a flower. Suddenly, with the coming of the mist it burst into leaf, yellow at first, but later they will turn into that rich, velvety green which makes its foliage so striking. I, personally, will back this plant any day against V. Carlesii, of which it is a close relation.

A third example should be given of the change which two days of air saturated with moisture can accomplish. Spiræa sorbifolia is a curious-looking Chinese species, of rather exotic appearance. In this case the first leaves always come at the very tips of last years' shoots, where they look like miniature feather dusters. These suddenly appeared one night; the transition was instantaneous; there was no delicate tip of a shoot creeping out to test the weather; they burst.

The amount of damage during this winter varies in different parts of the country. From reports which we have received it seems likely that the west and south coast has suffered more severely than the north and east. In my garden practically nothing has been seriously damaged. Buddleia Colvilei is, perhaps, a doubtful starter, but it was only planted last autumn and has had no chance of becoming established. It is no doubt true that after plants have been cut for three or four years they will find their own level and willingly accommodate themselves to new climatic conditions. I have another Buddleia which is five years old. The first year it was cut to the ground, the second to within 6ins., the third to 2ft. and so on. This year it is 6ft. high and has only been touched at the very points of its shoots.

Bulbs are backward, but their growth is strong and healthy and they have obviously plenty of flower in store. But this winter has ripened all plants in a way which they have not been blessed with for many a year and there is little doubt that this is going to be a mighty gardening season, if only we could be certain that this is the real spring and not the imitation variety which drops back into winter in April. What is wanted is a warm and moderately wet spring and early summer with a pleasantly hot late summer and autumn. E. H. M. C.

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BORDER CARNATIONS

AT the present day I am afraid that the general cultivation of border carnations has suffered somewhat owing to the popularity of the beautiful perpetual-flowering section. The latter is largely grown for a supply of cut blooms: the border carnation, with its limited period of flowering, suffering by comparison with the more perpetual-flowering race. The border carnation will, however, always be popular with cultivators, who admire the finely formed flowers and wide range of delicate and refined colouring. Even at the present day many people do not attempt to grow them because they imagine they are not hardy and require the shelter of cold frames during the winter. This is a mistake, as the plants are perfectly hardy, except perhaps in very damp and low-lying situations where the soil is cold and heavy. In fact, my experience of them from the north of Scotland down to Devonshire is that much better results are obtained by planting them out during the autumn rather than wintering them in cold frames. Taking it for granted that one has a healthy stock of plants, I will deal briefly with their cultivation from the time of layering, which is the method of propagation. Plants should be ready for layering towards the end of July or beginning of August, or just about the time they finish flowering. In any case it is essential that layering should be done as soon as possible, so that well rooted plants are ready for planting out during September and October, thus allowing them to become well established before winter sets in. The operation of layering is quite simple, although some small details are important for success. If we take a healthy, well grown plant with plenty of "grass," the weaker shoots should be cut out, and the shoots retained for layering should have all the lower leaves stripped off. The soil should then be drawn away from the plant, leaving a depression into which should be placed some prepared soil—leaf-soil and sand being excellent for this purpose. This prepared soil should not be mounded up as most writers advise, but kept level with the surface of the bed. When mounded up, it is very apt to dry out, and birds often prove troublesome by scratching it away. If done as I suggest, no trouble will arise in that respect. When the shoots are layered the soil drawn away from the plants should be replaced on the top of the prepared compost. A thin-bladed, sharp knife is essential for successful layering. Having stripped off sufficient leaves, the stem should be split into a tongue, starting at the base of a joint and splitting the stem upwards to about half way between the two joints. The shoots should then be laid out horizontally on the prepared soil, with the same movement carefully raising the top of the shoot into an upright position, thus opening out the tongue. This should be carefully pressed into the soil and the shoot pegged down, and soil that was drawn away from the plant replaced, pressing it firmly round the layered shoot to keep it in position. The operation is then complete, and in about six weeks time the layered shoots should be well rooted. Some growers use a thin-bladed, double-edged knife for layering, inserting it midway between two joints, running it downwards and out below the lower joint; but the method used is immaterial so long as the work is cleanly and quickly done, and a little practice soon renders one quite expert. I may say here that a kneeling pad is essential for comfort and quickness of working.

The beds or borders should, if possible, be prepared some weeks before planting takes place. As carnations enjoy a good, sound, medium loam, light sandy soils should be improved by the addition of good loam and well rotted cow manure. On the other hand, soils that are over-heavy and cold may be improved by drainage and the addition of gritty material; here stable manure should be used. In low, wet situations it may be necessary to raise the beds a little above the surrounding level. The beds or borders should be thoroughly cultivated, and when finished a dusting of lime forked into the surface of the beds. I consider that lime is essential for the well-being of carnations.

A TYPICAL SELF-COLOURED CARNATION, BOOKHAM YELLOW.

Given well rooted layers, planting should start about the end of September and may continue into November, but the sooner it is done so much the better for the plants, as it gives them a good chance to become well established before the winter. Before planting, the beds should be made fairly firm. The young plants should be planted well down, and it may be necessary in some cases to remove some of the lower leaves, for if buried they may rot and set up decay. Once planted, no further care is necessary beyond firming plants that may have been lifted by frost. Hoeing occasionally is, of course, necessary. The plants should be neatly staked when the flower-stems are pushing up. Thin bamboo canes are very suitable; there are also now quite a number of good wire stakes on the market. Tying should be carefully done, so that the tie will rise with the growing shoot. It is wise to pot up some spare plants and winter them in cold frames, or I have found it a good plan to line them out in the reserve garden, placing some leaf-soil round the roots. Such plants make large masses of roots, and will transplant well during the spring. When necessary these plants may be used to replace losses that may have occurred in the beds.

CULTIVATION IN POTS.—If it is desired to grow these carnations in pots, the layers should be placed in sixty-sized pots during October, standing them in cold frames during the winter. They should be kept somewhat close for a week or so until they get a hold at the root. Afterwards they should be given plenty of air on all favourable occasions, removing the lights altogether during fine days. Early in March the plants should be placed in their flowering pots. One plant may be placed in a 6in. pot, two in an 8in. and three in a 9in. pot. The potting compost should consist of a good medium loam that has been stacked with some well rotted cow manure for six months. I do not favour the use of leaf-soil except in the case of very heavy loams, while old mortar rubble may be used with advantage in place of sand. The plants should be returned to the frames, removing the lights altogether when

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they have got well hold of the soil. They may be left outdoors until the buds show signs of colour, when they should be removed to a cool, airy greenhouse. If it is desired to have the plants in flower earlier, they may be placed in the house when they are put in their flowering pots, remembering always that they must have perfectly cool treatment during all stages of their cultivation. Most varieties require partial disbudding, but the extent to which this is carried out depends entirely on the purpose for which they are required, *e.g.*, whether for exhibition or for ordinary decorative work, or just for making a display in the garden.

Carnations are readily raised from seed, and even if they do not give any flowers of first-rate quality, there is much interest in watching them develop. They are also strong and robust in growth, and provide a wealth of varied and beautiful flowers for cutting. In the first place, seed should be procured from a reliable source and sown indoors in a temperature of about 55° during March or April. When the young seedlings are fit to handle they should be pricked off 3ins. apart in seed boxes. They should be grown in cold frames until they are ready for planting out. This will vary according to the time they were sown and the progress made. Towards the end of June or beginning of July they should be strong plants ready to pot out in the positions prepared for them, where they will require little attention beyong hoeing and weeding, and possibly watering during spells of dry weather.

Carnations, in common with most plants, suffer from various insect pests and fungoid diseases. Red spider is seldom troublesome outdoors, but often attacks them under glass. However, the use of the syringe should prevent this.

Thrips prove troublesome both indoors and out, and should be prevented by spraying with a nicotine insecticide. Aphis can be dealt with in the same way, or indoors by fumigation. Carnation maggot (the larva of Hylemyia nigrescens) often causes much damage, usually among seedling plants and varieties with strong, soft-growing shoots. The only remedy is to examine the plants carefully and pick out the maggots with a needle.

THE BRILLIANT COLOURED KELSO.

CARNATION STEERFORTH, MAROON AND WHITE.

Eelworm is a common pest, and causes what is generally known as gouty stem. The infested stem just above the ground line becomes swollen and puffy, while the foliage shows pale yellowish patches. Infested plants should be carefully pulled up and burned. Wireworms often prove troublesome, and when preparing the soil a sharp look-out should be kept for them. They may also be trapped by inserting carrots in the ground, examining them regularly and destroying the wireworms.

Mildew can be prevented or cured by spraying with liver of sulphur, using 1 oz. to 3 gallons of water. Rust usually only proves troublesome indoors during the winter months, and the only preventive is to maintain a dry, buoyant atmosphere and no moisture on the foliage. Spraying only provides the best conditions for the spread of this disease. For black spot, spray with liver of sulphur as advised for mildew. All the pests and diseases are fully dealt with in various hand-books, but most of them can be more or less prevented by clean, careful cultivation, and I believe much trouble is caused by the indiscriminate use of artificial manures. If used at all, they should be applied with great care.

For outdoor work good strong-growing varieties should be used. It generally proves misleading to give lists of so-called best varieties, as one is never sure what any particular variety will do in any or all localities. However, the following short list includes some of the best in their various colours: Belladonna, coral red; Bookham Rose, Annie Laurie and Rosetta, rose; Prairie Belle, Elaine and White Fox, white; The Grey Douglas (heliotrope), the best in this colour and a strong grower; Fujiyama, red; The King, Gordon Douglas and Hercules, crimson; Border Yellow, yellow; Effie Deans, apricot; and Melanie, orange.

FANCIES.—Linkman, Pasquin, Steerforth, Cordelia, Sweet Anne Page and Kelso. In addition there is the set of clove-scented varieties raised by Mr. James Douglas of Edenside, Bookham, being varieties with the old crimson clove colour but much stronger-growing plants. There is now quite a range of colours in this sweetly scented class, including white, various shades of pink, scarlet, purple, and maroon. J. COUTTS.

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VIBURNUMS—THE ASIATIC SPECIES

(*Continued from page* 205.)

AS garden plants the Asiatic viburnums are, generally speaking, more valuable for ornamental planting than the eastern North American species. This is due largely to climatic conditions, as we know from the descriptions of writers and visitors to the States, how useful the native species are for ornamental planting in New England. In flower, and particularly in fruit, the American viburnums are attractive shrubs and small trees.

It is now twenty-three or twenty-four years since Mr. Wilson sent home the first of his viburnum seeds. Collecting on behalf of Messrs. J. Veitch in 1900 and 1901, VV. Henryi, rhytidophyllum and utile of the evergreens and VV. betulifolium, lobophyllum and Veitchii of the deciduous species were among the first arrivals. With some twenty years' experience of their behaviour in the varying conditions of the British climate and soil it is possible to form some estimate of their value as garden plants.

The deciduous species on the whole fruit better than those from North America, VV. betulifolium, dasyanthum and lobophyllum in particular are usually heavily laden with rich red fruits each autumn. As one might expect, the evergreen species are happiest in the more genial climate of the south and west. Afforded some shelter, however, and as wall shrubs VV. Henryi, rhytidophyllum and others promise to be conspicuous permanent additions to cultivated evergreens.

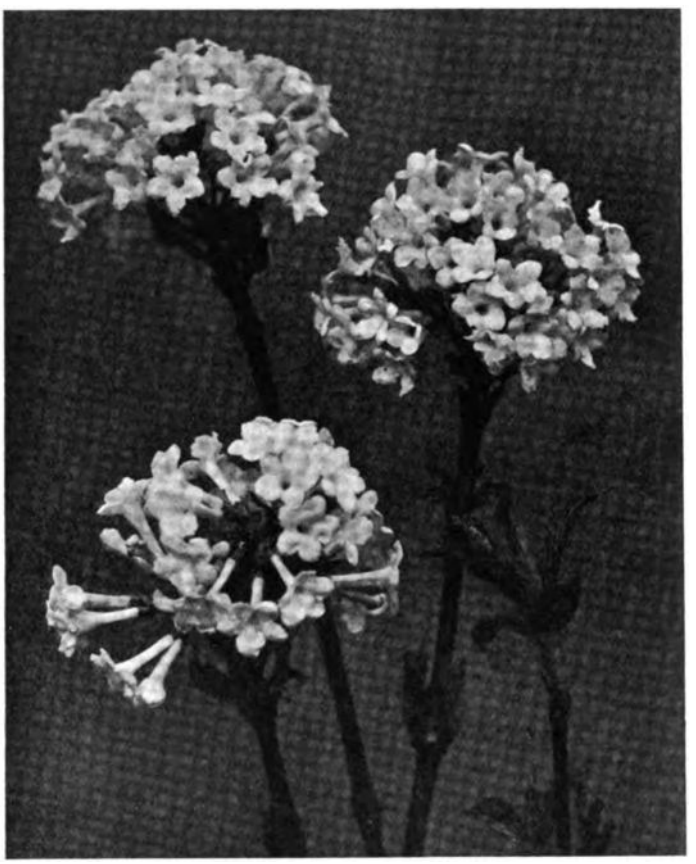
It is among the Asiatic species that we have the most valuable flowering bush in the family, V. tomentosum var. plicatum. It is the sterile form of the species, the flowers forming a globose inflorescence, hence the popular name of the Japanese Snowball Tree. With its rounded heads of waxy blossoms, pale pink at first, changing to white, V. Carlesii from Korea, with its delicious fragrance, is the gem of the genus. V. fragrans one of the best known of the late Mr. Reginald Farrer's introductions adds a valuable winter and early spring flowering shrub to our gardens.

Among the species on the borderland of hardiness at Kew and which we find necessary to plant against sheltered walls or cultivate in pots, are several useful shrubs. A well grown plant of V. macrocephalum, with its large heads of sterile flowers, the largest of the genus, is a beautiful sight in May. Others worthy of note are VV. japonicum and odoratissimum, which is the V. Awabuki of the Botanical Magazine tab. 456. The small-leaved V. Harryanum which Mr. Wilson introduced in 1904 is a very distinct shrub and not at all like any other species of viburnum. It is of bushy habit but only suitable for a very snug corner. Another distinct addition is V. Davidii, a low-growing attractive evergreen shrub 1½ft. to 2ft. high, with leathery leaves up to 6ins. long and half as wide. Introduced by Mr. Wilson in 1904 it thrives in partial shade and has showy blue fruits.

V. betulifolium is one of the most attractive in fruit of the numerous deciduous species from Central and Western China. First introduced by Mr. Wilson in 1901, we have bushes raised from seeds collected by him in Western Hupeh during 1907 and from Western Szechuan in 1908 and 1910. The number of districts where seeds were collected suggests that it is a common bush in the thickets and open woodland. It forms an attractive bush 8ft. to 10ft. high, with ovate leaves coarsely toothed towards the apex. The corymbs of white flowers up to 4ins. across are of no special merit, but give place to an abundance of fruits. In autumn V. betulifolium attracts very considerable attention when the branches are laden with clusters of brilliant scarlet fruits.

For some years following its first introduction to British gardens in 1902 two plants were in cultivation as V. Carlesii. It can be readily understood how quickly the dainty wax-like blossoms and delicious fragrance attracted attention and large orders were sent to Japan for plants. There, unfortunately, the plant we now know as V. bitchiuense, a native of the mountains in the province of Bitchiu, in Western Japan, and the Korean plant, true V. Carlesii, were identified by the Japanese botanist, Makino, as the same species. Being more readily propagated, the Japanese plant predominated among the earlier consignments of plants, resulting in much disappointment among purchasers. For a time it became known in our gardens as the inferior V. Carlesii. The habit of V. bitchiuense is much more robust and open. In the west there are plants 12ft. high. The corymb of flowers is smaller and loose, they are white tinted with pink and less fragrant than the true V. Carlesii.

Among the whole family of viburnums none equal in charm and fragrance the true V. Carlesii. It is a plant for the



VIBURNUM FRAGRANS, WHICH FLOWERS, FROST OR NO FROST, FROM THE NEW YEAR TO MARCH.

garden of choice shrubs where the bushes will receive the little extra attention required for their successful cultivation. Being a native of Korea we, naturally, expect the plants to benefit from a little shelter in spring. It is a deciduous shrub of close rounded habit, 3ft. or more in height and more in diameter. The wax-like flowers are at first tinted with pink then white and are powerfully fragrant. For this species we find a little peat or leaf-mould mixed with a well drained loamy soil beneficial.

From the Himalayas we have V. cotinifolium, a robust bush up to 10ft. or more in height, resembling in growth and leaf V. Lantana. The corymbs of white flowers are attractive in May; later, the red fruits are ornamental and change to black when ripe.

V. coriaceum (syn. V. cylindricum) is a distinct evergreen shrub or tree with a very wide geographical range, being found in China, the Himalayas and Java. It is variously described as a shrub 10ft. to 15ft. high, to a tree 40ft. to 50ft. in height. With a plant of such varying distribution and habit it is not surprising to find plants of varying degrees of hardiness. I have seen specimens of Chinese origin making splendid progress in Cornish and Sussex gardens. The attractive glossy leaves have the peculiar character of assuming a whitish hue when rubbed, due to a curious waxy surface. The flowering season is late summer, the cream white blossoms with purple anthers are freely borne on a flattish inflorescence 3ins. to 5ins. across. The fruits are black.

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V. dasyanthum is a free-growing deciduous shrub introduced by Mr. Wilson in 1907. The dark green leaves are up to 5ins. long and half as wide on gracefully arching branches, the bushes 8ft. or 9ft. high. The corymbs of small white flowers in early summer are of no particular merit. It is in autumn when the branches are gay with red fruits that this viburnum is a valuable asset in the shrubbery, border and pleasure grounds.

V. dilatatum a native of Japan, China and Korea, is an attractive species, forming a large shapely shrub 8ft. or more in height, gay with flat clusters of white flowers in late May and June.

V. fragrans is to be found in the Kew Herbarium as a specimen named by Bunge, with the date 1835. Most of the plants cultivated in our gardens were raised from seed, or are the progeny of the seeds collected by the late Mr. Reginald Farrer in 1914. It had, however, been first introduced several years previously by the late Mr. William Purdom from Messrs. Veitch. One o. these, Purdom 689 or 690, the largest bush I have seen, is growing in Mr. Gerald Loder's garden at Wakehurst Place, Sussex. It was obtained from Coombe Wood by Mr. Loder and is a splendid specimen bush 8ft. or 9ft. in height and as much in diameter.

A MOST USEFUL AND CHOICE EVERGREEN SHRUB, V. TOMENTOSUM VAR. MARIESII.

Smiles were on the faces of some of us when reading the adjectival descriptions of the plant in the notes sent home with the seeds by Mr. Farrer. Here are extracts: "a most glorious shrub attaining 8ft. in height . . . profuse trusses of pearl-pink flowers in spring like lilac deliciously smelling of heliotrope . . . rare as a wild plant but generally cultivated in Kansu for its loveliness and fragrance."

Though one would hesitate to place V. fragrans on a par with V. Carlesii at its best as a choice shrub, the Kansu plant is easy to grow, while some special care and attention should be lavished on the Korean species to obtain good results. V. fragrans is as easy to root from cuttings as fuchsias from about midsummer onwards. In the gardens of the south and west with their mild climate the bushes flower more or less throughout the winter, some blooms even attempting to open before the last leaves fall from the branches. Fortunately, unless frosts are severe they appear to do little harm to the flowers, though the young leaves unfolding in spring are readily damaged. Mr. Farrer described the fruits as glossy scarlet and well flavoured.

V. Henryi was collected by Mr. Wilson during three of his journeys, 1901, 1907 and 1910. It is an evergreen shrub of erect habit, and quite a hardy plant in sheltered positions, its greatest enemy being wind. The flowers are showy in June though the value of the shrubs is greatest in autumn when laden with panicles of red fruits.

V. lobophyllum is another of the free-fruiting deciduous species introduced by Mr. Wilson, which thrive at Kew. It is an attractive bush 8ft. to 10ft. high with corymbs of white flowers 3ins. to 4ins. across, followed by red fruits.

V. rhytidophyllum was one of the first plants to attract attention during the earlier years of Mr. Wilson's journeys in China. From seeds received in 1900 Messrs. James Veitch frequently exhibited attractive evergreen plants in tubs of this species. A specimen in fruit was awarded a first class certificate by the Royal Horticultural Society in September, 1907. Wind again is worse than frost with this viburnum, as, blowing through the plants, it causes the leaves to hang down in winter giving a most unhappy look to the plants. Hence it is desirable to plant this striking shrub, which Mr. Wilson describes as the hardiest evergreen Chinese viburnum in the Arnold Arboretum, in sheltered positions. The best plant at Kew is on a south wall. The average height is said to be 8ft. to 10ft., but against a wall it grows much higher.

V. Sargenti is the Asiatic representative of the Opulus section, but does not thrive so well with us as the European species. V. Sieboldii is a Japanese species forming a sturdy, deciduous bush with us 7ft. or 8ft. high, but in Japan sometimes attaining a height of 30ft.

The most useful of all the Asiatic viburnums for our borders and pleasure grounds are the several forms or varieties of V. tomentosum. They are natives of western China and Japan. A deciduous shrub of bushy habit, the unripened ends of the young twigs are sometimes damaged by frost, especially in the variety Mariesii, but the plants quickly recover in spring. The forms with fertile and sterile flowers are surpassed in floral beauty by var. plicatum, of which there are two forms with wholly sterile flowers, grandiflorum, the larger flowered, as

PLESH, ONE OF THE MOST POPULAR OF THE FAMILY, ALTHOUGH NOT SUCH A SATISFACTORY GROWER AS V. FRAGRANS.

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the name suggests, and rotundifolium, a smaller and slightly earlier-flowering bush.

V. utile, an evergreen species of upright slender habit thrives best in sheltered positions. The inflorescences of closely packed blossoms are showy during May. Another deciduous species first introduced by Mr. Wilson in 1901 is V. Veitchi. It is a vigorous shrub 8ft. to 10ft. high with handsome foliage resembling V. Lantana, white flowers and red fruits, changing to black when ripe.

Numerous other species might be mentioned, but sufficient has been written to indicate the wealth of interesting and useful shrubs in the genus viburnum. A. OSBORN.

RARE PLANTS

BY W. J. BEAN.

A NEW WILLOW: SALIX MATSUDANA.

THIS willow, although extensively grown in north China, Korea and other north Asiatic regions, has only lately been introduced to this country. It has been confused with Salix babylonica by the French botanist Franchet and others, but is quite distinct. Sargent saw it in the Amur region and described it as a large and handsome tree. It appears first to have been taken from Korea to the Arnold Arboretum by Mr. J. G. Jack in 1905, and in later years it was sent there from north China by the late W. Purdom. According to Wilson, it is very generally cultivated in north China, and he says that it is planted everywhere between Tientsin and Peking. Two specimens, both female, are growing well at Kew and promise to make graceful trees. Although closely allied in a botanical sense to the well known Salix babylonica, it has nothing of the excessively "weeping" habit of that tree; it is, in fact, for a willow, comparatively erect in growth. The young shoots are at first yellowish, changing later to brownish grey. The narrow, slender-pointed leaves are two inches to four inches long, one-third to three-fifths of an inch wide, bright green above, glaucous beneath and quite smooth.

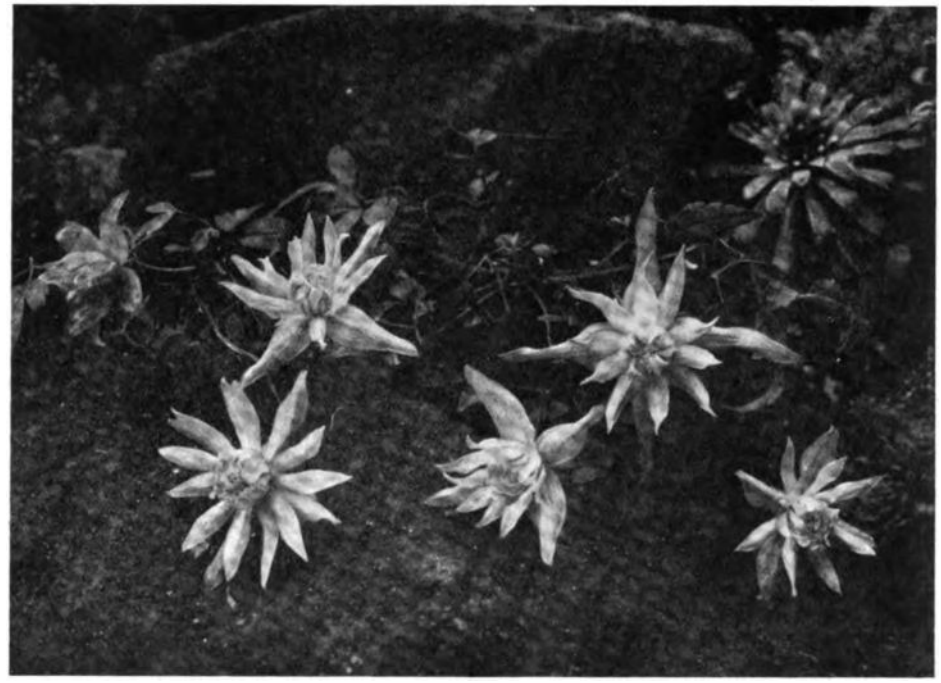
While there is an extraordinary number and variety of willows in existence, the vast majority of them are shrubs and comparatively few are sufficiently attractive to deserve cultivation in gardens. Of genuine trees the number available for cultivation is not great—not so great, at any rate, that room may not be found for this handsome species. It may also prove useful in places where the usual moisture-loving type of willow will not succeed, for, according to the "Plantæ Wilsonæ," it grows excellently on the dry lands in northern China and needs no water supply beyond a scanty summer rainfall.

TILIA INTONSA.

Wilson discovered this interesting lime tree in western Szechuan in the summer of 1903 and sent home seeds to the Coombe Wood Nursery the same autumn. Messrs. Veitch offered it in their catalogue of "New Hardy Plants from Western China" in 1913 under the name of Tilia tonsura, but the name given above was adopted by Mr. Wilson in the "Plantæ Wilsonæ," where it was first authoritatively described. It is a very good name, meaning unshorn, for this lime, which is well distinguished from all other Chinese species of Tilia by its hairy young shoots. I do not think very many trees were raised, but the tree may exist in some gardens under Messrs. Veitch's name or under Wilson's seed number 1569. It does not appear to be a very large tree even in its native forests, and Wilson gives its maximum height as about 65ft. For some purposes, such as for planting in streets, this would prove an advantage. The leaves are of the typical lime tree character, being heart-shaped with the basal lobes more or less oblique and unequal; they are 2ins. to 4½ins. long, scarcely as wide, dark green above, conspicuously ribbed beneath, and have abundant hairs on the ribs and veins. The fruit is egg-shaped, ⅓in. long, distinctly five-angled, and covered with a close white felt. The most distinctive character of the tree, however, is the hairiness of the shoots. It is growing well and makes a handsome small tree at Kew. As Wilson found it at altitudes of 10,000ft. and upwards, it ought to be perfectly hardy, and this it, indeed, appears to be.

WISTARIA VENUSTA.

This wistaria was first introduced to England in May, 1912, when it was shown in flower in the Japanese section of the International Exhibition at Chelsea. It there bore the name of "W. brachybotrys," which is really a synonym of W. floribunda, the wild type of the wistaria we know so well as multijuga. In 1916 Messrs. Rehder and Wilson, in their account of the Asiatic wistarias ("Plantæ Wilsonæ," Vol. II, page 514) described it as a new species and gave it the above name. These authors believe it to be a native of north-east China, southern Manchuria and possibly Korea, and that it is only cultivated in Japan, where it is to be seen occasionally in temple grounds. Like the other wistarias, it is a deciduous climber and grows 30ft. high, its leaves 8ins. to 14ins. long, composed usually of eleven leaflets, but sometimes nine or thirteen. It is related to the common W. sinensis of our gardens, but is well distinguished by the persistent down on the leaves, the short broad racemes, the larger more outstanding flowers, and by the awl-shaped lower lobes of the calyx. The flowers are like those of the other species in shape, 1in. to 1¼ins. long, the standard petal 1in. wide; they are produced in pendulous racemes 4ins. to 6ins. long. On the cultivated plants we have seen, the blossoms are white and often more or less "double," but Messrs. Rehder and Wilson are of opinion that the wild type will prove to have coloured, probably violet-coloured, ones. Any addition to such a glorious group of flowering climbers as the wistarias is sure to be welcomed and, although this is



CLEMATIS MACROPETALA, DISTINGUISHED BY ITS PETALOID SEGMENTS OR SILKY STAMENS.

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rare in this country at present, we may hope in time to see it frequently in gardens. Like W. sinensis and W. multijuga, it can be kept to a shrubby state by shortening the long shoots once or twice in summer and pruning them to within a few inches of the base in winter. The plants originally shown at the great Chelsea Show had been treated in this way. It blossoms in June.

CLEMATIS MACROPETALA.

There is a section of clematis which in earlier days was considered distinct enough to rank as a separate genus and was known as atragene. In the common type of clematis the showy part of the flower consists of the sepals; petals are absent. But in these atragenes the flower has, between the calyx and stamens, one or more rows of petal-like organs much smaller than the sepals, which may be regarded either as petals or abortive stamens, such as are found in ordinary "double" flowers. Until comparatively recently this atragene group was only known in gardens by two species: C. alpina, an Old World plant not uncommon in cultivation, and C. verticillaris, native of the eastern United States, very rarely seen. Under his number 315, Mr. Reginald Farrer introduced a third species from Kansu which has flowered in several gardens in recent years and has on more than one occasion been shown at Vincent Square. This is C. macropetala, and although it is so new to cultivation, it has been known to botanists for nearly one hundred years. Like C. alpina, it seems to have a wide distribution in nature, and Ledebour, the Russian botanist, described and named it as long ago as 1829 from a plant collected in Siberia.

C. macropetala is a deciduous climber with slender ribbed stems, downy when young, especially near the swollen joints. The leaves are mostly doubly ternate—that is, they are composed of three main divisions, each division having three leaflets, or nine in all. The whole leaf is 3ins. to 6ins. long, the individual leaflet ½in. to 1½ins. long, ovate to lance-shaped, pointed, coarsely and irregularly toothed and nearly or quite smooth. The flowers are solitary, 2ins. to 3ins. wide, borne on a slender stalk about 3ins. long. The sepals, up to twelve in number, are spreading and of a pretty pale lilac colour, each over 1in. long, ½in. to ¾in. wide, usually pointed but sometimes notched at the end. The petal-like segments, also numerous, are more erect, white or nearly so and half to three-fourths as long as the sepals. The centre of the flower is filled with a cluster of silky stamens with yellow anthers. This charming plant has flowered at Kew, with Mr. Vicary Gibbs at Aldenham and with Mr. Woodward at Arley Castle, near Bewdley.

BASKET PLANTS FOR GREENHOUSE AND CONSERVATORY

WHERE continuous changes of pot-grown plants are the rule, as in the case of the conservatory or greenhouse roof climbers have to be used with great restraint, otherwise the plants on the staging suffer from lack of light.

This means that a large area of roof must remain unclad and flowerless, unless baskets are largely employed. From the point of view of the plants beneath them, baskets are innocuous; they obstruct but a moderate quantity of light, while the shadow that they cast is not a permanent one but constantly moving as the sun changes its position, so that it never remains upon any one plant long enough to cause injury. By hanging our baskets over the path, this question of shade is still further reduced and, by watering early in the morning, before visitors are about, all unpleasant drip, etc., is eliminated.

All this is, of course, the practical side of the matter, but let us now turn our attention for a moment to the decorative side of the subject. No one, surely, would argue that (on the score of beauty), a house does not gain enormously by the addition of a series of baskets, pendent from the rafters, spilling a gorgeous shower of beautiful flowers and foliage, and serving to raise the eye from one level of beauty to yet another, instead of to mere white paint and shining glass. That is a question upon which it is scarcely possible for two opinions to exist and, having decided that baskets we must have, let us examine a little more closely into the best baskets, the best plants for these and the method of managing them.

First comes the question of the baskets, and we may say at once that the main matter is size. This must, within limits, be suited to the size of the house in which they are to be hung, but in every case let them be as large as possible. Here are some of the reasons for this recommendation. A large basket provides a greater supply of food and therefore enables a more vigorous growth to be made. It has a better appearance, gives a larger mass of flowers and foliage, and, finally, owing to the larger body of earth that it contains, does not dry so rapidly and therefore ensures better plants and at the same time reduces labour.

Following this, naturally, is the question of the most suitable soil. This, of course, varies to some extent with the kind of plant. For example, one cannot grow a rat's tail cactus in the same soil that one would use for a davallia. However, for the general run of plants, I strongly commend the use of an absorbent soil that retains moisture for as long a period as possible. Experience has proved that a compost of two parts of fibrous loam to one part of peat, with a dash of bonfire refuse (especially if this contains some lumps of charcoal), cannot be improved upon and will grow a wide range of plants perfectly. Do not break the peat up too finely, but let it be in medium-sized lumps, upon which the roots will seize greedily, and let the whole be thoroughly mixed together.

The lining of the baskets with moss is an important point and I cannot too strongly urge the necessity for this lining being sufficiently thick. Place a good layer over the bottom, then line round the sides to a height of about 6ins., and fill to that depth with soil. Make this quite firm and be sure that enough moss has been used to make a satisfactory job, remembering that watering is the test which will show if your moss lining is thick enough to prevent the soil from washing through the wire framework. Proceed thus until the basket is filled to the top, and everything is then ready for the reception of the plants. In the case of plants that demand a good deal of moisture, it is a good plan to finish off the surface somewhat saucer-shaped as this leads the water to the centre and makes its application an easier matter.

Having prepared the baskets, the next point that should be considered is their suspension. In the case of small baskets, a mere hook is sufficient, but, where the baskets are large ones, other measures must be taken or the weight will be found too great to deal with single-handed. A large basket should always be hung from one of the main rafters that is stout enough to support its weight. A thin sash bar is totally unsuitable, and to hang a heavy basket upon one of these is courting disaster.

Raising and lowering such baskets, for purposes of watering and cultivation, is not difficult to arrange and the most satisfactory mode is by means of a couple of stout wires. These should be firmly attached to the chains on the basket and then passed through a stout eye screwed into the roof. From this, the wires should be passed through a series of further eyes until the other end of the wire is brought down to some convenient and easily reached point at the back of the staging, where a turn or two can be taken round a buckle, which will make everything absolutely secure. Sufficient extra length of wire should be left to allow for lowering and care should be taken, for the safety of those who have to pass beneath them, to see that an absolutely secure method of fastening is adopted, which prevents any possibility of slipping. The most satisfactory, as well as the most expeditious mode of watering is to place a large pail or bath upon the floor of the house, fill this with water and then lower the whole basket bodily into it, until the water is just level with the surface of the soil. Allow it to remain here until the whole ball of earth is completely saturated, raise a foot or two and allow to drain, then pull up to the roof again.

One great advantage about this method of suspension is that it enables trailing plants to be kept well clear of one's

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head as one walks through the house. At first, the baskets may be left low down, then, as growth elongates, they may be raised a little, and so on, according to their progress.

Turning from these details to suitable material, we are faced by such a vast array of delightful plants that selection becomes a by no means easy task. Happily, we are just at the best possible season for making up such baskets as we have in mind, and practically anything can be started with the assurance of complete success. Annuals, perennials, bulbous-rooted plants, ferns, orchids, cacti—one and all of these provide material upon which we may draw and which will provide a feast of beauty, either for many weeks to come (if the choice falls upon a " temporary " flower), or for years, if something more permanent is chosen.

Of summer annuals it is difficult to beat the petunia for sheer gorgeous colour display, although it should be pointed out that it is unsuited for a small basket. More adaptable, in that it is only a question of the number of plants required, the trailing lobelias give us showers of blue (or white, if preferred), that are simply miracles of flowerfulness and continue for weeks. Though more commonly employed as dwarf climbers, the thunbergias are splendid for both large and small baskets and, where unable to climb, are content to droop very gracefully and flower splendidly. Another very striking annual of which splendid baskets can be composed is Mesembryanthemum tricolor, with its vivid display of brilliant pink flowers. All that is necessary with this is to dibble in small seedlings all over the surface (including the sides), and to hang the basket in the sunniest spot available. Only very moderate supplies of water are required and the plants will flower for weeks.

Among more permanent plants, ivy-leaved pelargoniums take a high place and, provided the most floriferous kinds are chosen and they are not over-watered, they seldom fail to render an excellent account of themselves. In cases where these do fail, it is always due to one cause, too heavy shading of the roof glass. Running these very close in popularity comes Campanula isophylla, in both white and blue, one of the grandest basket plants for late summer flowering. Almost hardy, Nepeta Glechoma variegata is ideal for a house that is only heated to exclude frost and will provide elegant baskets of foliage that are decorative for a very long period.

A DECORATIVE BASKET OF AN IVY-LEAVED PELARGONIUM.

Akin to this in hardiness is the old-fashioned Saxifraga sarmentosa or " mother of thousands," a plant that is not very much appreciated at the present day. Given rich soil and plenty of water, the beautifully variegated leaves of this plant attain an immense size ; while the trailing stems bearing the " baby " plants reach a great length. We have not finished with the plant yet, however, for it is in spring or early summer when the tall arching flower spikes expand their blooms that the plant attains the summit of its glory and a good basket, with half a dozen or so of these superb stems in full perfection, forms a sight that is not readily forgotten. If your house is a warm one, you may grow its sister plant—Saxifraga sarmentosa tricolor—before which it must be admitted our humbler plant pales into significance. In this case the foliage is astonishingly brilliant, each leaf of vivid green zoned with white and margined with rich crimson red.

Turning from old to new, do not pass by Coleus rehneltianus. This again combines flower and foliage and is easy to raise from seed sown in early spring, or even now when the baskets are needed as a succession to an earlier flowering plant. The growth is close and creeping, the colour of the leafage a rich reddish-brown, with spikes of blue flowers.

In a really cool house that can be well shaded when the sun is bright and where the atmosphere is always moist, the graceful fuchsia is beyond all praise. Everyone who is familiar with these plants will be aware that they differ tremendously in their habit, and it is those that have long pendent branches that droop naturally which form the most suitable material for basket culture. Such baskets are very quickly formed by inserting recently rooted cuttings and allowing these to grow straight ahead, without any stopping. A really rich soil should be provided, for no plant demands a richer rooting medium than the fuchsia if the maximum luxuriance and vigour are to be obtained.

Begonias of the Lloydi, Bilkey and Starfish types, are simply ideal and never are their brilliant flowers displayed to greater advantage than when viewed from beneath. It is not yet too late to plant started tubers and these, with reasonable care, will literally bloom for months.

A curious plant, this time a fern, that never fails to attract, is the Stag's Horn, Platycerium alcicorne. This hardly needs a basket in the ordinary sense of the word, in that it is sufficient to form a ball of peat and bind this together with some copper wire. The young plants are then planted into this and, in the course of a couple of seasons, will cover the ball with a wrapping of their curious flat sterile fronds. From the growing point in the centre of these, the " horns " arise annually. These horns are broad, flat, deep green ribbon-like structures, which fork at the ends like the antlers of a stag, hence the name.

In the temperature of a warm house, one has a splendid range of most interesting plants in the davallias, another genus of ferns. These luxuriate on balls of peat, in the manner described above, and rapidly cover the surface with their queer creeping rhizomes, from which the names of Hare's Foot, Squirrel's Foot, etc., have been derived. From these rhizomes spring most elegant finely divided fronds, that are notable for their long enduring qualities. One little hint may be useful in connection with these, and that is, do not over-water. This does not mean that the plants should be allowed to become dry, but they should be allowed to approach this condition before further supplies are given. Among other ferns, the nephrolepis are conspicuously successful and beautiful and their graceful habit and arching fronds are never displayed to better advantage than when grown in this way.

Adiantums, too, are remarkably striking and very easy to grow ; the fragile fronds standing exposure to the light well, if they have not been too heavily shaded earlier in their lives. A point that should not be overlooked in the case of all these more tender-leaved plants, is to suspend them where they will not be too near to the open ventilators, for draught is an enemy which will do a great deal of irreparable injury in a short time.

One might go on mentioning plant after plant, almost indefinitely, but let one more suffice. Though it is at the bottom of our list, that is by no means the position it occupies in popular esteem ; I allude to Asparagus Sprengeri. This is one of those always useful evergreens, that is ever with us throughout the year. It needs a really large basket and plenty of water and will then throw its trails to a length of several feet, forming a splendid picture.

H. W. CANNING-WRIGHT.

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SOME EASY-GROWING ROCK PLANTS from SEED

BELOW is a selection of rock plants, all of which are good and of easy culture and can be grown very satisfactorily from seed with little trouble, and, as a great many people are particularly interested in raising their own plants to furnish gaps that crop up in the rock garden, the small selection that follows might be helpful. A compost that would be efficient (for the majority of easy-growing plants) for seed sowing would be, say, loam, leaf-mould and sand in equal parts. This should be well mixed and put into well drained pans or boxes and then thoroughly watered before the actual seed sowing takes place. By the way, if it is convenient to sterilise the compost before use, it is certainly advisable, as it will kill any vermin in the soil and destroy weed seeds that may be present, and so do away with the delicate job of weeding tiny seedlings. After sowing, the pans should be placed under glass and kept in darkness until germination takes place. In all cases sow thinly, covering the seed with about its own depth of soil generally. Frosts are extremely helpful to the germination of seeds, so that the beginning of the year is really a good time to sow.

LINARIA ALPINA.—This is a dainty little toad-flax which grows freely and blooms continuously throughout the summer, enjoying almost any sunny position in a well drained gritty mixture. It bears flowers of rich violet with a conspicuous throat of deep orange on 3in. spikes. The foliage is grey and fleshy. There is also the pale pink variety rosea, which is quite as charming; in fact, the two plants grown together are most attractive. It comes very readily from seed, and also produces seed in abundance.

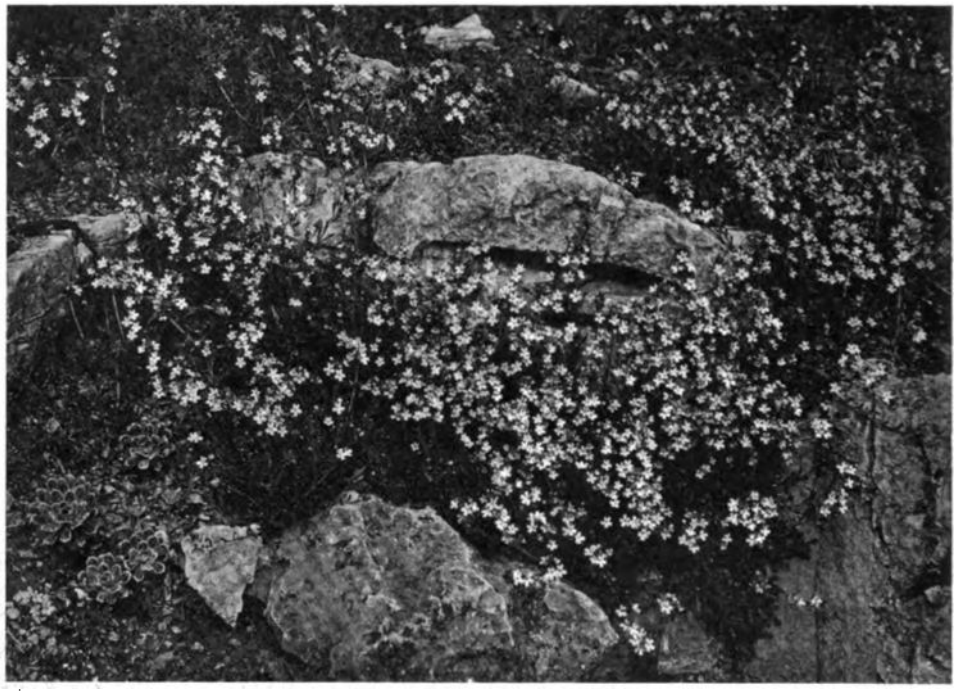
CYNOGLOSSUM AMABILE is at the most only biennial, often annual, but nevertheless it is an excellent plant, hailing from China. The leaves are long and narrow and of a greyish colour. The flowers are borne on stately branched stems from 1ft. to 2ft. high, and may be likened to large forget-me-nots of a dazzling azure blue. It also makes an excellent plant for the front of a border. There is a white variety, alba, which, of course, does not compare with the splendour of the blue; still, odd plants dotted about in a mass of blue do not look amiss. Any ordinary good soil is suitable combined with a sunny aspect and good drainage.

PAPAVER ALPINUM will do perfectly well with similar treatment to Linaria alpina, and but little attention is needed after it leaves the seed pan. The tiny seedlings are very brittle and should be handled with care. Flowers of various shades of orange, yellow and white are produced in quantity in the shape of dainty little poppies borne on slender 3in. or 4in. stems. The seed is extremely small, and when sown should only require a thin covering of sand over them.

IBERIS GIBRALTARICA.—In a batch of seedlings of this perennial candytuft there usually are a great many forms in all the varying shades of lilac and mauve. Some are, often, particularly good, but all are worth having. In the event of possessing a choice form, it can be increased by cuttings to keep it true; seed of it, no doubt, would give variation again. The large, flat, round heads of flowers are attractive, and often the main body of the plant is completely hidden. It flowers about May or June, and is 6ins. to 9ins. high. Sunshine and ordinary soil suit admirably. The plant has woody stems and dark, glossy green leaves of a fleshy type.

ARENARIA MONTANA.—This is probably one of the most popular of the sandworts, and is a good doer, enjoying a well drained and sunny position. It grows rapidly where it is suited and, from somewhat trailing shoots, it produces abundant large white blossoms continuously. It is a good perennial and seeds freely. For growing on a wall it is one of the best.

SISYRINCHIUM ANGUSTIFOLIUM.—This is a plant of extremely easy culture, requiring nothing more nor less than a very sunny position in a well drained compost. It is commonly known as blue-eyed grass, having grass-like leaves about 6ins. long, from the midst of which appear numerous bright blue flowers in May or June, keeping up a succession over a long period. There is also S. chilense, the same in every detail except that the flowers, which are white, are beautifully pencilled with delicate mauve lines. S. convolutum is dwarfer in habit, with wider, iris-like foliage and bright yellow flowers nearly 1in. across. The seeds, which are like pellets, germinate very readily.



ERINUS ALPINUS FLOURISHES IN ANY SUNNY NOOK OR CRANNY.

ONE OF THE MOST POPULAR AND PICTURESQUE OF SANDWORTS, ARENARIA MONTANA.

ERINUS ALPINUS is another plant of easy culture, and will thrive and flourish in almost any sunny nook or cranny in very ordinary soil. Often it will seed itself and grow to perfection where soil is very scarce; for

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instance, in tiny crevices in the rocks where seed just happened to lodge. It flowers throughout the summer, bearing 3in. spikes of rosy purple. There is also a good white variety, E. alpinus albus.

LYCHNIS LAGASCÆ is a neat little plant of rather a trailing habit. Throughout the season it continues to produce its dainty pink, white-eyed flowers on stems about 3ins. high. Its leaves are small and of greyish green colour. In a sunny position in a gritty mixture it thrives well.

ANEMONE PULSATILLA.—The pasque flower is one of our prettiest British natives, a flower that arrives with the early days of spring. From the day its silky buds are visible to the ripening of its seed it is handsome. The buds, clothed in a mantle of dense silvery silky hairs, are very attractive, and, no doubt, are more so when they burst and present their large violet-purple blossoms. The flower-stalks are usually from 6ins. to 1ft. high in cultivation, though in their wild state they are but 2ins. or 3ins. high. The seeds are borne in large fluffy heads. A hot, dry position seems to be most desirable, in a very chalky compost. Plants are most satisfactorily moved when in growth.

HYPERICUM KOTSCHYANUM.—This small, prostrate St. John's wort is not too commonly grown, but is always worthy of a position on the rock garden. It comes true and readily from seed, and asks only for a hot, sunny position in a well drained gritty soil. It forms a mat of grey foliage and bears pale yellow flowers 1in. in diameter. H. reptans also makes a tight mat on the ground of bright green leaves on reddish stems and produces abundant golden yellow flowers in late summer.

DIANTHUS DELTOIDES SUPERBUS is a fine form of the maiden pink, having sumptuous crimson flowers and foliage of a dark reddish brown colour. Its habit lends itself to a position where it can hang over a rock from a pocket of ordinary good soil with a sunny aspect. The white variety albus makes a fine contrast when the two varieties are planted together. Both are easily grown from seed. As candidates for a wall garden they rank among the best.

CALAMINTHA ALPINA is a good and easily grown plant flourishing in very ordinary circumstances. The plant is aromatic, and in habit, mat-like. The spikes of blossoms are borne profusely, 4ins. high, the flowers being of an intense violet shade.

VIOLA GRACILIS.—A crop of seedlings from this lovely violet Grecian species may prove very interesting, although a very small percentage may come true, there is always the possibility of raising choice hybrids, which can be selected and increased later by cuttings or division.

F. BARKER.

LYCHNIS LAGASCÆ WITH ITS DAINTY PINK FLOWERS; ONE OF THE JOYS OF THE ROCK GARDEN.

THE STRAWBERRY BED

BY E. A. BUNYARD.

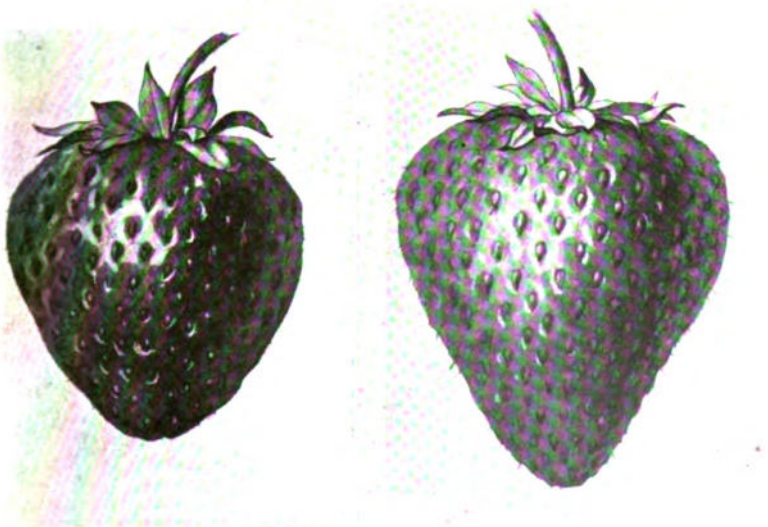
THE strawberry beds under a bright March sun with winds veering from north to north-east, do not invite a lingering visit. A few leaves lay discoloured upon the steely soil and give no promise of June's fruitfulness. But to everything its times and seasons, and we know that a few months hence we shall be turning thitherwards to see the first reddening berry, drawing aside the shading leaf and saying—"perhaps to-morrow!" And now comes in the thought that in this lies the whole art of strawberry eating. How wise were our primitive forefathers ("pagan," I regret to say) who imposed a strict taboo on fruits until the appointed time of their ripeness. Until the ceremony of First Fruits had been celebrated, penalties dire and unmentionable awaited the premature taster. This custom still lingers in vintage countries and there is a distant alpine valley where choice apples have a close season in which they may not be gathered or sold.

It is, I fear, useless at this time to look either to church or state for measures of such profound wisdom, and it thus falls to the individual to emphasise once again that the bulk of the strawberries eaten in this country are only half ripe, and half ripe strawberries, be they never so well tempered with cream and sugar, bring acidity to the queasy stomach and to the rheumatic an added twinge.

But even such valetudinarian ramblings suggest that there are degrees of flavour and sweetness, and a wise selection may go far to eliminate the less desirable. To open the season, almost *hors d'œuvre* by its earliness, I should plant Black Prince, a small fruit, but solid and well flavoured. The kitchen will welcome this for jam and bottling as it keeps a rich red when cooked, unlike the mousy blue that many varieties assume in bottles or jars.

To follow it is impossible to overlook Royal Sovereign, which has retained its sovereignty for many years and is of excellent flavour when really "finished." Sir Joseph Paxton when properly ripe assumes a rich claret tinge and is then excellent for a general utility variety. The vigour of these two sorts makes them remarkable in nearly all soils.

The Duke, a new comer, is worthy of a trial among the earlies, but I am not yet quite convinced of its flavour. It seems, however, to have all the other virtues.



ON THE LEFT, SIR JOSEPH PAXTON; ON THE RIGHT, ROYAL SOVEREIGN.

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For mid-season there are two claimants and the best solution of the puzzling problem as to which to choose is, I think, to have both. They are British Queen and Dr. Hogg. While lacking the fatal facility which would endear them to market growers, they are unequalled in flavour and well worthy of the extra attention they demand. Abundant water and manure must be given on the lighter soils.

For the later sorts Givon's Prolific, Countess and Waterloo are worth consideration. The first is a large fruit, but of excellent flavour, the Countess smaller and more solid. Waterloo is large and of a very dull brownish crimson, indeed, it does not do to think of undercooked kidneys when eating this fruit. Granted such oblivion much delight will be found in its ruddy succulence.

This would form a standard list about which there would be an agreement as general as can be hoped for in matters of taste. Most of them are classics and the newcomers at least follow the classic tradition. For those who journey hopefully outside these limits there are still a few sorts worthy of consideration. Aprikose, a variety with a curious flavour, more Hautbois than Apricot in my opinion; the old Hautbois itself, or its "amelioration," Royal Hautbois; the so-called pine flavour of Louis Gauthier, are all beacons to the adventurous.

In cultural matters the outstanding fact is that the strawberry is a shallow-rooted plant and quickly fades in summer droughts. All soil operations must therefore aim at collecting and preserving water. An abundance of humus or vegetable matter, straw manure, leaf mould, spent hops and the like are potent aids. A good surface mulch of straw helps to conserve the moisture already held in the soil. Hay for this purpose is anathema, in a wet season it rapidly goes mouldy.

Strawberries much appreciate a change of air and soil, and just as the Scotch potatoes (and Scotchmen) develop unexpected virtues in the more genial south, so do strawberries greatly benefit by a change of locale. Unlike their Scotch compatriots the change seems to work well in either direction.

No garden should be considered complete without a few rows of alpine strawberries, and how few English gardens contain them. We go to Switzerland and eulogise their fragrant charms, forgetting each year to sow the necessary seed that we may have them fresh at our doors. If sown in autumn in a box in a cold frame they can be pricked out in April and give a crop the following autumn. Again, if sown now a late crop will result which will be very welcome in September and October. The plants will fruit again the following summer. It is best to raise a fresh batch of seed each autumn, as, after two crops have been taken from the plants, they usually lose vigour. There is a solidity about the flesh of alpines which renders them unsuitable for jam, but the right way to eat them is known to the epicure, and a sweet white wine (no sugar) forms its principal ingredient.

Many who are forbidden the common or garden strawberry will find that alpines may be enjoyed without fear or regrets.

The larger garden forms of alpines, such as Millet and Belle de Meaux, are very good, but not quite, I think, so fragrant as the wild types.

A BRILLIANT DISPLAY AT VINCENT SQUARE

THE Show at the Royal Horticultural Society's Hall at Vincent Square on March 25th and 26th was very fine, although, unfortunately, the attendance on the first day was not so large as usual, owing to the bad weather.

In anticipation of the special show of the British Carnation Society on March 27th, a report of which will be found in the next issue, carnations were quite an important feature in the hall. Mr. C. Engelmann had an immense collection, which received a gold medal. Messrs. Allwood Brothers also set up a group. Messrs. Stuart Low and Co. and Messrs. Keith Luxford and Co. also showed fine collections. These are noted elsewhere.

Daffodils are late this year, and there were only two collections of narcissi. Messrs. Barr and Sons staged a large collection, in which seedlings, with their intriguing index letters and numbers, attracted attention. These were mostly promising large trumpet varieties, a type which predominated. Of the named large trumpets Golden Song stood out prominently by reason of its large size, perfect form and rich yellow colouring. Duke of Bedford, St. Hilda, Van Waveren's Giant, Danesfield and Yorrick are the names of other admirable examples of this showy type. Besides these giants of the trumpet daffodil world there were many smaller ones of

ANEMONE PULSATILLA MADAM VAN DER ELST.

A SPLENDID SPIKE OF CLIVIA MINIATA.

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very graceful habit and often with twisted perianth segments. The Leedsii, Barrii and incomparabilis varieties were also well represented.

Towards the other end of the hall Messrs. J. R. Pearson and Sons displayed a good collection of blooms "from home-grown bulbs." These were fairly representative of the different types, and all were of good quality. Among the Poeticus varieties we noted John Masefield; while among the Leedsii varieties was a delightful vase of the Hon. Mrs. J. L. Francklin.

Alpines, shown both in small pots and set out in miniature rock gardens, were numerous. Mr. M. Prichard had several plants of his new variety of saxifrage, with SS. Riverslea, Wetterhorn and many others. Messrs. Skelton and Kirby, and Messrs. Carter, Page and Co., also had interesting examples, such as Latina and S. oppositifolia splendens. Androsace Sundermanni, with Anemone vernalis, Saxifraga kewensis and S. Sartori were shown by Messrs. R. Tucker and Sons.

Hardy primulas and polyanthuses provided rich masses of colour. The forms and varieties of Primula Juliæ seem to be legion and to be increasing apace; but all are well worth growing, as they make compact plants which flower with uncommon freedom. Messrs. W. H. Rogers and Son had a good type in large quantity. Messrs. Waterer, Son and Crisp showed irises, polyanthuses and other spring plants. A good variety of Primula rosea was shown by Messrs. Maxwell and Beale. Mr. G. W. Miller had a large collection of polyanthuses associated with the lyre flower (dielytra), together with Orobus albus roseus. A charming patch of double lilac primroses was shown with Daphne Mezereum and Japanese maples by Mr. F. G. Wood. Messrs. R. Gill and Son had what appeared to be a single plant of the common primrose bearing 1,400 flowers, and this excited more admiration than their really excellent exhibit of anemones.

Bulbous spring flowers were well represented by the shallow baskets of admirable hyacinths staged by Messrs. Carter and Co.; a large collection of Darwin tulips in bowls of fibre, by Messrs. R. H. Bath, Limited; and Dutch tulips of glowing colours, by Messrs. R. and G. Cuthbert; while the Maytham Gardens contributed vases of cut bloom of Darwin varieties.

Pieris (Andromeda) floribunda, associated with Incarvillea brevipes, shown by Messrs. Bakers, Limited; a rock garden, by Messrs. Pulham Brothers; flowers of various hellebores, by Mr. G. H. Beckhusen, were all of interest.

Shrubs were well shown by various exhibitors. Messrs. L. R. Russell, Limited, had a large group of azaleas, including the charming little Japanese varieties; wistarias and clematis, with the fragrant Boronia megastigma. Mr. G. G. Whitelegg showed masses of Azalea mollis of glowing colours, cytisuses and various irises. Mr. G. Reuthe had rhododendrons, camellias and various alpines. Messrs. W. Cutbush and Sons showed prunuses, azaleas, Daphne Cneorum and such like in association with a well planned little rock garden. Rhododendrons, azaleas and primroses, with some good spikes of hippeastrums, were displayed by Messrs. John Peed and Son.

Besides their large collection of daffodils, Messrs. Barr and Sons had a pretty group of Crown Imperials, forsythias, irises and coloured freesias.

Acacia pendula, A. armata, hippeastrums, clivias and other greenhouse plants were staged by Messrs. Stuart Low Co. Lady Aberconway sent from North Wales some splendid spikes of Clivia miniata. The Misses Allen-Brown made a mound of violets, while Mr. J. J. Kettle set his out in pots and vases.

Among the roses, Mr. George Prince's two large stands of Austrian Copper provided rich colouring; he also had magnificent vases of Richmond, Allan Chandler, the new semi-double of rich rosy crimson colour. The climbing Lady Hillingdon, shown by Mr. E. J. Hicks, with Charles E. Shea, Mrs. George Norwood and Columbia, were excellent. The Rev. J. H. Pemberton also showed roses.

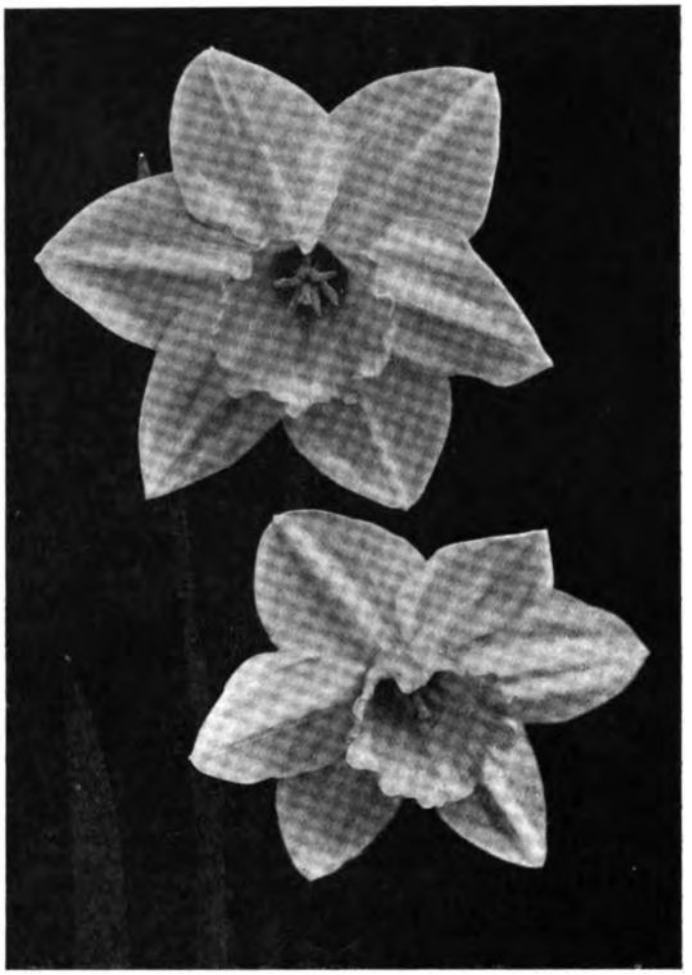
The only collection of vegetables was an admirable one by Messrs. Sutton and Sons. Their broccoli included Superb Early White, Snow White, Satisfaction and Winter Mammoth, all bearing compact milk-white heads. Cucumber Selected Telegraph and French Bean Early Giant were as perfectly shaped as though moulded. Messrs. G. Bunyard and Co. had splendid dishes of such late-keeping apples as Newton Wonder, Wagener, Sir John Thornycroft and Sanspareil.

NEW AND RARE PLANTS.

CROCUS QUEEN OF THE BLUES.—In size of bloom and in freedom of flowering this is a magnificent variety of the Dutch crocus, though the large rounded flowers were so numerous that the pots recalled the old saying that "one could not see the wood for the trees." The colour is mauve, of which the darker tones predominate. Award of merit. Shown by the Director, R.H.S. Gardens, Wisley.

NARCISSUS ADELA.—A splendid incomparabilis daffodil of large size, good form and with plenty of substance in the segments. The perianth is white and the long tube is sulphur yellow colour. Award of merit. Shown by Mr. P. D. Williams.

N. AUGUSTE.—This fine novelty is a Barrii variety with a poeticus perianth.



A NEW NARCISSUS, ELSPETH, SHOWN BY MR. P. D. WILLIAMS.

The corona is canary yellow coloured with a definite band of orange on the frilled edge. Award of merit. Shown by Mr. P. D. Williams.

N. HESLA.—A large, substantial, rich yellow incomparabilis variety of beautifully rounded shape. Award of merit. Shown by Mr. P. D. Williams.

N. KILLIGREW.—A giant Barrii variety of rounded form. The perianth is canary yellow and the frilled corona is a rich orange-yellow. Award of merit. Shown by Mr. P. D. Williams.

IRIS UNGUICULARIS PEACOCK.—A very charming dwarf iris which bears relatively large flowers of most delightful colouring. The falls are generally purple coloured with white rays and a central golden patch towards the base. The short standards have a metallic sheen. Award of merit. Shown by Mr. W. R. Dykes.

SAXIFRAGA LADY BEATRIX STANLEY.—A fascinating little incrustated saxifrage derived from S. lilacina and S. Goldroneana. The cushion-like plant has just a suspicion of silveriness. The short-stemmed flowers are relatively large

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and of a bright rosy lilac colour. Award of merit. Shown by Mr. M. Prichard.

ORCHIDS

FIRST CLASS CERTIFICATE.

ODONTOGLOSSOM EXIMIUM, McBEAN'S VAR.—A remarkable result in which the immense flowers have the segments unusually developed, and heavily blotched with reddish-purple. From Messrs. J. and A. McBean, Cooksbridge, Sussex.

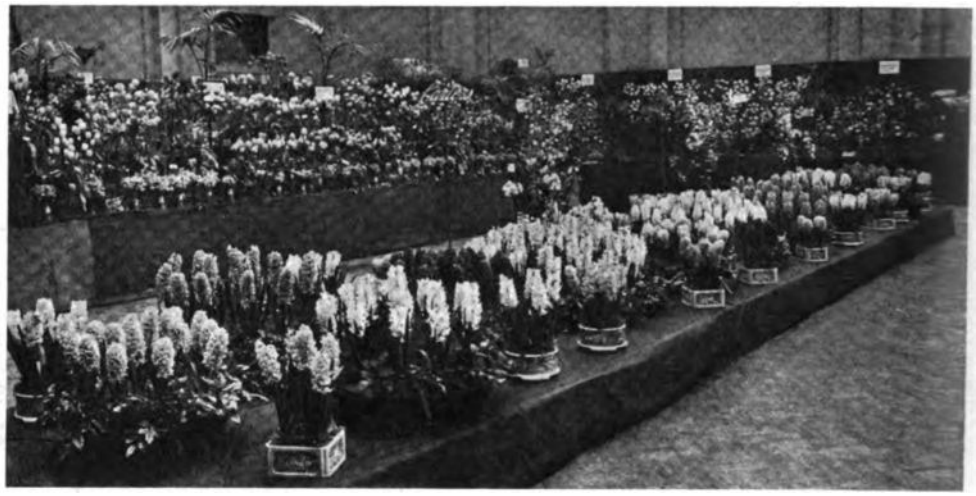
AWARDS OF MERIT.

ODONTOGLOSSUM MODEL (Aglaon × promerens). A pleasing hybrid bearing a spike of eight flowers, of model formation, rose-flushed, and prettily marked with chocolate. From J. J. Bolton, Esq., Claygate, Surrey (gardener Mr. Lyne).

CYMBIDIUM KITTIWAKE, HOLFORD'S VAR. (Gottianum × Dryad).—This plant carried a spike of eleven flowers, pure white, the labellum effectively marked with rose-purple lines and spots, the column rose-coloured. From Lieutenant-Colonel Sir George Holford, K.C.V.O., Westonbirt, Glos. (gardener Mr. H. G. Alexander).

CYMBIDIUM ALEXANDERI VAR. EDUSA.—A beautiful hybrid, the large flowers blush tinted and having the labellum marked with reddish spots and suffusion. From the Hon. Henry D. McLaren, Bodnant, N. Wales (gardener Mr. F. C. Puddle).

BRASSO-CATTLEYA THE GLOBE (B.-C. Cliftonii magnifica × C. Trianæ "The Baron").—A most promising hybrid perpetuating the well known qualities of the former parent, but improved in shape, all the segments being roundly formed and well coloured. From Messrs. Armstrong and Brown, Tunbridge Wells.



MESSRS. CARTER'S EXHIBIT OF HYACINTHS.

BOTANICAL CERTIFICATE.

OPHRYS ATRATA.—A terrestrial species collected in Syracuse by the exhibitor, Major Albert Pam, Wormley, Bury, Broxbourne (gardener Mr. S. Streeter). Several plants were shown growing in a shallow pan, and bearing a total of eleven erect spikes of spider-like flowers.

NOTES ON VEGETABLES

WORK TO BE DONE IN THE VEGETABLE GARDEN DURING THE LAST HALF OF APRIL.

IF asked to name the period of the year that I considered to be the most worrying in the vegetable garden for both amateur and professional gardener, I should, probably, without hesitation refer to the last fortnight of April. So much clamours for attention that it is a problem to decide which operation to take in hand at once, and which to defer to another time. The man who has commenced work in good time, and during March and the early part of April has been busy putting in certain seeds and plants, and who now desires to continue his efforts along proper lines, finds his hands more than full, for the jobs to be done are now clashing with the attention the earlier work demands; while as for the man who has procrastinated, or who has been held up by adverse weather conditions—well, his lot for the moment is anything but a happy one in his efforts to make up leeway.

If there are any who are right behind and who have not yet finished ground preparation, the best advice for the moment must be to get that ground broken up as soon as it can possibly be done. The beneficial method of trenching will probably have to be abandoned altogether, and the soil should be as deeply worked as it can be by means of the spade.

Those who are well up to time should pay attention to crops that have started, especially the seedlings, and the Dutch hoe should be kept busy around them, to keep the ground in good tilth and the weeds down. Steps should be taken, where necessary, to protect such crops from the ravages of various enemies, especially birds, mice and slugs, which will now be busy. Frost, too, should be guarded against, as sharp little snaps at night or early morning are to be expected, and some form of protective measure adopted to keep tender young seedlings from harm. Early-planted potato "sets" may be coming through well, and the soil should be drawn carefully over them, so that the frost cannot cut the young tender haulm and spoil the crop. Other crops may be protected by means of light litter, bracken, or spruce boughs, placed over or round them. In fact, the gardener will have to be busy from early morning to late at night if he means to make a real success of his efforts.

In the following notes I will deal as briefly and as concisely as possible with each of the various crops in turn.

GLOBE ARTICHOKES.—Where suckers were potted up last autumn for wintering in cold frames, they may now be planted out on well prepared and enriched ground, in rows 5ft. apart, allowing 4ft. between the plants. After planting, a mulching of litter should be applied.

JERUSALEM ARTICHOKES should be well through now, and they merely require attention in the form of hoeing and the removal of side shoots so as to leave only the main stem.

ASPARAGUS.—Where this crop is in great demand as a forced early vegetable it should be sown without further delay, as it is now getting late for such work. Sow thinly in drills 1ft. apart on light warm soil in the open, and thin out to a foot apart when large enough to handle.

FRENCH BEANS.—If these are growing under glass in pots, make a second sowing, and at the end of the month the first sowing on a warm border outside can be made. Two good varieties are Canadian Wonder and Ne Plus Ultra.

GLOBE BEET for main crop should be sown at the end of the month, in drills 10ins. apart; sow rather thickly, and thin out later on. Try Crimson Ball and Selected Globe.

BROCCOLI AND BRUSSELS SPROUTS should now be sown in the open, on fairly well prepared ground, for the main supplies later on, and the seed should be protected by means of netting from birds, which are very partial to them. A warm position should be chosen for the seed bed. Where Brussels sprout plants have been raised in boxes in a cold frame in March, they should now be pricked out in a frame about 4ins. apart. Good varieties are: Broccoli—Self Protecting, Snow White, Leamington, Snow Winter White, Late Queen and Model; Brussels sprouts—Dwarf Gem and Aigburth.

CABBAGE for summer supplies should be sown in the same manner as Brussels sprouts, and a good sort is Rosette Colewort. Hoe through the spring cabbage bed, removing dead leaves and give a dusting of nitrate of soda.

CARROTS for the main crop should be sown without delay, if this has not already been done. Champion Horn, Long Surrey, Model and New Red Intermediate are all reliable sorts.

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CAULIFLOWERS that were raised from seed in the autumn and wintered in cold frames should now be planted out on well prepared ground if not previously done, allowing 30ins. each way between plants.

CELERY.—February-raised seedlings that were pricked off in March should be well hardened off now. Where there is a mild hot-bed some of the more forward plants should be planted in frames for early supplies, blanching later by means of brown paper. March-raised seedlings should be pricked off.

CHICORY may be sown like carrots, in drills a foot apart and an inch deep, on well prepared ground that is not too rich in character.

ENDIVE should be sown at intervals of ten days, making at least three sowings to maintain supplies, and where the first sowing has not already been made, lose no time in doing this. Green Curled and Batavian should both be used.

LEEKS.—Where exhibition leeks are desired, the trenches for these should now be ready and a planting made from those raised for the work, and others for ordinary use should also be planted out for early supplies. For a later crop make a broadcast sowing on a piece of prepared ground, if not already done, and sprinkle the seedlings frequently if a dry spell comes along. The following are excellent varieties: Musselburgh, International and Improved Lyon.

LETTUCE.—Continue to make small sowings of cos and cabbage sorts, at intervals of ten days or so, to maintain supplies, using such as Mammoth and Superb Cos as cos varieties, and Ideal, Marvel and Golden Queen as cabbage forms. Where plants were wintered in cold frames, they should now be planted out to grow on for use.

MARROWS.—A sowing should be made of such varieties as The Sutton, Pen-y-byd, Moore's Cream and Long Green, for open planting later on; and where seed was put in during March, the resulting seedlings should now be planted in frames on a mild hot-bed.

ONIONS for the main crop should be sown at once, if not already done, using such varieties as Ailsa Craig Selected, James' Long Keeping and Walker's Exhibition. Where seed was sown under glass, the plants thus raised should, after having been well hardened off, now be planted out on thoroughly well prepared ground, in a most careful manner, lifting from the boxes with the aid of a trowel and with as little root disturbance as possible. Allow up to 14ins. each way growing space.

PARSLEY raised in boxes may now be pricked out 6ins. apart, with a foot between rows. Sprinkle each day until established.

PEAS raised under glass, in boxes, and now hardened off, should be planted out on well prepared, deeply worked ground, staking and netting them to protect them. Make a sowing in the open now, and maintain at intervals of about ten days to keep up supplies. Allow plenty of growing room. Gradus, Edwin Beckett, Duke of Albany, Quite Content and Autocrat are good sorts.

POTATOES.—The main crop should be put in now, if this has not previously been done, such varieties as Arran Chief, King Edward and Kerr's Pink being well tried sorts.

SPINACH.—Successional sowings, say at fortnightly intervals, should be maintained of the round-seeded varieties, of which Victoria is a good sort. Spinach requires well enriched and well worked ground, and forms an ideal crop between rows of peas, benefiting by the shade cast by the rows.

TURNIPS.—Make additional sowings in various positions, and thin out those previously sown and now showing, and use the Dutch hoe well around them.

Seed should be sown at once of the various brassica family, such as kales, savoys, etc., required for winter supplies, making small seed beds of each sort, and sowing on fairly firm ground, covering the seed with netting to keep off the birds.

Two cautions are necessary in conclusion. Varieties have been referred to, but these are only named where I have found them really reliable in use; but this fact may not apply to every district, and where other varieties are a marked success in one neighbourhood or another, do not hesitate to employ them, trying out those that have not been previously used, on experimental lines in order to learn their capabilities.

The last word of advice is that, although it is a fine rule to endeavour to sow to date, yet this should be waived if weather conditions affect the soil so as to render it adverse to such work, for it will always be found better to delay even a fortnight, until good conditions prevail, rather than sow on ground which has been rendered unfit. EDWIN BECKETT.

SPRAY FLUIDS AND THEIR USES

THE time for spraying depends really upon the pest or disease to be attacked, but as it is useless now to advocate winter spraying, it will serve no useful purpose to deal with caustic soda or alkali washes, or to urge the fruit grower to cleanse his trees of moss and slimy algæ. It is spraying time now, however, for trees that are infested with apple sucker (Psylla mali), capsid bug (Plesicorus rugicollis), codlin moth (Carpocapsa pomonella), lackey moth (Bombyx neustria) and a lengthy list of other pests that are vulnerable to attack just as bud clusters are separating, and prior to the actual opening of the blossoms.

Of the chemicals that may be used just now, up to the flowering period, and again when the petals have fallen, nicotine, sulphur, lead arsenate, potassium sulphide and, perhaps, salt may be considered among the most important, but, of course, the spray must be chosen for the particular purpose for which it is required.

Spraying mixtures, like quack medicines, are sometimes put on the market with the claims that they will cure nearly all the ills that may befall trees and plants, but the universal spray is no nearer our grasp than the pill that will keep humanity immune from all diseases. The gardener, amateur or professional, should discover the identity of the pests that trouble the trees or bushes and select the spray to meet the case. The information may be obtained by sending specimens of the pests or diseased shoots from the trees or plants to one of the many organisations that are concerned with the advancement of horticulture, and it is better to take a little trouble to get on the right track than to flounder about in the dark. Haphazard spraying is little better than useless, and it is too laborious and too expensive to be carried on ineffectually. All the substances mentioned above are serviceable and capable of good work, but in some cases individually, and in others in combination, they should be used for specific purposes, not with the idea that either one or the other will do.

Nicotine is of great value, a deadly poison, and powerfully effective against many chewing and some sucking insects. Caterpillars, aphis, capsid bug, weevils and many others cannot exist on foliage that is coated with nicotine, nor when their hides are saturated with it. Soft soap is a very useful "spreader" for nicotine, ensuring that the surface of foliage shall be equally and evenly covered, but it is not so helpful where the aim is to kill by contact, *i.e.*, by soaking the bodies of the insects.

Aphides and some caterpillars exude a sticky, slimy fluid through their skins, or in some cases spin a filmy protecting web over their retreat, and soapy fluid merely runs off like water from grease. By using nicotine in combination with sulphur (dry soluble) or sulphide of potassium the protective covering of the insects is penetrated, and thus the nicotine reaches the skin and death is sure.

For capsid bug an ounce of strong nicotine (that sold as 95 per cent. is generally recommended) will make a dozen gallons of wash and 6 oz. of soft soap may first be boiled and turned into the water. The capsid bug is a wily creature and has a knack of dropping to the ground immediately a spray fluid approaches it. Therefore it is well to cover the tree with the fluid as rapidly as possible and then quickly turn the spray on to the ground underneath. If this is grass covered, give it a good soaking.

For aphis and caterpillar an ounce of nicotine is sufficient for 25 gallons of water, to which should be added 1½lb. of sulphide of potassium and ¾lb. of soft soap.

Arsenate of lead is a very powerful insecticide, and is of special value for spring use, but it is poisonous and a dangerous substance in careless hands.

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If the winter moth has evaded grease bands and laid its eggs in the buds of fruit trees, an arsenate of lead wash will kill the larvæ. It is also capable of destroying the caterpillars of the currant moth and several other biting insects. Arsenate of lead pastes may be obtained ready made, and for private garden use it is wiser to use the preparations of the chemist than to corrupt pans and vessels with the poisons that may very easily do serious harm. When fruit trees show first signs of bursting their buds is the time to spray with arsenate of lead, but it must not be used where vegetable crops grow under the trees, neither is it safe to spray when wind may blow the fluid to neighbouring crops. In large orchards the use of so powerful an insecticide cannot well be dispensed with, but for private gardens where a few fruit trees grow amid vegetable quarters it is preferable to use something less deadly even though it may necessitate more than one spraying to achieve the purpose in view.

A lime-salt spray finds many advocates, and it certainly is cheap, safe so far as danger to life is concerned, and if properly made and carefully used it will do good work among aphis, mussel scale, apple sucker, etc., while as a winter wash it is capable of cleansing the bark of moss and slime. To make 20 gallons of lime-salt spray take 7lb. of common salt and dissolve in 10 gallons of water. In another 10 gallons place ¼cwt. of fresh lime. When thoroughly dissolved mix the two together, then strain through a fine gauze sieve, and the spray is ready for use. Lime-salt spray may be used right up to the time the flower-buds begin to open, but not after.

It will soon be too late for all the more powerful and penetrating fluids, but until young growth necessitates their dismissal the various mixtures here recommended are more effective than the softer soaps and emulsions that may be used with safety through the summer. Nicotine, of course, continues to be usable all through, and in fact it is my custom to add a teaspoonful to a knapsack of any soft soap and quassia or similar summer wash for roses and other plants. It is my belief that there would be far less trouble during summer with roses if they were sprayed with the nicotine-sulphur mixture during March. The egg-laying aphis works late in the autumn and early in spring laying eggs, on the stems and in the joints of old wood, that produce the first batches of greenfly that appear to come from nowhere. Spraying early by catching the first batches will go far toward keeping the roses clean well on through summer.

American blight dislikes this spray, and also paraffin, which is best used in the form of the proprietary brands of soluble paraffin, which can be mixed with water with greater satisfaction than is generally obtained from attempts to emulsify crude oil in soft soap.

Where one has but a small garden and only flowering plants to keep clean it is seldom worth while mixing up the ingredients, for the small canisters and packages of well known insecticides are ample if only the instructions supplied by the manufacturers are carefully carried out.

Failures arise from attempting to increase strengths, omitting to keep the solution well stirred or agitated, applying with inefficient sprayers, or delaying the use of insecticides until the plants are so badly infested that enough insects survive to repopulate the partially cleansed areas. Spray early, spray carefully and thoroughly, spray often. A. J. MACSELF.

NOTES FROM CONTRIBUTORS

WOOL AS A SEED DISTRIBUTOR.

ONE of the most remarkable collections of alien flora in the British Isles, possibly in Europe, is to be found, not in a delightful country garden, but in a black soot-besmirched northern manufacturing centre. On a piece of waste ground in the premises of one of Bradford's Corporation sewage works Dr. Druce of Oxford University, the famous botanist, had the pleasure of classifying more alien flora than at any other spot he has yet visited in a life-long devotion to botany and botanical research work, while Dr. Stelling of Zurich University, the famous German botanist and geologist, expressed himself amazed at the number of foreign plants found at the place in question. Mr. John Cryer, a local botanist, has from time to time found no fewer than 500 flowering plants, and for a time was at a loss to account for the presence of so many alien flora. However, investigation led to the discovery that the agency of distribution was wool. Seeds of plants indigenous in Australia, Argentina, Canada, etc., have come over to this country in consignments of wool, and in the scouring process these seeds have been washed down the drains to be eventually deposited on the "run away" ground at the sewage works. The exact locality of this wonderful flora is not stated for obvious reasons, botanists being very ardent collectors!—F. W. H.-E.

ANNUAL ASTERS.

IT is well known that these are among the most favoured flowers cultivated by amateurs for outdoor decoration in summer. Sometimes they are planted in mixed borders, also in rows or in small beds, and in all these ways they are easily grown and effective.

A succession of asters may be had by sowing the seed at different times. No time must now be lost in sowing the seed to produce the earliest plants and flowers. Place a few rough leaves at the bottom of a pan or small square box, and fill the remainder with a mixture of loam, decayed leaves and sand. Press this down firmly and then make small drills about 2ins. apart and 1in. deep with the finger. Sow the seed thinly in these and level the surface.

If the soil is damp do not give any water, but place the pan in a house with a heat of 50° or in a frame, and keep it close until the young plants appear, after which give air on fine days. As soon as the plants are large enough to handle prick them out into a frame, under a hand-light, or into pans or boxes the same as the seed was sown in. A little manure must be added to the soil at this time; this treatment will be found to furnish plants in excellent order for planting in their flowering quarters by the middle of May.

The ground in which they are finally planted must be open and rich, as it is an important matter to secure free growth at first to ensure fine blooms. I have no doubt many people will have seen the plants cease growing for a time after having been planted out and the leaves become curled as if attacked by green fly. This is the result of careless planting and poor soil, and although the plants may make a fresh start and then bloom, the flowers are never so fine as those on plants which were never checked. The plants need not be more than 12ins. apart. During dry hot weather they are greatly benefited by a mulching over the roots of short manure or grass from the lawn.

For late flowering the seed must be sown in May. I always sow the seed so thinly that the plants do not require to be thinned or transplanted from the seed bed until they are planted where they are to bloom. They suffer less in dry weather in this way than when shifted often. Watering has to be well attended to in the case of this sowing. Some plants throw up a cluster of flowers, but when the finest "show" blooms are wanted these must be reduced to two or three on a plant. Those who have no means of raising early plants need never fail in having plenty of late asters.—JAMES A. PAICE.

LATE-KEEPING CULINARY APPLES.

THE many conditions in which apples are stored are not conducive to their preservation, as, often, late season varieties are rotten long before their season (according to proper storing) is reached. A cool and somewhat ventilated storeroom is generally acknowledged to be the most suitable.

I saw, recently, a few specimens of well conditioned apples, the best being Annie Elizabeth; for colour and size this variety was admirable. Hanwell Souring, with skin greenish yellow tinged with reddish blush, is most useful as a cooker. The flesh is firm, crisp and briskly acid. The tree producing the fruit in question was trained as an open bush. Reinette du Canada, to my mind, should be extensively planted, especially as an orchard tree. It is strong and regular in its growth, and not so subject to canker as some varieties—at least, the trees I saw were forty years of age and as clean as one could wish. The fruit is large, somewhat broad and flat, but varies in form (one tree in the orchard produced nearly every fruit somewhat conical in shape); skin greenish yellow tinged with brown on the side next the sun; flesh firm, juicy and brisk, and quite good as a dessert sort in its season, this being in March until early April.

Norfolk Beefing is an apple that is, indeed, a real late keeper, the one drawback being that the trees are apt to canker on heavy or stagnated soils. Fruits about middle size, nearly round, colour deep red next the sun, with shadings of green on the underside; flesh firm and somewhat sub-acid. This is the apple Messrs. Gaymer of Attleborough bake and press without breaking and send out as a sweetmeat commodity. This variety succeeds as half-standards on light dry soils.

Sanspareil is a variety full of merit, and ought to find a place in every garden, as it is useful for dual purposes, keeping sound until May and even June. Fruit medium size, round in shape, colour yellow with red stripes, flesh firm and crisp, with every essential known in a culinary apple. The tree is compact in growth and very fertile.

Striped Beefing is a large late-keeping fruit of splendid cooking utilities. The tree makes a fine standard, and I am surprised this variety is not more in request. The flesh is firm and pleasantly sub-acid—in fact, an apple pudding I partook of lately, made from a fruit given me of this variety, was most enjoyable.—G. LOVELOCK.

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CORRESPONDENCE

THE BREAKING OF TULIPS.

I HAVE read Mr. Needham's article on "The Breaking of Tulips," on page 156, and I have read articles on the subject by experts from across the Atlantic, and am induced to give my experience which may be of some interest to those who are studying the matter more deeply than I have time to do. I used to be troubled to a certain extent with my Darwin and Cottage tulips breaking and I carefully lifted all broken ones at flowering time and heeled them in separately, but still the trouble continued. I tried dusting the bulbs at planting time with green sulphur and isolating all the broken ones. This seemed to have the desired effect for I found no broken ones among the bulbs so treated. Now I dress all my bulbs in this way and I have every hope that the treatment has solved my difficulties. In a garden near here practically every tulip breaks the first year after planting and I have sent a number of varieties there for the purpose of experiment with the result that some interesting breaks have occurred. Now, I do not pretend to give any explanation of the cause of breaking, but it would seem that it is probably some fungus disease which is checked by the sulphur. I had a large batch of Boadicea broken the year before last. I lifted and dressed them with sulphur and quite a large proportion returned to their self colour again or, I should say, lost their stripes the following year. I would suggest that these bulbs were possibly but slightly affected by the disease, if such it be, and were amenable to the treatment, but it would be interesting to see the result of dressing some of the long confirmed rectified tulips; perhaps someone has done this already, if so, their experiences would be interesting I intend to try it. As to aphis, I seldom see them on my bulbs and when I do I give them as much insect powder as they require!—W. A. WATTS, *The Welsh Bulb Fields, St. Asaph.*

ANEMONES.

IN the article on Anemones by the late Maurice Hewlett (page 188), I see he refers to A. nemorosa as being difficult to transplant and that they only grow happily in woods. They grow wild in the woods here, but the best are in full open sun. The trees have been cut down and the ground turned up. The anemones have come up in thousands, as thickly as they can possibly grow. I find no difficulty as regards transplanting, provided the tubers (?) are not allowed to become dry—they will not stand long out of the ground like A. appenina without shrivelling. If they have to be kept, I usually pack them in damp peat moss litter.

The harebell blue Anemone nemorosa is mentioned. I grow six varieties, all of which I transplant successfully. The varieties are Celestial, Royal Blue, Cornubiensis, Robinsoniana, Alleni and Blue Bonnet. The first to flower here is Cornubiensis, and this is just showing through the ground now. Alleni is the largest and best, I think. Blue Bonnet is as large in flower but is dwarfer and very late, flowering long after the others. To see them at their best it requires a sunny day to open wide the flowers.—G. H. DALRYMPLE.

LONICERA NITIDA.

I AM down here for a day or two and have been looking at the Lonicera nitida hedge which I planted two and a half years ago and which you illustrated, as it appeared in November last, in your issue of February 2nd. Although out of seventy-seven nights since January 1st there has been frost—ranging from 14° to 2° of it—on sixty of them, and forty in succession up to this morning, the hedge wears a summer time look. Not only are the old wood and leaves wholly unaffected by the drastic variations of temperature between the icy nights and scorching days—with nothing constant except the keen dry north-east wind—but the new shoots are already developing, each showing three or four incipient leaves, which are bearing themselves just as bravely as their elders and, like them, are wholly unscared by frost. Indeed, in every part of it the hedge looks as if quite unconscious that there has been anything climatically disagreeable about this winter, which all my human friends complain to me so bitterly about.—H. AVRAY TIPPING, *Monmouth.*

THE BANANA PLANT IN WINTER.

IN THE GARDEN for October 6th, 1923, page 518, an illustrated article appeared on the banana (Musa japonica) growing in the open at Oxted. It was stated that protection was given during the winter

THATCH COVERING AS A PROTECTION TO THE BANANA PLANT OVER THE WINTER.

months by a thatched covering, which is put on in October and taken off in April. During the course of thatching, the plant is not cut down, only tied in to make a firm base, and supported by a tripod of poles, filled in with dead bracken and then thatched with straw. When the plant is uncovered in the spring the old stems are cut out and the young ones are just ready to unfurl their leaves, which soon respond to the sun and air, so that within a week or so the plant looks none the worse for its long hibernation!—R. C. JOLIFFE.

DELPHINIUM AS A NAME.

MR. ENGLEHEART'S interesting letter (page 194) gives, I think, the death-blow to the American delphinium story; but should some of your readers not agree, I may, perhaps, add the following evidence. There is very great doubt if the ancient Greeks recognised the colour of blue at all. Homer's "'dusky' violet," Virgil's "'black' violet" support this view; and Theocritus also speaks of the "sombre" colour of violets. The "cyanus" of Homer, which was probably an ultramarine enamel, is referred to as black. It was held by Max Muller that the appreciation of blue was quite a modern acquisition. Whether this be so or not, it is certain that blue is not recognised by the present Italian peasant. Mr. Norman Douglas, in his charming book on "Old Calabria," writes much about this point, and tells us that a cloudless blue sky is considered by the peasants "quite white," and the sapphire blue of the sea, which draws us from our Northern homes, is to them "colore morto," a dead colour.

All this seems to give little support to the theory that the favourite colour of the Greek deities was blue. As Mr. Engleheart says, it is extraordinarily difficult to identify the flowers or fruits of the early writers, and even the commentators on Dioscorides were unable to guess what plant he intended by Delphinium. The story of the dolphin looks suspiciously like a variant of the well known legend quoted by Pliny.—E. A. B.

SCRAPS.

RE Sir Herbert Maxwell's interesting remarks on rabbit-proof plants, the following may be of interest. We have an orchard containing apples, pears and plums. The trees were planted about eighteen years ago, and at first were protected with wire, the ground being cultivated. The wire gradually went and was never replaced. Three years ago in the spring the land was laid down to grass. During the autumn, circles were forked around all weak-growing trees, and within a week these trees were very badly barked, while those not forked were untouched. There had been no snow or frost. The remarks on "Tools" (page 173) is very timely, and if the people who buy them had to use their purchases we should then perhaps see the end of the heavy, cumbersome things now on the market. Why is not more use made of ball-bearings for wheeled implements at a reasonable price? In comparing prices of a ball-bearing roller and one of the other type I noticed a difference of £10 for the same weight. Ball-bearings would make a tremendous difference in a hilly garden.—"HIRED MAN."

PERENNIAL CONVOLVULUS.

IN his interesting note on the above (page 195), Mr. Canning-Wright recommends Convolvulus althæoides. I take it he refers to the plant usually listed under that name (which I believe properly belongs to another species), and, that being so, I can only congratulate him on finding it such pleasant company. I planted a root of this charming species in the rock garden and never have I been nearer the abyss of human woe than when I decided that the thing had to be extirpated. Its white, thread-like roots had gone through a flight of steps, burrowed under a flagged path, taken possession of a retaining wall (where they still are), and undermined the biggest boulders within a range of 8ft. from the parent stock. Days of work were involved in digging out the pest and yards of established rockwork and pathway had to be sacrificed. C. althæoides is admittedly a pretty plant and a good thing for a really safe place, but as a rock garden plant—no! The common bindweed, which Mr. Canning-Wright describes as a "terrible pest" is a mild affair compared with this vegetable octopus.—J.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Carrots.—Now is a suitable time to sow seeds for the main crop, selecting one of the well known intermediate varieties. Sow the seeds thinly in lines 1ft. apart, and well prepare the seed bed. After the numerous frosts that we experienced during February and early March the ground is in excellent condition; it rakes down to an even fine surface, and for the kitchen garden a wooden rake is far preferable to an iron one.

Peas.—If seed was sown in pots or boxes and placed in a warm glasshouse, the resultant seedlings should now be hardened off and set out in lines. Should the weather prove cold, protect them with evergreen branches. Further sowings of marrowfat varieties may be made; the second earlies are best at this period.

Turnip seed may be sown in lines 1ft. apart, and directly the seedlings are large enough they should be thinned or the crop will be ruined. Watch for the fly just as the seedlings appear and dust the rows with soot or lime early in the morning before the dew is dry.

FRUITS UNDER GLASS.

Vines.—In many vineries the work of stopping and disbudding will need attention, and the way such work is carried out will have a lot to do with the future welfare of the vines. Any superfluous shoots should be rubbed off gradually to prevent a check to root action. If the spurs are properly distributed, one growth from each will be ample, but there may be cases where two will be needed to fill up the roof space. When tying down the shoots to the wires, the grower should be patient, and not be in a hurry to get the shoots in position, or many of them will break, and often snap off at the base, thereby causing a gap. Two or three tyings will probably be required before the growths are in position. Each shoot should be stopped at the second or third joint after the bunch, according to the space to be covered, and here again a few ought to be done at intervals, beginning with the strongest and so on till the operation is completed. The early removal of superfluous bunches is most essential, and even in the early stages it can readily be seen which will be the best. With warmer weather more ventilation may be allowed, and the beginner should see that the top ventilator is opened an inch or so sufficiently early to prevent the foliage being scorched.

THE FLOWER GARDEN.

Annuals.—There is still time to make liberal sowings of annuals in the open border, and those sown in boxes early last month will soon be large enough for pricking off in a cold frame. When established, give plenty of air and gradually expose them to the elements in preparation for their final quarters in beds or borders.

Sweet Peas.—Seeds sown in boxes and pots early in the year have produced nice plants, and now they may be planted where they are intended to bloom. Clumps, where space is available are excellent; but, no doubt, rows 6ft. apart are the best where a quantity is grown. The stakes or other supports may be placed in position after the planting is completed.

Carnations.—Where the layers were potted up last autumn and have passed the winter in a cold frame, it will be advisable to plant them out in the open about this date.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Potatoes.—A sharp look-out should be kept on the border or borders in which the early potatoes have been set, and whenever the young growths appear above ground draw the soil up on either side and over them as a protection against frosts.

Seeds to Sow.—A further sowing should be made of the following brassicas: Brussels sprouts, borecole, broccoli and turnips. Where seeds of any other kinds have germinated poorly from earlier sowings, or seedlings have been destroyed, the losses should be made good now by re-sowing.

Vegetable Marrows.—Seeds should be sown in pots filled with loamy soil and germinated in heat, afterwards grow the plants in a genial atmosphere, until a frame is made ready in which to grow them. Long Green and Moore's Cream are two well known varieties.

Waxpod Beans.—Dwarf Waxpod or butter beans sown now in pots filled with a good potting mixture and brought on in a moderate temperature, will provide beans ready for pulling about the end of May.

THE FLOWER GARDEN.

Dimorphotheca aurantiaca.—The seeds of this beautiful hardy annual behave so badly that sometimes seedlings never appear. It is wise, therefore, to sow the seed thinly in boxes containing fine sandy soil and germinate under glass. Afterwards grow the plants as hardy as possible, but where protection can be given when frost threatens. When transplanting the seedlings to beds or borders, handle very carefully.

Lobelia.—Cuttings inserted some time ago and duly pinched to form bushy plants should now have filled the boxes. To have good specimen plants, space them out 2ins. or 3ins. apart into other boxes filled with light leafy soil. Place in a genial growing temperature until re-established; afterwards grow in a cold frame till bedding-out time.

Fuchsia Riccartoni.—This well known plant is usually to be found in most gardens. If not used as a hedge or screen, the plants should be cut over now, a few inches from the ground. It is easily propagated, and a large number of plants can soon be obtained by inserting cuttings in sandy soil throughout the month of July or even later.

Ten-Week Stocks.—The seedlings should be set out 2ins. or 3ins. apart in boxes filled with good soil and made moderately firm. Grow in a genial warmth and shade from bright sunshine until well established; then place in cold frames.

THE HARDY FRUIT GARDEN.

Wall Trees.—It is often the case that the soil becomes dry near the base of the walls where fruit trees grow. Water and farmyard liquid manure should be applied frequently to the roots of trees growing in such positions.

FRUITS UNDER GLASS.

Figs.—Continue to pinch the young growths at the third or fourth leaf. Liquid manure should be applied frequently to trees bearing fruit.

Vines.—The berries in the early house should now be sufficiently advanced to require thinning. Much care and experience are necessary before anyone can become an expert grape thinner.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Tecoma alata (syn. T. Smithii).—This plant is very useful for flowering during autumn and early winter. It is easily propagated by means of cuttings, which root readily at this time in a close case. The young plants may be stopped once if desired, but the best results are obtained by confining them to a single stem. Good plants can be grown in 5in. or 6in. pots, and they only require greenhouse treatment. In fact they may be grown in cold frames in the summer months, only using the lights during cold, wet spells. When the inflorescence—which is terminal—shows, all lateral shoots which develop underneath should be rubbed out. If this is not done the flower buds will drop off. This plant is somewhat subject to attacks by red spider and white fly. The former, however, should be easily prevented by a free use of the syringe, and the latter by fumigating with sodium cyanide, or some other approved remedy.

Cinerarias.—Where a batch is required to flower early, a pinch of seed should now be sown, giving preference to the more decorative, intermediate types, instead of the large-flowered florists' varieties. There are now good blue strains and rose-coloured varieties, both of which are very popular and effective for decorative work. Cinerarias should be grown under cool, moist conditions at all times, and during the summer months are best grown in low pits or cold frames. The potting compost should consist almost entirely of a good medium loam, because the growth is then much sturdier than when a lot of leaf-mould is used. These plants are subject to attack by aphis, which, however, can be prevented by frequent light fumigations.

Begonias. — Tuberous-rooted varieties that have been placed in boxes to start should, when they have made about three inches of growth, be placed in suitable sized pots. The potting compost should consist of a good mellow loam, and about one-third of leaf soil. Where eelworm has proved troublesome, the soil should be sterilised, as this is really the only preventive for this pest. Frequent applications of lime to the soil would probably do much to keep this pest in check. Dry tubers in store should now be started into growth in an intermediate temperature, while young plants raised from seed sown early in the year should be kept growing freely by giving them frequent shifts into shallow boxes. Towards the end of the month they may be planted out in cold frames.

Agapetes buxifolia.—This neat-growing plant, which produces its tubular red flowers very freely during the spring, is easily propagated at this time by means of half-ripened shoots. These root readily under a bell glass in a cool greenhouse. The plants thrive best in a compost of sandy peat, with the addition of a little light loam. While it makes good specimens in pots, it is seen at its best when planted out in a well drained bed in a cool greenhouse.

Pentapterygium serpens is another beautiful plant which succeeds under the same conditions as the above. It is, however, a much larger-growing plant, making long slender shoots. As it enjoys a considerable amount of shade, it is very suitable for clothing back walls that receive very little sunshine. This plant is easily propagated at any time by means of cuttings.

J. COUTTS.
Royal Botanic Gardens, Kew.

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OBITUARY

MR. SYDNEY MORRIS.

By the death, at St. Jean de Luz on March 24th, of Sydney Morris of Earlham Hall, Norwich, the gardening world loses one of its foremost amateurs. He was the possessor of a remarkable power of judgment, not only as regards the merits of a plant, but also of its possibilities. Almost any race of plants that attracted his interest was certain before very long to yield seedlings showing breaks of colour or improvement in form. His name will always be associated most closely with the large-flowered strain of montbretias known as the Earlham varieties. Many of these have received awards when shown at Vincent Square and the Drill Hall; and those who had the chance of seeing the great beds of seedlings and selected forms as grown at Earlham could never forget the glowing mass of scarlet and orange, citron and copper, nor the enthusiasm of the master who had brought them to such perfection. He took up the raising of seedlings just about the time that the work was abandoned at Westwick, and, starting from the best of the Westwick varieties, soon added brilliancy of colouring and greater symmetry of form to their other good qualities.

Berried shrubs were one of his latest interests, and the large collection planted at Earlham was becoming one of the features of the place. The sprays shown at the autumnal show of the Norwich Horticultural Society were remarkably fine.

Mr. Morris had made a fine garden round his former home at Wretham, and after the destruction of the house there by fire sold that great sporting estate and moved to the historically interesting and charming old house at Earlham, for so long the home of the Gurneys, although it never belonged to them. There he laid out one of the most beautiful of modern gardens. The herbaceous beds, and the rock garden especially, are so well planned and planted that they are models of fine gardening.

At the annual general meeting of the R.H.S. this February the V.M.H. and the Veitch Memorial medals were bestowed on Mr. Morris. He had been for some years a most regular and useful member of the Floral Committee, and his taste and judgment will be as greatly missed by his colleagues as will his genial and cheerful presence by his many gardening friends. The little re-union of skilled amateurs and professionals who gathered under the hospitable roof at Earlham were some of the pleasantest events of the seasons.

BOOK REVIEW

SECRETS OF MANY GARDENS.

Mrs. PHILIP MARTINEAU, in her new volume, "The Secrets of Many Gardens" (Williams and Norgate, 12s. 6d. net), deals with many aspects of gardening and touches on conditions found on the Continent as well as in America. The work covers a wide range—somewhat too wide in the limited space at the author's disposal. Unfortunately, the work loses much of its charm owing to the treatment and arrangement of the subjects. One gets carried suddenly from a talk on peonies and dahlias, to find himself in the midst of a vegetable garden, learning all the details and intricacies involved in raising peculiar varieties; and then, no sooner has one settled there than he finds himself transported to a herbaceous border—from there on to the cultivation of dessert fruit. The reader gains nothing from this somewhat disconnected account. The later chapters are more or less general treating of the history of gardening, garden finance, gardening as a career, etc. The author is somewhat drastic in some of her ideas, but on the whole shows a deep insight into many aspects of garden economics. One illustration depicts what we are told is a "Scotch Fir." It is rather an unfortunate and a somewhat common mistake, as "Scotch Pine" is probably meant. The fir and the pine, as most people are aware, belong to two different genera, and such confusion of terms often arises.

To one who has a passing interest in gardening and horticulture, the volume will give pleasure and interest; but it does not supply any food for thought to the practical mind, save in so far as personal experiences with plants are described, and may serve as useful hints to anyone engaged in the cultivation of that particular species.

ANSWERS TO CORRESPONDENTS

MISCELLANEOUS.

How to Destroy Celandines (M. J. C.).—Every particle of root of the celandine plant should be removed from the soil if its destruction is to be complete in this way. A surface fire would be useless. If our correspondent can keep the beds free from bulbs and other plants for about three months from Autumn onwards, gas-lime may be used. Twenty-four ounces per square yard should be spread on the surface, left there for six weeks, and then dug into the soil as deeply as the roots of the celandine are found to be. In the spring following, border subjects may be planted safely. In the meantime, the regular hoeing of the surface soil will weaken the weed, causing it to bleed.

Name of Plant.—(E. V.).—Cornus Mas, "Cornelian Cherry."

Trial of Daffodils.—The Royal Horticultural Society will carry out a trial of the newer daffodils at Wisley during the next season and raisers are invited to send not fewer than three nor more than six bulbs of each variety they wish included to the Director, R.H.S. Gardens, Wisley, Ripley, Surrey (if by rail, via Horsley Station, Southern Railway), to reach him by August 12th, 1924, at the latest. Only one-nosed (or apparently one-nosed) bulbs can be accepted for the trial and it is proposed to treat by the hot-water method all bulbs received unless they are accompanied by a certificate stating that they have already been so treated. The plants will be grown for two years or until it is possible to form a sound judgment upon their merit. At the end of the trial (which will not necessarily be at the same time for all varieties and which will be announced to senders), but not before, senders will be able, on request, to receive back the whole (or part, at their option) of the bulbs resulting from (or left after) the planting of the bulbs they sent to Wisley, but they will not be entitled to claim them after the end of September in the year in which the trial concluded. The necessary entry forms may be obtained on application to the Director of the Gardens.

FORTHCOMING EVENTS.

April 8th.—Royal Horticultural Society's Fortnightly Meeting (two days); lecture on the first day at 4 p.m., by Mr. M. Allwood, on "Carnations."—Jersey Gardeners' Society's Meeting.

April 9th.—Royal Horticultural Society of Ireland Spring Exhibition (two days).—Huntingdonshire Daffodil Society's Exhibition.

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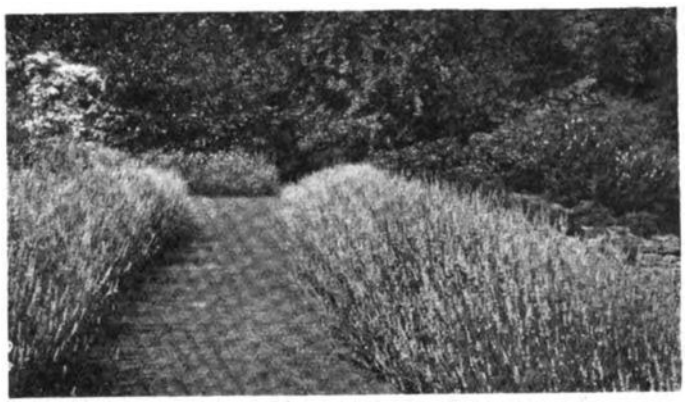

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ADMIRATION

I MADE a purchase at the Show at Vincent Square on March 26th, a bush in full flower of a Japanese azalea called Hinodigiri. It came from Messrs. Russell and Co., Ltd. These are the bald facts which are always noted about a plant. It is now perched on a table in my flat where I can view it from every angle. From below I have to look, first of all, through the dark branches, then through a mellow glow like a sunset seen through the soft mist of wood smoke, finishing with dappled patches of fire where the lamplight strikes it.

It is a shapely bush, more than 2ft. in width, in an ordinary large garden pot; and I would not miss the pot for worlds. If it was seated in glazed pottery or in a bronze bowl, it would lose all feeling of simplicity; while the common pot, rather coarse in texture, suits it to perfection.

The number of blooms is uncountable: they are as the sands of the sea-shore. Each flower has five petals and five stamens, thrown out gaily in advance of the corolla with the style in front of all as an advance guard. The colour of the flowers billowing over the shapely bush is admirable, and the whole scene is in keeping. It is now more than a week since it arrived, and not a flower has withered or fallen.

This may sound egotistical, but my abode in this city is a flat within a stone's throw of a main thoroughfare; and that a plant, worthy of the name, should accommodate itself to these urban surroundings pleases me mightily. I have gazed upon it for minutes on end, filled with the most pleasant thoughts.

Here is a plant invented by the genius of the Japanese for their own particular purposes, and of a great age for a bush of its size, deigning to grace a European room, a room which is entirely utilitarian in its purpose. It is a great feat on the part of a plant and worthy of all praise. We are told that it is not quite amenable to our climate and requires a moderate temperature; yet imagine it in a conservatory surrounded by phalanxes of pelargoniums and cyclamens—admirable plants in their way, but how unsuitable to live alongside a Japanese azalea. These of all plants require to be admired on a pinnacle far removed from other flowers.

The Japanese have an extraordinary facility for placing plants in an ideal position. They make something more of them than ordinary garden furniture: their plants slip into their proper place and are obviously nursed and cared for so that they may fill such and such a spot in the garden or house. We are less exacting, and are satisfied with broad splashes of colour and massed designs.

Do we get full satisfaction from our plants? The mind of the Oriental works in wondrous ways, but on the whole he is simple in his tastes—just how simple it is impossible to guess. It is this simplicity which makes him evolve such weird and wonderful forms of chrysanthemums, for each individual bloom has to be planned and admired on its own merits. Every twist and angle of a petal has to suit the Oriental's particular idea of design, for the alignment of a plant means a great deal to the Eastern mind. In some degree his decoration is artificial, as in his distorted trees and meticulously arranged vases of cherry blossom; but at least he does not fog his vision by surrounding the main constellation with masses of satellites. He wishes to see cherry blossom at its best: very well, it is so placed that he can leisurely view it from all angles, without hurry and without restraint. Probably he is right, for he is not in the position of the man who cannot see the wood for the trees.

True admiration does not come from a hasty glance; it requires much time and deep thought. Justice must be done, and so the subject must be viewed from every aspect.

There is an ordinary every-day proverb which says that familiarity breeds contempt. Unfortunately it is true. Who knows but that an ordinary artichoke or a well grown plant of rhubarb may not be worthy of respect, if it is placed in an atmosphere suitable for admiration? It is not only possible but probable.

Epilobium angustifolium, the common willow herb, is often a curse in our gardens, but I well remember seeing an acre or so of scrub which had been cleared by fire the year before. The willow herb had come up in its legions and was in full bloom. Viewed in the mass with a background of birches, it was enchanting. That is the one picture, a noxious weed in a setting to suit it. On the other hand, everyone knows that the most perfect rose is dwarfed into obscurity in an atmosphere of old cabbage heads.

But this article leads nowhere. It is not meant to be a treatise on how to utilise our garden plants to better advantage, nor is it meant, to use another proverb, to teach our grandmothers to suck eggs. Rather is it written in a vague manner to show how admiration depends upon the suitability of a plant for its immediate surroundings. One plant in particular, has of its own ability taken possession of a room. The plant is pleased, and I am full of admiration. What more can any plant want?

E. H. M. C.

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A SMALL ROSE GARDEN

BY M. J. M. VICARS-MILES.

I AM aware that the object of THE GARDEN is to show its readers the very best way in which things ought to be done, therefore to put forward anything less than that may seem somewhat useless. There must, however, be many lovers of gardens who might like to hear of the struggles of a comrade whose object is to get the greatest amount of satisfaction and beauty out of an all too shallow pocket and to make as sure as is possible of a certain return for money spent.

To begin with, I have tried in a small way to grow roses for thirty years, beginning with about 100 and increasing later to 600 or 700. First of all, filled with enthusiasm, I bought in twos and threes the roses advertised by rose growers in the most glowing terms. This was an expensive and unsatisfactory method for many obvious reasons. Some were strong-growing, some were weak plants. Some liked my soil, others would not have it, and if once a rose declines to thrive in a certain soil no amount of care and trouble seems to be of much avail.

A later plan was to arrange different coloured roses in larger beds by tens or dozens. This, though an improvement, was not entirely satisfactory. I do not mean to say that a great deal of loveliness and pleasure did not result. However, the last stage of my rose growing, the arrangement of which was not my doing, certainly has given me greater satisfaction than any other. Some years ago, like many others, it became evident that a smaller habitation was necessary for me, and I had sadly to turn my back on my old garden. However, by very good fortune I found a house and garden whose owner was evidently as great a lover of flowers as myself. What it must have cost him to hand over his garden to me! One of the most tempting things in it was a rose garden, evidently originally levelled as a tennis lawn. It was surrounded on three sides by a low, well grown yew hedge, while a belt of firs protected it on the north side. This garden contained twenty-two rose beds. Sixteen of them had about twenty of one particular rose in each of them, while the six centre beds running parallel (three on each side of the centre broad grass path) were filled with standards rising out of dwarf polyantha roses. In another part of the garden were three rather large beds holding now about fifty roses apiece. To confine myself to the rose garden, it seemed to me that my predecessor had, like myself, been weaned from the desire of acquiring novelties, for the sixteen beds were planted as follows: 1, Hugh Dickson; 2, Mrs. Herbert Stevens; 3, Mme. Edouard Herriot; 4, Mme. Abel Chatenay; 5, Lieut. Chauré; 6, André Gamon; 7, Mme. Jules Bouché; 8, Lady Hillingdon; 9, Richmond; 10, Lady Pirrie; 11, Frau Karl Druschki; 12, Château de Clos Vougeot; 13, Mme. Mélanie Soupert; 14, Mrs. Wemyss Quin; 15, General McArthur; 16, Caroline Testout. The standards in the middle beds are chiefly single specimens of the above. These are all good old "chestnuts," and scarcely one would be found now in a rose grower's list in an advertisement to attract the buyer. My chief object in writing this is to state my reactionary opinion that (eliminating perhaps four of the above list) it would be impossible to get a better feast for the eye and nose than can be obtained from these old stagers. Perhaps my antagonism to a semi-double rose vitiates my opinion, and so many of the modern new roses appear to me to suffer from looseness and floppiness, and also the present object seems to be to seek after vivid rather than pure colour. Some twenty years ago an old rose grower who was very successful at the shows told me that for form he considered a well grown bloom of the old A. K. Williams was ideal. I think his opinion now would be received with scorn.

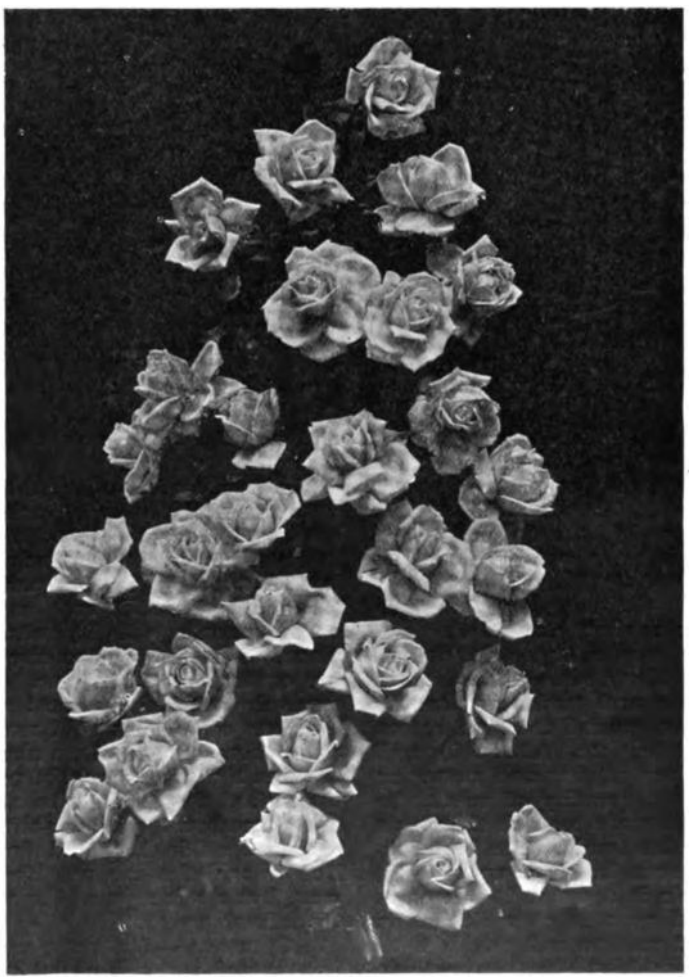
I should like to say a word or two about the roses I have named. First, Mme. Jules Bouché is one of the best, though it is dubbed "blush" in the catalogues. With me it is as white as Frau Karl Druschki except for an occasional blotch of pink in one out of five blooms. It is gloriously scented, of beautiful shape, and very generous in bloom and continuity. Mrs. Herbert Stevens, though more of a "bud" rose, is still more generous, and I have picked a bowl of good blooms in November. Mrs. Wemyss Quin is the best yellow I have ever grown, and I think I have tried most yellows. It is very healthy and disease proof. Lady Hillingdon always responds most heartily to one's efforts. I regret very much I cannot grow Mme. Abel Chatenay. It was dying out when I came here, and as in former years I had replanted a bed of fifty only to fail, after two years I expelled this rose from the rose garden.

If she be not fair to me,
What care I how fair she be.

I wanted to replace it by another old rose, Antoine Rivoire, but I yielded to the persuasion of a well known rose firm and put in Henrietta, and have regretted it ever since. Château de Clos Vougeot also did not succeed too well, and I replanted the bed with another old rose, Laurent Carle. With beds of twenty to twenty-four roses of the same sort casualties spoil the effect. When another shilling comes off the income tax I shall replace Druschki and, I think, Richmond. The first because it does not interest me, and the second because of its lack of vitality. Mme. Herriot I keep because it does extraordinarily well and others like it better than I do.

The two things I find very essential in treatment are: (1) Keeping the Dutch hoe going constantly but very carefully. I say carefully, for a touch of the hoe on the rose stem I have found does great damage. (2) Spraying and dusting. Green fly must be fought and fought early, and I find Mr. Pinches' Patent Dust Gun, recommended for dusting sulphur in the National Rose Society's book, is invaluable for keeping away mildew and black spot.

I do not entirely approve of the dwarf polyantha roses in the middle beds and would like to see another 100 dwarf hybrid teas there, but being there they must stay for the present and the effect is



AN EXCELLENT ALL ROUND GARDEN ROSE, HUGH DICKSON.

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A PRETTY DECORATIVE ROSE, LADY HILLINGDON. BRIGHT YELLOW IN COLOUR AND A VIGOROUS GROWER.

ONE OF THE BEST FOR ALL PURPOSES. CAROLINE TESTOUT, WITH WARM PINK FLOWERS.

certainly pleasing. In pruning these I do not take the advice of the National Rose Society's manual, but cut right to the ground as advised by the rose grower from whom I first purchased my roses. Having tried both ways, I have no doubt as to which has the best result.

To sum up, my advice to the small rose grower is: (1) Seek pure colour; (2) choose either single or double and eschew the floppy varieties; (3) choose generous-growing roses that will not let you down; (4) satisfy both senses of sight and smell.

I have not said anything about the three beds of fifty roses in another part of the garden. They are without system but very useful for keeping old favourites whose blooms I still want to see and also for the occasional trial of a novelty. Casualties do not matter so much in a large mixed bed. Also these beds save the rose garden from depredations at the hands of the ladies cutting flowers for the house!

POPULAR DAHLIAS

PREPARATION OF THE SOIL.—Those contemplating making a feature of dahlias in the garden should begin preparing the ground in autumn or winter. Any piece of good garden ground, neither too light nor inclined to clay, and well drained, either naturally or by artificial means will grow dahlias. When new ground is being converted for this purpose, it is well to trench it 2ft. or 3ft. deep, and incorporate some manure between the spits. What is worth doing is worth doing well, and the gardener may rest assured that well prepared beds or borders will last or be used for growing dahlias for an indefinite number of years. Many of the old school of successful growers, both nurserymen and gardeners, used to plant their dahlias on borders or on ground that had grown this class of plants for twenty years or more. After being well trenched at the commencement, deep digging and manuring may serve for many years. A large quantity of manure is undesirable, because, if the ground is made too rich the plants will grow unusually tall and flower less freely. The best plan is to dig and manure it in the autumn, laying it up roughly, so that rain and frost may crumble it down and sweeten it during winter. One is often called upon to grow dahlias in light soil, but plenty of depth and manure will rectify that. Heavy soils can be made more open and friable by dressing them every year at the time of digging with gritty road sweepings, river or pit sand, and using rank stable manure. A dressing of newly slaked lime once every three years will also help in the same direction.

PROPAGATION.—The dahlia may be propagated from seeds, cuttings, divisions in a variety of ways, and sometimes by grafting. Seeds of a good strain, belonging to any class may be sown during March or early in April, in pans, pots or shallow boxes, according to the quantity to be reared. Any sandy soil and leaf mould, such as is used for the rearing of half-hardy annuals, will be suitable. The seed pans should be placed where they will receive a bottom heat of 60°, either in a propagator or a close case. A system which used to be extensively pursued by most raisers of dahlias was to place the pans on a hot-bed of manure, where the heat and moist atmosphere brought them along quickly. When the seedlings are 2ins. high they should be potted singly in small pots. When established they should be allowed to stand on the benches of a warm house, given a shift into 4in. pots when well rooted, hardened off in May and finally planted out early in June. Double varieties are not likely to reach perfection the first year, but a selection of the very best may be made for trial the following year.

CUTTINGS.—The most usual method of propagating the fine, named varieties of dahlias is by cuttings. A commencement may be made during February or March by planting the old roots in light sandy soil on a mild hot-bed, or in pots or

boxes, leaving the tops or crowns fully exposed. Some gardeners plant them in sandy soil under the benches of a warm house near the hot-water pipes. Anyone can adopt a plan that is most convenient. The soil used should be suitably moist and if it becomes dry it may be lightly watered, with a rose or a syringe to encourage the tubers to commence growth. When the shoots are 2ins. or 3ins. long they may be removed with a sharp knife close to the tuber, and inserted singly in thumb pots filled with sandy soil, or five or six round the edge of a 5in. pot, with a layer of silver sand on the top in each case. The pots can now be placed in the bed of a propagator or in that of a hot-bed where they will get a bottom heat of 60°, assisting the rapid formation of roots. When well rooted they can be potted off singly in 3in. pots and grown there till the pot becomes too small, when they should have a shift into 5in. pots. A good rich soil should be used for both pottings and the plants well exposed to light in a warm house. As soon as they are established in the larger pots, or early in May, provided the weather is genial, they should be transferred to a cold pit or cold frame, well hardened off towards the end of the month and planted out early in June, or as soon as the weather will permit without the necessity of protecting the plants at night with inverted pots.

DIVISIONS.—Where the quantity required is not large, or where the convenience for rooting cuttings is not great, recourse may be had to division of the tubers. Even for this process some means of heating will be necessary to start the old tubers into growth, because it cannot be seen where sprouts will arise until growth commences. Young growth can only come from the top of the tubers, where they join the base of the old stem. The young shoots just appearing may be ½in. to 1in. long or more, and they can be removed with an inch of the old tuber or even less. This piece of tuber makes the sprout certain to grow into a plant, even if only sun heat is available in a greenhouse or frame. This makes it possible for anyone to propagate dahlias by division during April. A box may be filled with roots, another box placed over the top to preserve the moisture, and, if put where a kitchen or scullery fire will give a little warmth, the roots will gradually commence growth. An outhouse or cold frame will give the necessary protection during May, providing the growing divisions can be well exposed to light. Sometimes the old roots are planted out whole during May, but such do not make good flowering plants unless they are severely pruned, leaving two or at the most three stems.

Grafting is sometimes performed in autumn to save a new or rare plant in case the root should die. A thin slice is taken off the side of a cutting, and another similar slice from a tuber. The two are tied together so that a good union is ensured. The point of union of the stock and scion is then covered with clay and potted so as to protect the base of the graft. The pot is placed in bottom heat till a union is made, and the plant kept growing in heat all the winter.

PLANTING.—It is generally safe to plant out dahlias during the first week of June, if they have been previously well hardened off by exposure to the air. A sunny position is imperative if the best results are to be obtained. Whether in beds or borders they deserve a prominent place in the garden. The ground, if properly dug level and broken up finely need not be raked unless it is rough. Lay the garden line and mark off the space to be planted at 3½ft. or 4ft. apart, allowing the second and fourth lines to alternate with the first and third. It is a good policy to drive in the stakes first, behind the line, and exactly straight. Then lift the line and dig a fair sized hole in front of each stake, adding a spadeful of well rotted manure and plant the dahlias a little deeper than they were in the pots. The after-treatment consists in hoeing the ground frequently, watering heavily in dry weather, thinning and tying the shoots as required. Fine bushes can be made by driving a smaller stake on each side of the main one, and fixing a good side branch to each. Earwigs are the chief enemies of dahlias and should be trapped as soon as they are detected or earlier. J. FRASER.

(To be continued.)

HARDY HYBRID RHODODENDRONS

DURING the past twelve months a great deal has been written about rhododendrons, and, probably, among the devotees of the great genus discussion can scarcely be said to be final; indeed, it resembles Tennyson's brook, going on for ever! Looking back over the period during which I have been personally interested in the subject, I have never known a time when so great an interest was taken as the present. This I look upon as being a happy omen for the future. Each additional devotee to the subject furthers the general interest. The introduction of many new species by Wilson, Forrest and other great explorers has given a new impetus to the interest in rhododendrons, and undoubtedly, with the large number of persons actively engaged in the work of hybridisation, in a few years our gardens will contain many beautiful hybrids of a type quite distinct from those with which the general public are now familiar.

I see no reason why there should not be a fine race of really late rhododendrons extending our present flowering season well into July. There is no difficulty in raising fine hybrids in the early-flowering section. There are so many beautiful species which can be drawn upon, and indeed there are in existence a large number of very beautiful kinds of what may be called early flowering as compared to the season when the great mass of hardy hybrids come to perfection. But, alas! the general public rarely sees this class of rhododendron in perfection. In order to do so one must visit the western coasts, where the influence of the Gulf Stream is sufficient to temper the more severe conditions prevailing in our inland and eastern counties.

The amateur with a garden suitably situated in our southern and south-eastern counties can get fairly good results with a number of hybrids and species which from a general gardening point of view must be looked upon as being tender plants, subject to damage sufficient in certain seasons to kill them completely. It is evident that, such being the case, the intending planter should obtain the best advice as to what species or hybrids are likely not only to survive but to thrive in his particular locality. Personally, in visiting gardens, nothing annoys me so much as to be shown a miserable plant struggling for existence in a climate quite unsuited to its constitution

CHARMING TRUSSES OF ONE OF THE HARDY HYBRIDS

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and which its owner proudly tells me is the only one in the country.

In dealing with the question of hardiness of any plants, the selection of the right site in a garden is of the greatest importance. Woodland planting of rhododendrons, where practicable, is by far the best. Fortunately, they thrive well under trees provided there is not too dense shade, in which case, although they might thrive in a growing sense, the flower would be scanty and possibly of poor quality.

The ideal position is in a wood, fully matured, which has been thoroughly thinned, and the trees allowed a fine head development and where there is considerable head space before reaching the branches. Side shelter to prevent such a wood being draughty is essential, and should be as dense as possible. Under such conditions it is possible to grow many plants which, if planted outside the wood, would rarely give satisfactory results. I consider the protection afforded to rhododendrons in these ideal conditions represents, in still, frosty weather, a difference of 8° or 10° of temperature.

The winter frosts, unless very severe, and such as we experienced in 1895, when several nights the thermometer registered well below zero, do not injure rhododendrons so much as the frosts we get prematurely in November, before the plants are thoroughly dormant, or in spring, particularly through the glacial period, when they have become active again and the sap is up. These frosts, especially when there is a certain amount of wind, are very penetrating and do a lot of damage. The spring frosts are very annoying, as they usually time their arrival at the moment our most treasured specimen is about to bloom. I have noticed in recent articles about rhododendrons a tendency to eulogise the species and more tender forms of hybrids. I admit their charm and beauty in their proper sphere, but I cannot help feeling that many people are sadly misled and are induced by the glowing description to plant them without any thought as to the suitability of the proposed planting. I am, of course, specially interested in hardy hybrids, and can speak with a certain amount of knowledge on this particular branch of the rhododendron family. Bagshot has been responsible for sending out a large number of recognised and tried favourites suitable, for the most part, to planting in any garden in the British Isles where soil conditions are favourable, and it has been always our great aim to retain as far as is possible a completely hardy breed. Perhaps the most famous hybrid we ever raised is Pink Pearl, which combines hardiness on the one side with the beauty of form generally associated with the more tender section of hybrids emanating from the same origin on the other side of the cross.

There has been from time to time a lot of discussion as to its real origin. I may say that it originated in Bagshot from a cross made by the late John Waterer, my father, and I was left to introduce it to the public. Few plants of any kind are better or more widely known than Pink Pearl. Among the majority it is greatly admired, and it is certainly largely planted, but it has its unfriendly critics! Indeed, there may be said to be two schools of rhododendron fanciers, to one of which Pink Pearl is anathema and to the other the "Queen of Flowers." I submit that poor Pink Pearl is a crumb from the rich man's table, and "Lazarus"—in this case the rhododendron fancier whose garden is not in the most favoured locality—has much to be thankful for. Other hybrids somewhat of the same type have followed, but none has yet deposed Pink Pearl from its position as the finest of *truly hardy* hybrids. Nobody would venture to prophesy as to the future, but I believe it will hold its position for some years. When I reflect that some of the most popular hybrids to-day, such as Michael Waterer, John Waterer, Lady Eleanor Cathcart and others, were introduced by my grandfather, it is not to be wondered at that I should say Pink Pearl will still be a favourite in another fifty years.

A WELL-FLOWERED BUSH OF RHODODENDRON PINK PEARL, AMONG THE FINEST OF HARDY HYBRIDS.

I hope I shall not give any offence to those brilliant amateurs now interested in the genus rhododendron, and I hasten to say that my notes here are not addressed to them, but rather to those to whom a fine group of rhododendrons appeals but who lack any special knowledge as to what to plant and where to plant it. To them I would say, "If you think you have the right sort of garden or woodland garden to grow the species and more tender hybrids, by all means plant them, but do not forget to add some of the best of the hardy hybrids, which will give each year a brilliant finish to the flowering season; and if your garden is not of the most favoured, be content with the less grandiose of the rhododendron family and be duly thankful for these."

F. GOMER WATERER.

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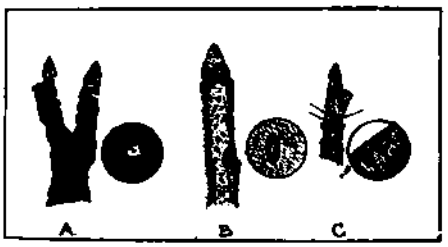
SYMPTOMS OF DISEASE ON GARDEN PLANTS

NOW that spring is with us, when all life, both in the animal and plant world, is awakening from its winter sleep, and the gardener and fruit-grower are busily engaged in their respective duties, it is advisable



INSECT EGGS, SHOWING METHODS OF DEPOSITION
A, Apple sucker; B, aphis; C, red spider.

to make a few remarks on several of the more common pests which one comes in contact with throughout the spring and summer in any average garden or orchard. In these days, when the study of mycology, plant pathology and entomology is becoming increasingly important, and with the advent of many diseases new to this country, it is well that the average man should maintain a strict look-out for the occurrence in his garden or orchard of any attack of disease on his plants, bushes or trees. Every facility is now being given to the business man who may have a passing interest in horticulture to familiarise himself with the many aspects of plant disease, and it is to be hoped that the energies of men engaged in the pursuit of knowledge, will lead us to a better and wider understanding of how the many causes act on the host and how disease is transmitted. Mention might be made of the invaluable assistance and help, in the shape of publications and leaflets, afforded by the Ministry of Agriculture to all those engaged in cultivating the soil to the best advantage. These leaflets contain much useful information served up in a form which is palatable to all, and are excellent as works of reference.

The question of immunity from disease is one of exceptional interest and importance, and would require at least one, if not more, separate articles. One point worth mentioning is the question of the native habitat of a plant, if it be a new introduction. These introductions to the flora of this country—if taken up by the gardening public and, hence, undergoing intense cultivation—are liable to the attack of many diseases which apparently spring into being as a result of the increasing numbers of the new host. Climatic and topographical conditions are also important from the point of view of spread of a disease.

I think, perhaps, it might now be well to examine a few points, giving the general symptoms of insect and fungoid attack and so enable one to determine the agent at work as far as is possible from an external examination. It may be stated at the outset that the greater part of the damage done to fruits, garden plants and vegetables is the work of insects and that few plants are immune from their attacks.

The number of genera and species of insects is enormous and the diversity of their food is only exceeded by their variation in form. Most insects exhibit the same metamorphic changes. One finds in the majority of cases, and especially in that of the lepidoptera, *i.e.*, moths and butterflies, that four entirely different morphological forms are met with. Two active and feeding stages are found alternating with two inactive and non-feeding stages. The active stages are the important ones from the cultivator's view-point, as it is in these conditions that the insect can be best attacked and destroyed. In the case of the moth, these forms are the caterpillar and the adult moth, and it may be well at this point to distinguish between these two in the mode of feeding. The former obtains its food by biting and the latter by sucking. Thus we have created an important division, enabling one to distinguish damage performed in the garden: (1) Those which, by biting, extract entire portions of the plant, and (2) those which pierce

PEA AND BEAN WEEVILS.
Typical examples of the biting group.

the tissues of the host plant by means of their proboscis and extract their food by sucking from the interior of the plant. In the first case it is possible to kill the insect by spraying a poisonous solution on the plant, but in the second this cannot be done, as the plant as well as the insect would be killed, since the poison would require to enter the tissues of the host itself to prove in any way destructive to the insect. In some cases the former method does not apply, as, for example, with those caterpillars which bore into the tissues of the host and those which live for the most part underground. In the majority of cases, however, this distinction is of enormous importance, serving to show one how best to attack the insect. The larvæ of butterflies and moths, beetles, sawflies, and two-winged flies, come under the first category; also adult weevils, wasps and ants. Into the second class fall scale insects, aphides and two-winged flies in the mature stage. In order to deal in a proper manner with a pest it is necessary that the life-history of the particular insect under discussion should be known. From that one can then determine at what period in its life cycle the insect is most open to attack by the application of an approved insecticide. In this way, then, can the success of an attack and ultimate destruction of an insect pest be brought about.

The presence of insects in a garden or orchard is generally easy to detect, and where insects are suspected, a search should be organised to weed them out.

When clean-cut holes are found in the tissues, caterpillars, larvæ of sawflies, grubs, beetles or cockroaches, may be suspected. Weevils, *e.g.*, pea and bean weevils, are generally found to cause damage by eating away the edges of leaves, and the bark in the case of seedling trees, *e.g.*, pine weevil. Boring in stems is characteristic of the larvæ of many moths, *e.g.*, goat moths and bark beetles, raspberry moths, etc. Blisters may be caused in the foliage by many flies, such as the celery fly, chrysanthemum fly and also by a few caterpillars. The damage of the carrot fly is characteristic—the larvæ tunnelling in the tap root. Roots are also destroyed by wireworms, chafers, etc. When one finds tunnelling in the fruit it may be caused by the larvæ of moths or sawflies. The apple moth and tomato moth are to be found holing the fruit. Flowers are oftimes devoured by many chafers, while destruction of buds is carried on by the carnation fly and bud moths. These symptoms referred to are all more or less produced by the biting group. On the other hand, scale insects often cause minute holes accompanied by a puckering of the leaves and a consequent discoloration. Honeydew is generally present in abundance on plants affected by green fly. One-sided growth in flower-buds is in many cases due to the puncturing of the stem by a scale or bug. Many woody plants show stunted growth and curving shoots due to an attack of a scale.

From a general point of view it may be mentioned that one often finds what are popularly known as "galls" produced on many plants, of which the oak is the outstanding example. These are caused by irritation set up by gall flies. The interest in galls lies in their multitude and their variety of form, shape and occurrence. In a few cases the presence of an insect can be determined by its excrement or by frass—fine sawdust—lying about (the latter if it is a wood borer). In a more or less superficial way, then, I have tried to present a short *résumé* of the

THE CELERY FLY.
1, Celery fly; 2, grub; 3, chrysalis.

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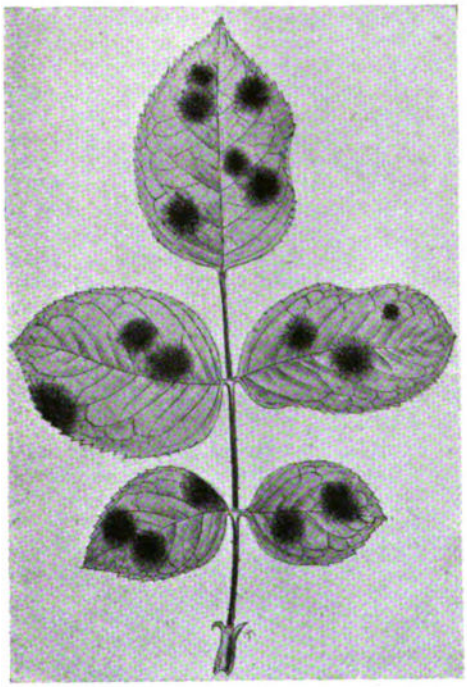
nature of the damage caused by insects on plants. In most of the above cases the insect is wholly parasitic on the plant, at least during one part of its life-history.

For the sake of comparison I will endeavour to run over in a brief way the appearance of fungus attack on plants. Now, as everyone knows, the fungi belong to the lowest group of our plant life. They are characterised, by forming what is known as a branching mycelium made up of thin strands called



ROSE LEAF ATTACKED BY BLACK SPOT, SHOWING THE CONSEQUENT DISCOLORATION.

hyphæ; and by being destitute of chlorophyll—the green colouring matter found in all other groups of plants, although often overshadowed by the presence of other pigments, as in the case of the red seaweeds. Since this colouring matter is absent, which in the ordinary green plant supplies the necessary energy whereby carbohydrate food material in the forms of sugar and starch is manufactured, the fungus must create some other mode whereby it can flourish, and consequently it becomes a parasite—or a saprophyte. The former term is applied if it absorbs its food material from a living host, the latter if the host is either decaying or dead. It is being proven slowly that most of our parasitic fungi are facultative, *i.e.*, they can become saprophytes under certain conditions, and this is a point of extreme importance when tackling the disease.

Diseases due to fungi are, in general, characterised by the formation of spots of various colours on the infected parts of the plant. These spots may be due to the aggregation of the spores of the fungus on the surface of the plant or to damaged cells caused by the hypertrophy of the tissues due to the presence of the fungus. Increased growth may also be a result of a fungus attack. Environmental conditions, such as a suitable temperature and moisture, are necessary for the proper development of the fungus and for its spread, and if the suitable host be present in sufficient numbers in the vicinity, the attack may resolve itself into an epidemic. One should be careful in the interpretation of a disease, as many fungi are secondary, *i.e.*, one fungus, having caused the death of an organ, disappears, its place being taken by a secondary fungus, which can be seen. It is better to follow out a fungus in all its various stages before one reaches a definite conclusion. It should be grown through its life cycle and then used to reinfect the host from which it was collected in order to see if the same symptoms are produced. It may be said here that identification of a fungus can only be carried out with accuracy if the spores are found. Certain fungi *e.g.*, the rusts, a group by themselves, spend part of their life on one host and the other part on a second host. The stage found on the first host will not be found on the second host. This is an important point to look out for when dealing with a fungus pest, as the attack may be met by destroying all the host plants of one stage of the fungus. Many of the common weeds act as the alternate hosts for these fungi. All these phenomena

ONE OF THE MANY HOSTS OF STEREUM PURPUREUM, THE FUNGUS CAUSING SILVER LEAF.

go to make the study of fungi an intensely fascinating as well as important branch of botanical science. G. C. T.

GREENHOUSE PRIMULAS

DURING the last ten years or so these plants have been considerably improved, and now they occupy a foremost position among greenhouse flowers that make such a bold display during the winter months. There is a wide selection to choose from, the colours are both varied and attractive, while the foliage of many is an additional charm.

No doubt the most decorative section of primula is P. stellata, a free-flowering group which remains in full beauty for quite a long period. Among the best will be found Sutton's Silver Star, a pure white variety without the usual "eye," and dark foliage which makes a pleasing contrast. Another exquisite form is Ruby, a rich crimson which is intense even on the dullest day, and no doubt it is one of the best. Coral Pink is indispensable; the flowers, a rich, creamy pink, are freely produced, and the reddish tinge in the stalks of the leaves renders the plant more beautiful as a whole. Both the Light Blue and Dark Blue are good, but Enchantress did not please me nearly so much as the above. There is even a wider selection among the large single primulas than in the stellata section, but they are rather stiff in appearance, and for this reason are not favoured by some growers. Most firms of repute have a list of varieties in their catalogue, and Giant White, The Duchess, Etna, Coral Pink and the various shades of blue are all desirable kinds. A good mixed strain of P. obconica will produce a fine display in the winter and spring months; but for those that object to mixed colours there are shades of pink, crimson, blue, white, lilac and salmon, which can be relied upon to come true from seed. P. malacoides is such a dainty primula that it is well-nigh indispensable, and if a little seed is sown at intervals of about eight weeks the flowering season is considerably extended. The flowers are lilac or pale mauve, and there are several improved forms in commerce, but I hope the type will be preserved. Quite distinct in colour is the delightful P. kewensis, which bears flowers of a rich yellow colour, and a batch of well grown plants when in bloom is exceptionally fragrant. A pretty little plant is P. Forbesii; it is a charming miniature half-hardy species with rich rosy-mauve flowers with a yellow eye. It will bloom in a three-inch pot, therefore occupying little space.

All the primulas mentioned are raised from seeds which are sown during May and June; but P. obconica may be sown a few weeks earlier if flowers are required during the autumn months. Clean, well drained pots or pans are chosen, and filled with a mixture of loam and leaf-mould with a moderate

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sprinkling of sharp sand. Water well a few hours before sowing the seeds. Sow the seeds thinly, only a slight covering being needed, and place the receptacles in a warm greenhouse where the temperature is about 60° Fahr. A piece of glass placed over the top of each pot or pan will prevent the soil from becoming dry, while shade will be necessary when the sun is bright. Under such conditions germination will be fairly regular, and when the seedlings appear the pots should be placed near the roof glass to prevent the growth becoming weak and spindly. When the seedlings are ready the largest may be placed singly in 60 size pots, and the smaller ones pricked off in pans or around the edge of a pot about 3ins. in diameter. A brick pit will suit them best at this stage. Afford water in moderation, and protect the young plants from strong sunlight; but there is no necessity for the shade to be dense. A little air should be admitted during the day, also at night when the roots have taken possession of the soil. In a few weeks the pots will be filled with roots, when the plants will be ready for their final potting. The majority will go into pots 5ins. in diameter, and a few of the best examples may be given a size larger. Good drainage is essential, and the pots should be clean both inside and out.

The rooting medium consists of fibrous loam three parts, and one part leaf-mould, with a liberal sprinkling of lime rubble and sand. When repotting, make the soil moderately firm, and see that the roots are low enough for the top of the plant to be made secure without the assistance of a small stick. If properly potted and grown cool, these primulas never need staking.

Cold frames not exposed to the midday sun will suit the plants after their final potting until the nights become too cold, when a cool greenhouse is all that is required.

Primulas enjoy at all times a cool bottom, and if the staging is covered with a layer of ashes or gravel, it will prevent the roots from becoming dry at short intervals.

Throughout their existence careful watering is advisable, and after the seedling stage every effort should be made to grow the plants as hardy as possible.

PRIMULA STELLATA CORAL PINK.

Insect pests are not troublesome, but green fly often appears, which can easily be destroyed by light fumigations. It is imperative that this pest is never allowed to make any headway or the young leaves will be ruined.

This short note can only give a small selection of these excellent plants. Their position in the greenhouse or conservatory for winter and early spring decoration is unassailable, but they are so easily grown that cultivators are inclined to become a little careless. Numbers of plants can be seen whose appearance would have been just a little improved if simple methods such as are described above were followed out. T. W. BRISCOE.

ONE OF THE BEST OF GREENHOUSE PRIMULAS, P. MALACOIDES.

FORTHCOMING EVENTS.

April 14.—United Horticultural Benefit and Provident Society's Meeting.

April 15.—London Daffodil Show, to be held at the Royal Horticultural Society's Hall (two days).——Croydon Horticultural Society's Meeting.

April 16.—Glasgow and West of Scotland Horticultural Society's Meeting.

April 19.—Newcastle and District Horticultural Society's Spring Exhibition.

April 24.—Midland Daffodil Society's Exhibition (two days).——Royal Botanic Society's Meeting.

April 25.—Manchester and North of England Orchid Society's Meeting.

April 29.—Royal Horticultural Society's Fortnightly Meeting. —— National Auricula Society's Exhibition, to be held in conjunction with the R.H.S. Show (two days).

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THE ALPINE LAWN

BY CLARENCE ELLIOTT.

THERE has sprung up among rock gardeners during recent years a distressing mania for indiscriminate massing. Gigantic slabs of aubrietia are planted, Dr. Mules after his kind and Fire King after his kind, each to each, in a studiously irregular sort of futuristic bedding out.

AN ALPINE LAWN IN SWITZERLAND POPULATED WITH THE HANDSOME AND GRACEFUL RANUNCULUS PYRENÆUS.

DOUGLASIA VITALIANA WITH ITS SMALL YELLOW FLOWERS AND PROSTRATE HABIT SHOULD BE GROWN IF SPACE PERMITS.

I admit that bold massing of colour can be very effective in the rock garden, and I confess that I often practise it myself. But one must guard against too rigidly shepherding one's plants. I once planted 16,000 Erica carneas in one fell swoop on a hillside adjoining a big rock garden that I was planting. But I broke up the mass by adding several dozen big specimens of Erica arborea and an under-planting of some thousands of Trillium grandiflorum.

There are some alpines which are best massed. Others should be planted as isolated specimens, while others, again, are essentially mixers. Gentiana acaulis I would always plant in unadulterated drifts, although in nature it grows in small but frequent tufts scattered through the turf. Erinacea pungens I would always plant as solitary specimens. So, too, the Kabschia saxifrages, S. Burseriana and the like. They are bad mixers. But in the general planting of the rock garden I have come more and more each year to lean towards mixing as a means of avoiding any appearance of jazz bedding out. I mix aubrietias, and I love to place mossy phloxes of different colours so that they will run into one another. Arenaria montana will tangle itself delightfully through a mass of Lithospermum prostratum, and if a streak of Heavenly Blue strays in as well so much the better. The only use for the albino Gentiana acaulis is to drop one casually in among a host of the blue type, to suggest the occasional albinos one comes across in the Alps. Or in planting thrifts you may make a pretty drift of the white Armeria maritima alba, another of the deep pink variety Laucheana, and yet a third of the deep crimson Vindictive. And then you label them. Good. But take a dozen Laucheana, five of Vindictive, three of alba and a dozen of the old common pale chalky pink one, mix well together and plant in an irregular undulating drift, and you will have some sort of a reminder of the way thrift grows on the sea coast, in endless and ever-fascinating variety of colour tone. Not only this, but you will have done away with the possibility of at least three labels in your rock garden. You cannot label a mixed batch such as this.

Five or six years ago I made a new experiment in mixing. I had an old stone sink about 3ft. long, 2ft. wide and 3ins. or 4ins. deep, and decided to make a tiny garden in it. As a development of my growing mania for mixing I collected together a great store of small turf-forming alpines. Among others were Gentiana verna, Arenaria verna, Primula farinosa, P. scotica, P. minima, Douglasia Vitaliana, Silene acaulis, Antennaria dioica, Azalea procumbens and so forth. All these and some others I planted, mixed and very close together, in my sink. And then one day, about a year later, a strange thing happened. I was looking at my sink garden and was reminded of the Alps. A common old stone kitchen sink rescued from a builder's yard is the last thing to which one would go to be reminded of the Alps. Yet I felt then as distinctly Alp-sick as one may feel home-sick. The feeling was so strong that I wondered why, and then realised that my little mixed garden—one corner of it especially—was an almost exact reproduction of the close-flowered lawns that

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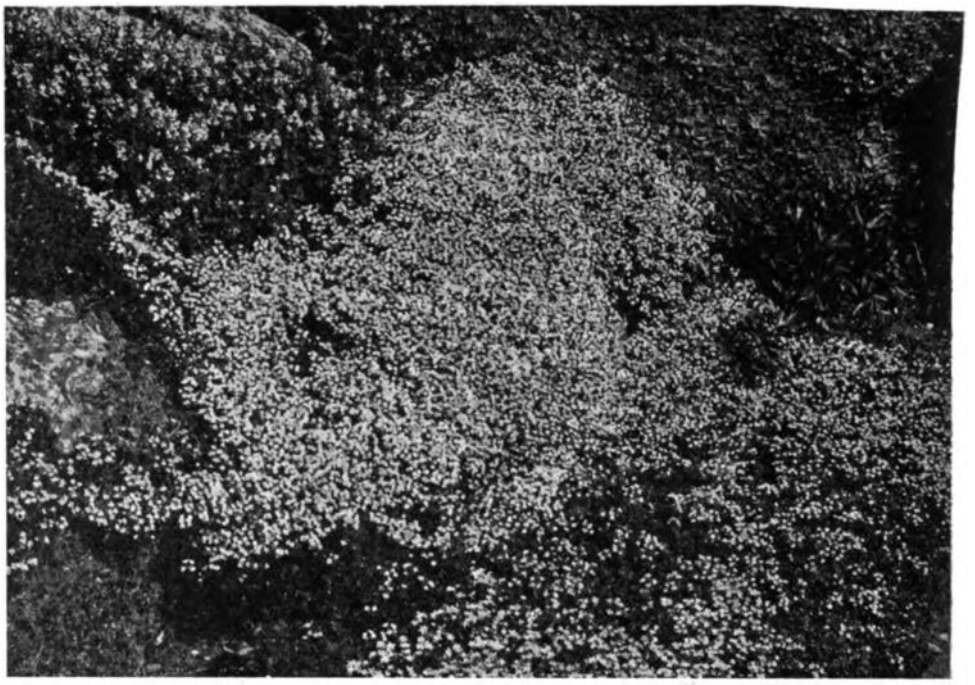
one finds everywhere in the high Alps. The plants had matted together. It *was* an alpine lawn, all except the fine grass, and that did not seem to matter. And I realised that I had happened on a great discovery—the problem of the alpine lawn. Always one had longed to grow the lawn alpines in lawn. The grass had always been the difficulty. Folk had experimented endlessly with various grasses, I had done so myself, but all to no purpose. Every grass that was tried grew rampant and thugged the alpines to death. But leave out the grass altogether, choose your plants with care, mix them, and they will themselves mat together and form a turf, and not only give a delicious sense of flowered alpine lawn, but many of them will be all the happier for the root association that the plan provides.



ONE OF THE MANY SMALL ROCK PLANTS, THYMUS SERPYLLUM, WHICH BY ITS TANGLED GROWTH RAPIDLY FORMS A DENSE MAT.

This method of making alpine lawns need not be confined to stone sinks, though a sink is an excellent thing to begin with and experiment in. You may just as well begin in a pocket of the rock garden. Let the soil be not too rich, and plant thick, even if you have to begin on a small scale. Besides the plants I have mentioned I would suggest also the following: Viola Bertoloni, V. gracilis Lady Crisp, V. heterophylla (if you can get it), Polygala calcarea, P. vulgaris, Myosotis rupicola, Bellium minutum (Little Mary), the single red daisy which is called Bellis sylvestris and isn't, Oxalis magellanica, Primula longiflora, Ranunculus pyrenæus, Raoulia glabra, Silene alpestris, Thymus Serpyllum minutum, and so on and so on. Labelling is, of course, out of the question. Tidy-minded gardeners may think this mixed lawn planting too wild and uncouth. Those who love the flower lawns of the Alps will find it couth, perfectly couth, and delightful.

THE ALPINE LAWN WOULD NOT BE COMPLETE WITHOUT ARENARIA PURPURASCENS.

AZALEA PROCUMBENS WILL SPRAWL OVER THE SLOPE AND WILL FORM ITS OWN TURF.

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SUMMER SALADS

ALTHOUGH salads are much appreciated all the year round, they are in great demand during the summer months, when, next to luscious fruits, they form the most refreshing of foods. Of course, the plants should be home-grown and so due preparation of the various crops should be undertaken in good time in the garden.

BEETROOT.—The current year's crops are not available before the latter part of summer; the globe varieties being the first to mature for the salad bowl. It is during the late summer and early autumn that this root is most appreciated. The soil, for both the globe and long-rooted varieties, should be deeply broken up and, if poor, well enriched with rotted manure, several weeks prior to the time for seed sowing. There is nothing gained by sowing seed too soon, even in the southern counties. The first week in May will suit admirably; and from May 10th to 20th in more northern counties. With the aid of the garden fork loosen the surface soil and make it even finer with the rake. Draw out shallow drills 14ins. apart, sow the seed thinly, thin out the resultant seedlings gradually, finally leaving the best plants about 8ins. apart. Sparrows are fond of the young leaves and should be guarded against. Keep the Dutch hoe in use every week, to prevent the growth of weeds and hasten the swelling of the roots. Red Globe, Cheltenham Green Top, Dell's and Crimson are good varieties.

CELERY.—The white varieties are the most serviceable for summer salads. The plants grow quickly and are easily blanched. The seedlings, when quite tiny, should be transplanted nearly 2ins. apart, in boxes filled with a light, rich compost made moderately firm. The plants will grow steadily and satisfactorily in a frame at this season. The permanent shallow trench, or bed, should be prepared forthwith, the soil being rich and firm. Celery thrives in rotted manure, fine soil and soot, with a good sprinkling of wood ashes. Gradually harden the young plants and carefully transfer them to the trench late in May and early in June. Water regularly in dry weather and apply diluted liquid manure and clear soot water weekly when the plants are growing freely. Remove the basal side shoots, tie up the stalks loosely and wrap strips of brown paper round each plant to ensure blanching. A handful of coarse sand, ashes and soot, mixed, placed round the base of each specimen, will keep slugs away to a great extent. Solid White, Sandringham White and Sulham Prize Pink are very suitable.

CHERVIL.—A fine soil is essential for the successful raising of the seedlings. Given this attention any ordinary soil will do. Simply keep the seedlings free from weeds and thin out the same way as in the case of parsley. Sow, first, early in April and several times till the end of July.

CHICORY.—Although this is used during the winter months the roots must be grown in the summer. Ground prepared as for parsnips will do for chicory. Sow the seeds in shallow drills 14ins. apart and thin out the resultant seedlings to 9ins. apart. The object should be to grow very strong roots and crowns for lifting and forcing in the winter.

CORN SALAD.—The seeds should be sown in a rich soil about the third week in July, to form a supplementary crop to other salads; although, those cultivators who like to be able to gather leaves earlier may sow the first batch of seeds in April. Sow in drills 1ft. apart and thin out the young plants to 8ins. apart. Gather the leaves separately, the same way as when gathering spinach.

CRESS.—The best way is to set apart a portion of a north, or north-west border on which to raise plants in batches to succeed those raised under glass. The soil should be made very rich, levelled, watered and the thickly-sown seeds pressed lightly into the wet surface with a flat board. Sow seeds fortnightly.

CUCUMBER.—Undoubtedly, this is regarded as a very important salad whenever the fruits can be secured. The early ones are highly prized. It is rare, nowadays, to find a naturally bitter variety; the bitterness, when present, is, mostly, owing to cultural defect, a too cold temperature and over-long period of growth.

At the present time no doubt many readers of THE GARDEN will possess some young plants in 3in. pots—or larger—and bearing three or four rough leaves. Such plants should be transferred to beds of light compost on hot-beds in houses or frames, without delay. A summer temperature, atmospheric moisture, water and liquid manure at the roots, syringing and closing the structure with sunheat available after three o'clock in the afternoon, tying and stopping shoots at every joint beyond the show of fruits, all combine to ensure a plentiful supply of tender cucumbers.

In frames very similar treatment is required, but more care should be taken in the matters of watering, syringing and ventilation; the weather conditions will be a good guide when the cultivator is deciding what should be done. On the warmest days less moisture will be required and on cold nights the lights should be covered. All fruits should be cut when about three-parts grown. Improved Telegraph and Tender and True are reliable varieties.

Ridge cucumbers are very useful, but, instead of planting on the ridge in the usual way I favour planting on the sides of a 9in. deep trench formed on the ridge. The young plants are protected from cold winds and soon grow over and cover the whole ridge. Stockwood is a good bearer.

ENDIVE.—This is not a suitable salad plant for the early part of summer, but should be grown to be available from August onwards. A very common mistake is that of allowing the young seedlings to remain in an over-crowded state till they become long-leaved and weakly. The plants thrive in a rich soil and should not be planted closer than 9ins. apart. The first sowing will be timely if made in May, and the last ones in August. The Moss Curled is splendid for late summer, and the Round-leaved Batavian for the autumn and winter supply. This variety should not be planted closer than 1ft. apart.

LETTUCE is quite indispensable, and, like endive, should be well grown. There are many excellent varieties now obtainable, both Cos and Cabbage. It is not mere size of outside leaves that counts, but the size and number of inside ones perfectly blanched. Where naturally shallow soils obtain, the cultivator should double them by forming raised beds. Lettuces always thrive well on the ridges between celery trenches, because there is an extra depth of soil for them to root in. Where soils are deep and rich there should not be any difficulty experienced in growing fine specimens. The hotter and drier the weather, the more surface hoeing between the rows of plants should be the rule. All the Cos varieties blanch more satisfactorily when they are neatly tied up when the inside leaves are quite dry. It is better to sow a few seeds monthly from spring to September than to sow more seeds every three months. All transplanting should be done while the plants are small, the larger they are the greater the check to growth and the sooner they "bolt" to seed. Paris Green, Paris White and London White Cos; Early Paris Market, Commodore Nutt, All the Year Round, Continuity and Stansted Park are excellent varieties of Cos and Cabbage sorts respectively.

MUSTARD.—This should be treated similarly to cress.

ONION.—Salad onions should be small and tender, not large-bulbed, even in winter time. After the young surplus plants—the thinnings—are exhausted, seeds should be sown in drills, monthly, throughout the summer, and in frames and boxes in the autumn and winter. The onion in a salad bowl is not appreciated by every person and its judicious use may be necessary.

RADISH.—The radishes raised under glass in spring are, if well treated, tender. But when the cultivator attempts to grow really tender roots on a hot, dry border in the summer, his skill will be taxed. A north aspect, but with overhead shade, is desirable. A moderately rich soil, made firm is essential. The French Breakfast, the Olive-shaped and the Turnip-rooted are preferable to the Long-rooted sorts. The seeds should not be deeply covered, only just hidden from sight, and broadcast sowing is preferable to drilling, overcrowding should be avoided, regular supplies of water may be needed, but a point is gained if the soil is thoroughly soaked just before the seeds are sown. Frequent and small sowings are the most satisfactory.

SORREL.—This is highly appreciated by many persons in the salad mixture. Sow the seeds in well broken soil in shallow drills 12ins. apart and duly thin

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out the seedlings to 12ins. asunder. The object should be to grow few plants possessing many succulent leaves, not tiny leaves on numerous plants.

TOMATO.—Fruits from plants grown under glass are available over a long period. But cultivators who are obliged to depend upon open-air plants should be sure that only strong specimens about 1ft. high are available for planting in well prepared ground in the warmest positions about June 10th. The tops of all outdoor grown plants should be pinched off before August 10th to ensure the retained crop of fruits ripening.

WATER CRESS.—Where there are clear water streams and shallows, young plants should be pinned down under stones at each side—not in the centre. Failing streams the cress may be grown in shallow trenches containing a rich, moist compost. The best aspect is one on the north side of a wall, or fence. Plant in May. GEORGE GARNER.

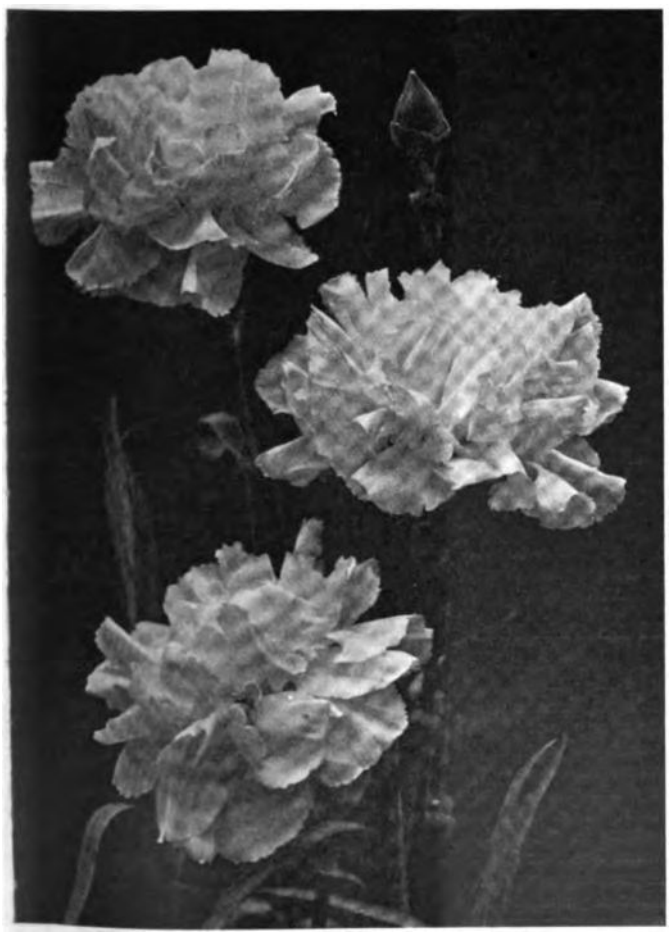
THE BRITISH CARNATION SOCIETY'S ANNUAL SHOW

WITH the help of some miscellaneous exhibits from the previous days' R.H.S. show, the British Carnation Society were able to fill the Royal Horticultural Society's Hall at Westminster on March 27th, the occasion of their annual show.

From the spectacular point of view, the chief interest in the show lay with the monster trade collections of magnificent blooms. Just inside the entrance Messrs. Allwood Bros. had an excellent exhibit and displayed delightful stands of such splendid sorts as Maine Sunshine, yellow; Chintz, mauve and claret fancy; Edward Allwood, brilliant scarlet; Laddie, pale salmon; Marion Wilson, yellow flaked with bronze; Topsy, crimson; Wivelsfield Apricot and Wivelsfield Claret among the true perpetuals. While of the larger and richly fragrant perpetual malmaisons, Atlantic, pink flushed; Jessie Allwood, rich yellow; Mrs. C. F. Raphael, cherry red; and Oceanic, shrimp pink, were equally desirable. Besides this large collection of superb blooms Messrs. Allwood Bros. made a fascinating grass bordered bed of their "Allwoodii" varieties on the floor.

On the right-hand side of the entrance Mr. C. Engelmann had a very large collection of excellent blooms, also arranged with admirable taste and skill. Among the newer varieties which Mr. Engelmann offers are Donald, a good crimson; Scarlet Iona; and Vera, rose pink. His others included Cheerful, cerise; Carola, crimson; Enchantress Supreme, light salmon pink; Happy Day, scarlet; Lady Northcliffe, salmon pink; Peerless, deep rose pink; Red Ensign; Saffron and White Delight.

ELDORA—A FANCY VARIETY, CLEAR WHITE, PENCILLED WITH ROSE PINK LINES. AWARD OF MERIT.



THE SHAPELY COMPACT BLOOMS OF TESS. A BEAUTIFUL PERPETUAL CARNATION. AWARD OF MERIT.

Chief among the many sorts well set out by Messrs. Stuart Low Co., was their beautiful White Pearl. Next came the salmon pink Eileen Low, with the more delicately coloured Hon. Nita Weir. Lady Inverforth, of old rose colouring; Reginald Cory, cerise crimson; and Susan Pam, rose cerise, are other outstanding novelties. Messrs. Keith Luxford and Co. displayed an attractive collection of the best sorts, including Aviator, scarlet; Baroness de Brienen and Iona, salmon pinks; Fanny, light pink with red stripes; General Joffre, orange scarlet; and Mrs. C. W. Ward, deep pink.

In the trade classes Mr. C. Engelmann was the principal winner of the first prizes with wholly admirable exhibits. His vases of a hundred and of fifty blooms each were magnificent efforts. His English-raised three varieties, winning first prize, were White Pearl; Nigger, crimson; and Cupid, pi-

Mr. W. H. Page showing the rose cerise coloured Edward Page was first with one vase of a British raised variety.

One exhibitor was also pre-eminent in the amateur classes, where Sir Randolf Baker, Ranston House, Blandford, won most of the first prizes with most praiseworthy blooms. Mr. R. Lan, Sheepwell House, Potter's Bar; Mrs. J. A. Otter, Queenswood, Ottershaw, and Mr. H. Clipstone, Melchet Court Gardens, Romsey, won first prizes in what was apparently the same division, while Mrs. Walter Hyde, Kempton Park, was consistently successful in her section.

The decorative classes did not bring out any novel or superlative style, though all the exhibits were fresh and pretty. The first prize for a dinner table decoration was awarded to Sir Randolf Baker, who used pink carnations, though the concensus of opinion seemed to be in favour of the second prize arrangement of an apricot yellow variety. Sir R. Baker was also first in the class for a decorative vase of not more than twenty-five blooms.

Sir Charles Nall-Cain, Brockett Hall, Hatfield, won the first prizes for a group of carnations in pots and for six plants, and in each instance exhibited plants which displayed first-class cultivation.

The "New Plants" table was filled with some interesting novelties, of which two received awards. In addition to these, Chintz (Messrs. Allwood's fascinating mauve and claret fancy carnation), Sharston Gem (a bright purple flower, though a trifle thin in habit, shown by Mr. C. G. Hill) and Sir Philip Sassoon (a fine deep crimson maroon, raised by Messrs. Stuart Low Co.) were all well worthy of attention.

AWARDS OF MERIT.

ELDORA.—This is a very beautiful white ground fancy carnation. The ground is a particularly clear white on which is pencilled well defined, narrow rose pink lines. The well formed and fragrant blooms are freely produced. Award of merit. Shown by Messrs. Allwood Bros.

TESS.—The shapely, compact blooms of this carnation are of good size, milky white and very fragrant. The edges of the outer petals are regularly serrated. There were plenty of flowering stems, while the foliage was sturdy and healthy. Award of merit. Shown by Mr. George West.

CORRESPONDENCE

ALPINES FROM THE PASS OF MONT CENIS.

IN the preceding discussion on the above subject it has been satisfactorily established that there is on the one hand a Campanula linifolia, which is a high alpine form of Campanula rotundifolia, and, on the other hand, a totally different species which is the C. linifolia of Lamarck as described by Coste and Flahaut. Who, however, would be so bold as to define the differences between C. Scheuchzeri and C. linifolia of the former persuasion? I would therefore suggest with the humility due from a tyro that the name C. linifolia should in the interests of clearness be retained for that Eastern form described under that name by Mr. Thompson and which has marked peculiarities, and that the name C. Scheuchzeri be considered sufficient for the other high alpine forms of C. rotundifolia referred to by Mr. Lofthouse and Mr. Elliott. This I believe to be in accordance with the nomenclature of M. Correvon. The other linifolia of Coste and Flahaut appears to take its name from the French "à feuilles de lin" (flax-leaved) and is described by Flahaut as with furrowed stems crowded with sessile linear-lanceolate leaves, terminating in a spike of up to eight short bells, and as being found in the Vosges, Jura, Alpes de France, Auvergne, Cévennes and Pyrenees. It grows taller and belongs to a lower altitude than any of the high forms of rotundifolia. It suggests a hybrid between CC. rotundifolia and rhomboidalis.

As Mr. Thompson states that Lychnis alpina is very uncommon, may I give the Val d'Isère district—on the way up to the Col de l'Iseran and again above Prariond—as a place where it may be seen, though not in abundance.

Campanula spicata was much finer—indeed, a most handsome plant—at Val d'Isère by the side of the valley path between le Fornet and le Malpas than on the Mont Cenis. The same was true of Hugueninia tanacetifolia, which grows in the Mont Cenis potholes, but not so freely as at Val d'Isère (at much the same height), where foliage and yellow heads were equally handsome and clothed upstanding rocks with waving picturesqueness.

As Ranunculus glacialis is reputed, unlike other high alpines, not to be carried down to levels below its normal altitude, it is of interest to note that I found it just below the west side of the Fort de Varisello on the steep bank by the side of the military road at an altitude which could not have exceeded 6,500ft. There was only one plant of it. I also came across a large and densely crowded area of R. glacialis, growing and flowering with the exuberance of marsh marigolds, about half way between the Lac de Combal and the lower Chalets de l'Allée Blanche near Courmayeno at an altitude again below 6,500ft. The explanation is, I think, in this latter case, clear: the Val de l'Allée Blanche is, as its name implies, the collecting ground of the melting snow and ice of half a dozen glaciers which are in close proximity, and the climatic conditions are akin to those normally appertaining to higher altitudes. To anticipate possible criticism, this was definitely *not* Ranunculus Seguieri. In the same valley at the same time were found Thlaspi rotundifolium, Armeria alpina and Ranunculus alpestris, a trio belonging normally to higher altitudes. The presence of R. alpestris here may interest Mr. Thompson, as in "Alpine Plants of Europe" he remarks on the fact that he failed to find a single specimen in Piedmont and other places west of Switzerland. The trio mentioned are mainly plants of the calcareous formations, yet along the entire length of the valley from the Col de la Seigne in the west to the Col Ferret in the east there is nothing to be seen but huge granite boulders. Near both Cols, Anemone sulphurea is in abundance.

To come back to the Mont Cenis, Saxifraga valdensis, whose normal habitat is, I understand, south of this, is to be found within two to three hours' and a pure white Silene acaulis within half an hour's, walk from the Hotel de la Poste. Not far from the white silene is a clump of that most beautiful primula which is, I believe, a natural hybrid between P. pedemontana and P. viscosa, much finer than either, and is, I understand, known as P. Bowlesi.—E. ENEVER TODD.

THE PRUNING OF PRUNUS TRILOBA.

THE illustration of this beautiful flowering shrub, accompanying Mr. R. Irwin Lynch's note in the issue of March 29th, page 212, depicts better than any words of mine could explain the value of pruning. For something like forty years this specimen was freely pruned annually after flowering until attacked by silver leaf. Mr. Lynch suggests annual pruning results in "stubby and comparatively weak shoots 8ins. or 9ins. long," but this plant, for the pruning of which I was responsible for a number of years, made vigorous young growths each season up to 2ft. or more in length, covered with flowers from base to apex as the illustration shows. For bushes in the open I agree with Mr. Lynch when he says hard pruning "is quite contrary to Nature," but Nature does not grow shrubs against a wall. Experience leads me to the conclusion that if these vigorous young shoots are left unpruned for a year or two as suggested the specimens in a few years grow away from the wall and get out of hand.—A. O.

THE SPURGE LAUREL.

SIR HERBERT MAXWELL makes a mistake in describing the greenish flowers of the spurge laurel, Daphne Laureola (page 212), as "scentless." It is true that they are almost scentless during the day and quite so in strong sunshine; but during the night, and especially during the twilight, they are scented with a peculiarly sweet though not sickly perfume, like the night-scented stocks (Matthiola bicornis and M. tristis).

The writer has grown this daphne for many years for the pleasing odour of its flowers, and, to be certain that it had not lost this peculiarity in the way that ordinary "musk" has, sallied forth at 9 p.m., immediately on reading Sir Herbert Maxwell's note, to find that the scent was quite as strong and sweet as in the days of his youth, when it grew as a shrub fifty years old and 5ft. across, scenting the twilight air for yards around in his father's garden.

Although he has often thought that this shrub might be fertilised by night-flying moths, he can confirm the statement that no insect has been found to visit the inflorescence. It sets its black berries freely, and is probably self-fertilising.—R. J. S.

HERBACEOUS BORDERS.

ALL gardeners know the difficulty of keeping herbaceous borders bright throughout the summer, and I think one of the reasons for the difficulty is to be found in the use of unsuitable plants. There are plants which take up considerable space and only last in flower a short time. In an interesting article in THE GARDEN a few weeks ago astonishment was expressed that so little use was made of peonies. A good-sized peony plant takes up the space of a circle about a yard in diameter and lasts in flower about a fortnight, which means that your border has the space it occupies devoid of bright colour for the rest of the season. There are other plants which have the same drawback. The non-bulbous iris is one of them. The common day lily is another and the lupin another. I do not wish to contend that none of these flowers should be grown, but only that they should

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have a place found for them which is not the herbaceous border, and a small garden will have to do without them. I doubt if a successful border can be made and remain bright throughout the summer without the use of annuals, for with them blank spaces can be filled, especially if a little nursery for them is kept, from which they can be shifted to where they are needed in the border. My experience leads me to think that for most summers—and summers vary greatly—it is easier to have a bright border on the north rather than on the south or west side of a wall. Also that you must not try to grow spring or autumn flowers in your summer border, and, of course, winter flowers are out of the question.—THACKERAY TURNER.

THE KING ALFRED DAFFODIL.

I HAVE been interested in the notes appearing recently in THE GARDEN about this daffodil. I have planted a few bulbs during the last three seasons in various borders, as the soil differs. The flowers of those planted in autumn, 1921, in rather light soil were last year not up to the first season of flowering and do not seem to be any more promising this spring, but the foliage and buds of those planted in autumn, 1922, appear to be as good as last season. These were planted in a fairly heavy soil with a little sand added. All the soil here is rather chalky. I mix in a little bonemeal at planting-time, well away from the bulb. I have used hop manure, but do not find it altogether satisfactory.—H. HANCHET, *Purley*.

LONICERA NITIDA.

IN the days before male attire had assumed the sub-fusc hues which now prevail, some philosopher remarked that "if there were no difference of opinion there would be no fancy waistcoats." The praise bestowed on Lonicera nitida (page 198) brought this saying to my mind, for I have formed a very inferior estimate of the merits of this plant. It flourished here for several years. The specific name "nitida" aptly describes the neat foliage, but the flowers are well-nigh invisible. They ought to be followed by very pretty translucent violet berries; but in some seasons no fruit was formed, and even when they did ripen they were very few and far between. Perhaps our climate is at fault; but, whereas the exceeding multitude of beautiful exotics now at our disposal renders discreet selection essential for every amateur, we decided that the space filled by Lonicera nitida might be given a worthier tenant; wherefore out it went to the rubbish heap, together with a couple of bushes 8ft. high of Viburnum rhytidophyllum, a poor representative of a very distinguished family.

We are told this honeysuckle makes a good hedge plant. No doubt it does; but if I wanted an evergreen hedge and was not content with holly, which for that purpose moved John Evelyn to rhapsody, or with Monterey cypress, which is matchless in verdure near the sea, I would plant, say, Osmanthus Delavayi, one of the choicest shrubs that has come to us from China, loading its sprays every April with fragrant white blossoms, and as easily propagated as the common—too common—privet.—HERBERT MAXWELL, *Monreith*.

THE DELPHINIUM.

I WAS much interested in Mr. Engleheart's letter in your issue of March 29th on the delphinium. My soil is very light, and I use no water to them, but they do well, running up 5ft and 6ft. With him, I think there are too many nondescript colours now. I was looking at several collections in different shows at Chelsea and Regent's Park, and in none was there a good clear blue; in fact, blue was conspicuous by its absence. Slugs do create havoc with most of the plants, but a fresh enemy attacked mine—a rat cleared a boxful of seedlings in my greenhouse, quite a new departure I should think.—F. W. HARRIS.

ANEMONES AND HEPATICAS.

I TRUST it will not be considered sacrilege if we consider one point in the late Maurice Hewlett's delightful and beautifully illustrated article on Anemones (March 22nd, page 188.) He modestly suggested that "the *feeling* of the two flowers [anemone and hepatica] is distinct and separable. . . . The anemone is gregarious, the hepatica solitary; the anemone is a spring flower, the hepatica a winter flower." Now, all this is perfectly true in so far as the plants are concerned in English gardens, but Mr. Hewlett cannot have had the joy of seeing the splendour of A. hepatica growing wild in its tens of thousands from March to May in Switzerland, or in April and May in mixed woods in the Pyrenees. It is only in gardens that we are accustomed to see solitary clumps of hepatica (and usually the red ones) which should not be moved, as Mr. Hewlett so forcibly pointed out. Can he have seen Flemwell's delicate and beautiful picture of hepatica in the woods at Bex, in the Rhone valley, in April; or have read on page 6 of that writer's "Alpine Flowers and Gardens": "As the snow recedes, the brown bed of the pine forests is decked with myriads of hepatica; their thick clusters of mauve-blue blossoms, relieved here and there by the rarer forms of white and rose . . . ; creating a veritable laughing fairyland"? It is chiefly in March and April that the snow recedes from those comparatively low levels, when few English visitors are in Switzerland; and it is in the months of April and May, as Flemwell says, "there is in progress a rapid and delightful transformation which it were a thousand pities to miss." In Switzerland the hepatica blossoms about the same time as the wood anemone (A. nemorosa), A. Pulsatilla and the scarcer A. montana and yellow ranunculoides. A. vernalis pushes its shaggy buds through the melting snow at higher elevations a month later. The hepatica is only one of many Continental plants which invariably blossom earlier in English gardens than in their native haunts, though I have seen A. hepatica, *e.g.*, at the end of June at 7,000ft. in the Alps, and as late as May in hills above the Mediterranean. Something bearing on the curious anomalies of flowering in different latitudes appeared in THE GARDEN, March–April, 1922. The late Mr. Hewlett did not call to mind more than one of the poets having sung about the windflowers. When wanted such things are difficult to recollect, but, naturally, there are others, and among French writers and poets I have a vague idea that M. Correvon is one. Certainly in these columns a few years ago some very charming verses by Alfred Hayes, M.A., on "Hepatica" were quoted, but though sent by me I cannot find the reference.—H. S. THOMPSON.

LABELS FOR ALPINES.

THE article on Labels by Mr. Gerald Hillier in THE GARDEN of March 29th presents a point of view both in letterpress and illustrations with which I entirely disagree, at least in respect of private rock gardens. Mr. Hillier advocates prominently legible labels to prevent inexpert friends from scrambling over the rocks, and he illustrates part of a rock garden which is disfigured with a perfect forest of labels, amid which a closer examination reveals what is apparently about one plant to three labels. Such a method may be a grim necessity for public rock gardens, but for private gardens it is surely indefensible, for, while it provides information and permanence, it entirely fails to fulfil the third and indispensable desideratum of inconspicuousness. To attain all three desiderata there is, I think, no method except numbered labels. In my own rock garden I use these exclusively. The numbers are stamped at the top of narrow 5in. zinc labels, which are then buried up to the number behind the plants, and are therefore almost invisible. For alpines I have some 800 of these with plain numbers; for small bulbs I have some 300 with the letter B above the number. A better way would possibly be to use square-topped labels with just the sharp corners taken off for alpines, and round-topped labels for bulbs. I make my own labels from thinnish sheet zinc. The numbering is easily and quickly done, requiring only a block of wood topped with lead, a hammer, and a set of number stamps from 0 to 9, which can be bought for a few pence. This plan, of course, necessitates keeping a book (or books), registering the numbers and occupants, but this in itself adds an interest which far outweighs the little trouble it entails. I would claim that this system alone fulfils the three desiderata of information, permanence and inconspicuousness. It is cheap, and doubly cheap because the numbered labels, unlike those with written or stamped names, are interchangeable. You may in 1924 proudly enter under the number 13 (*absit omen!*) the august name of Eritrichium nanum; in 1925 you may, I had almost said you will, erase that name and substitute Androsace imbricata; in 1926—but why pursue the gruesome story. Humble people like myself, who are neither super-experts nor irrepressible optimists will wisely keep certain numbers (not 13!) with large spaces opposite them for recurring erasions and additions!

There remains the difficulty of circumventing the inexpert friend who may wish to tear your heart-strings by scrambling over your rocks to find out the name of some distant treasure. Trusted expert friends—and there are an increasing number of these of both sexes—may be armed with a numbered record book and turned loose; but the untrusted, and above all the gushing beginner, on whose "rockery" at home there is, as you are proudly told, a whole plant of Gentiana verna in flower (bought in bud from a nursery!)—these must be sternly warned off except under the owner's personal guidance. It may be, it is, a nuisance—for the people you can trust are usually the very people to whom it is a real joy to show your treasures—but it is the only way, and oh! it is worth it to avoid what to me are the horrible drawbacks of the method advocated by Mr. Hillier.—E. S. LYTTEL.

[We do not agree with the Rev. Lyttel's argument. (1) Labels such as he suggests necessitate a large number of paths if the garden is not to be walked on continually. (2) It means that a note-book has constantly to be carried round the garden. (3) In wet weather the disadvantages are obvious. (4) It is sufficiently difficult to name plants correctly without doubling the chances of wrong nomenclature by reason of two lists, one with numbers, the other with names.—ED.]

TREATMENT OF RHODODENDRON SEEDLINGS.

IN the issue of THE GARDEN dated March 29th, in my article "Treatment of Rhododendron Seedlings," Column 2 and the 43rd line, an unfortunate error has occurred. This should read: "The rhododendrons in this group are those Mr. Forrest describes as found growing on limestone. This was proved when they were germinated in a compost where peat was used;"—L. B. STEWART.

[It is regretted that this typographical error in Mr. Stewart's article occurred. —ED.]

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NOTES FROM CONTRIBUTORS

BUD SPORTS OF APPLES.

THESE bud sports often originate and pass unnoticed—in fact, two originated on trees under my charge but did not appeal to me at the time as being worth propagating. The one bud sport was a crimson King of the Pippins, the other was an all-russet fruit of Ribston Pippin. The Scarlet Golden Pippin appeared as a bud sport on an old tree of the Golden Pippin in 1846 at Gourdie Hill in the Carse of Gowrie, Perthshire, then the property of Mr. Robert Matthew, and was perceived by the late Dr. Hogg. At the time of his visit it was a branch thickly set with fruit-bearing spurs. During the season some specimens were sent to Dr. Hogg, who at once pronounced his liking for the apple and advised its propagation. The only tree of Scarlet or Crimson Golden Pippin is in a garden a few miles from Gloucester, this particular tree being worked from an old tree found in a derelict cottage garden on the estate. Mr. Harris, Bullingham, near Ross-on-Wye, has secured a bud sport from Cox's Orange Pippin which should prove serviceable for private, show and commercial purposes, as it will undoubtedly supply a "want" in every land and clime where the bonny apple grows. This sport was noticed on the south aspect of a tree worked on the paradise stock, the fruits being of a beautiful colour of intense crimson, and when sufficiently propagated will prove a decided acquisition. I understand the new variety is really a stronger grower than the original, which will surely prove advantageous, as Cox's Orange Pippin is of slender growth and habit. Another great point in its favour is its free-cropping propensities. Therefore, taking its character in general, it ought to make its mark, as highly coloured fruits of Cox's Orange Pippin always command a readier sale than those devoid of colour. I have an idea that this crimson variety would prove its character more definitely if worked on the free stock, although any lias strata would no doubt produce coloration on free, crab or paradise stock. This remark refers to apple-growing counties, as Hereford, Kent, Devon or Worcestershire. — GEO. LOVELOCK.

BUDDLEIA FARRERI.

I enclose a photograph of a plant of Buddleia Farreri which is flowering here. Being so recent an introduction it cannot be widely distributed, and it does not seem to flower easily. I obtained my plant from the late Mr. Farrer's nursery when the plants were being dispersed. It was planted outside against the south wall of my alpine house, and was badly cut back by frost each winter. After the first winter it was very late in starting and I feared it had died. The following summer it made stronger growth, but as there was no sign of it flowering, I had it lifted and potted up. It stood outside for some weeks with only a wall and the overhead shelter of a beech, and while in that position 20° Fahr. of frost was recorded on the screened thermometer. The house it was put into was used for growing chrysanthemums, and no water was given to the plant until it was well into growth. The first indication of flowering was seen in buds on the old wood, but as new shoots were put out they were seen to be carrying flowerbuds as well, and you can see from the photograph that there are flowers from both old and new wood. Owing to the treatment it had received the plant lost nearly the whole of its leaves, so the blooms developed very slowly to begin with, but latterly it has come on better, and the photograph was taken a fortnight after the first trace of colour was seen on an unopened bud. My plant is between 5ft. and 6ft. high. I hardly think it can be in character, as the flowers are a pale shade of mauve, while Farrer in his book, "The Eaves of the World," leads one to expect the bloom to be more nearly blue. The plant has thong-like roots, which agree with the situation in which it was found, stony ground in a dry, hot valley. It is evidently more suited for a warmer climate than mine is, and I shall be interested to know of any other grower who has succeeded in flowering it and under what conditions.—WILLIAM LOW, *Kincardineshire*.

A REMARKABLE PARASITE ON SUGAR CANE,
Note the leafless character and the hooded corolla tubes.

BUDDLEIA FARRERI, A RECENT INTRODUCTION FROM CHINA, WITH MAUVE TO BLUE FLOWERS.

A REMARKABLE PARASITIC PLANT.

ÆGINETIA INDICA is a very remarkable parasitic plant now flowering in the Victoria House at Kew. Like other members of the broom-rape family (Orobanchaceæ), it is a leafless plant which forms a large tuberous rootstock. Seeds received at Kew last autumn were immediately sown on the surface soil of a young plant of sugar-cane, the selected host plant. About a month ago flower-scapes began to appear, but on account of the exceptionally dull weather they were very slow in developing. The solitary flowers are borne on beautifully mottled, erect scapes, which spring directly from the swollen tuber to a height of 6ins. to 9ins. The corolla tube is hooded, about 1½ins. long, light purple in colour on the outside and dark purple within. This plant is a native of the East Indies, where it grows on the roots of tropical grasses.—T. W. T.

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THE CHELONES.

THOSE who are on the look-out for a vigorous-growing and distinctive border plant of handsome appearance and possessing showy flowers should not pass by the Chelones Lyoni and obliqua. The former is the taller grower and rises to a height of 4ft., while it is distinguished by the slight hairiness of the leaves. The flowers, which appear in August and September, are of a fine purple colour and borne in dense terminal spikes. C. obliqua is a foot shorter, with perfectly smooth leaves and large purple flowers in similar spikes. Both are moisture-loving plants, the latter especially so, and it will be found to do exceptionally well on the margin of the bog garden.—CROYDON.

RAISING CACTI FROM SEED.

THE majority of species yield abundant supplies of seed, but on account of their unfavourable surroundings as a rule only a very few of these germinate and attain maturity. If, however, care is taken to save and sow these seeds under proper conditions, a large stock of plants can soon be obtained. Amateurs sometimes add manure to the compost in which the seeds are to be sown, but this is a mistake, as the manure tends to hold moisture and is often responsible for introducing germs of fungi, which are apt to cause decay. The seeds of some cacti are slow in germinating, and it is therefore a good plan to sterilise the pots so as to safeguard against algæ covering the surface of the soil with their slimy growth before germination has taken place.

Although ordinary seed pans and pots are suitable for sowing the majority of seeds, it is often found in the case of cacti that the drainage hole at the bottom of the pot or pan is far too small, and this should nearly always be enlarged. A plan often adopted in America is to cover the seeds after sowing with a very fine layer of soil and then on the top of this again to spread about a quarter of an inch of fine gravel. This gravel prevents the soil from becoming dry and also checks the growth of any green algæ over the surface of the soil. The seedlings will easily force their way through the gravel and the fine roots will benefit by this extra protection. Great care will be needed in watering and a can fitted with a very fine rose should be used.

The best time for sowing is during the months of March, April or May, as if sown later losses are often experienced during the first winter. The seeds of cacti are mostly very small. It is best to use shallow pans 3ins. in depth and about 5ins. in diameter. The pans should be filled to a depth of 1in. with crocks and the other two-thirds should be filled with a mixture of soil consisting of peat, sand and leaf-mould. The surface of the soil should be made perfectly level, and it is a good plan to use a flat piece of wood for this purpose. The seeds should then be sown and barely covered with the same mixture of soil which has been sifted very finely, and the pans should then be watered gently with a can fitted with a very fine rose.

The pans should, if possible, be placed in a frame with a temperature of about 60°, and this should be shaded with thin canvas to protect against bright sunshine. It will probably be necessary to water gently every day to prevent any danger of their becoming dry. Amateurs should endeavour to keep the seed pans in an even temperature where the same state of moistness is maintained all the time. Although many varieties germinate within a few days, it will be found that others are much slower, and sometimes months may elapse before the young seedlings appear. The quickest species in germination are the echinocacti and the mamillarias. The cereus and pilocereus sections, as well as the opuntias, require a longer period before germination takes place.

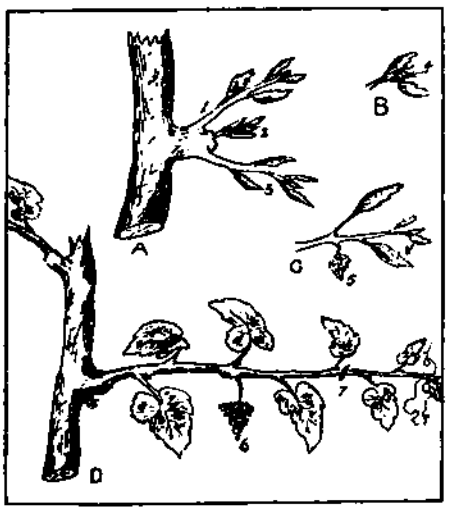
A month after the seedlings have germinated they may be pricked out into other pans, and when lifting them a small pointed stick will be found of very great assistance. The new pans may be filled with a similar compost to that used for sowing purposes, and if the plants are inserted very shallowly in the soil and kept carefully watered they will soon be strong enough to stand the winter.

They should be placed in a light sunny position in a greenhouse or warm sitting-room and watered once a week with lukewarm water.

The raising of cacti from seed is a fascinating hobby, as the young plants will be found to exhibit many interesting and varying stages of growth. The hundreds of different species include varieties some of which are prickly while others are quite smooth, or yet again covered with hairs and spines of different colours. The blossoms are often very beautiful both in formation and colour, and once the young seedlings are established the subsequent cultivation is simple.—R. W. ASCROFT.

GRAPE GROWING.

MANY grape vines are grown in cool or slightly heated greenhouses. The sun-heat has a beneficial influence on vines in all kinds of structures, but it is especially valuable in unheated ones. Owing to the prolonged spell of cold winds, vines in cool houses are later than usual in "breaking" this year. It is well that they are, as the night temperatures have been much too low for the welfare of new shoots. But as vines usually grow strongly after a good rest, cultivators should not be worrying on account of a late start.



ILLUSTRATED HINTS IN VINE CULTURE.

If vines occupy a house to the exclusion of other kinds of plants, there is no necessity for ventilation until the new shoots are quite 2ins. long. On very fine days the floor should be damped early in the morning, but not in the afternoon. Also it will be beneficial if the rods are syringed with tepid water about eight o'clock in the morning. Of course, more syringing, damping, etc., will be needed in the case of normally heated vineries.

Healthy vines generally bear several young shoots on each spur, as shown at Fig. A. The best-placed and strongest shoot should be retained and the others removed when the embryo bunches can be clearly seen. The top shoot, No. 1, is the best, Nos. 2 and 3 being rubbed out. Even at this early stage of growth the inexperienced cultivator can see the embryo fruit, the experienced vine grower will see the tiny bunch at a much earlier stage.

The embryo bunch of grapes is shown at No. 4, Fig. B. It is rose-flushed in such varieties as Black Hamburgh and Alicante, but almost the colour of the leaf in the case of Gros Colmar. The bunches of Muscat of Alexandria are very deeply tinted with rosy pink.

No. 5, Fig. C, shows the bunch developing, and expert cultivators would pinch out the point of the shoot at this stage. The amateur, however, may wait a little longer till the bunch is at the flowering stage shown at No. 6, Fig. D; then the shoot is to be pinched off at No. 7; or, if there is plenty of roof space to fill, the shoots should be stopped beyond the third leaf from the bunch.

Young shoots, naturally, grow straight up towards the glass, and they should be very gradually (by stages) brought to the wire level, the final tying being done when the vines are flowering. G. G.

THE SUNDEWS.

THESE are small-growing but extremely interesting plants, and are known under the name of droseras or insectivorous plants. They are native of various parts of the world, and the most common British representative, D. rotundifolia, is found in bogs and damp places, often where sphagnum moss abounds, but they do remarkably well if grown in a cool greenhouse. The Australian species, however, are among the finest in the genus, and they include D. binata, occasionally referred to as D. dichotoma, a fine plant with long spikes of pure white flowers. D. spathulata is another desirable plant of a close compact habit. When grown in full sunshine the leaves assume a reddish tint, when the plant is most attractive. The North American D. filiformis is also a beautiful species, and the same remark applies to D. capensis, which is a native of the Cape of Good Hope. Most of them flower during the summer months, but their chief beauty is in the leaves, which are covered with glandular hairs appearing to be tipped with dew, hence the popular name sundews. Droseras are of easy culture, and they require cool treatment throughout the year. Pans which are well provided with drainage material are the most suitable receptacles, and, as a rule, should be 6ins. or 8ins. in diameter. The repotting is done in the spring just before growth begins, and several crowns are placed in each, slightly raising the soil in the centre so as to form a compact specimen. The compost consists of live sphagnum moss and a small portion of peat with a little silver sand added. It is cut up fairly fine, and the soil is made firm around the roots. Plenty of rainwater is required during the growing period, and the surroundings are kept moist by spraying between the pans and sprinkling water on the floors. The plants enjoy full sunlight and ample ventilation when the weather is hot. Droseras can be increased by division, seeds and root cuttings, and the two latter methods are usually chosen. Seeds are sown as soon as ripe on a pan of sphagnum moss and peat, but it is advisable to remove the large heads of the former or they will grow and choke the seedlings. To obtain plants from root cuttings only roots from strong specimens should be selected, and these are cut into pieces an inch or so in length. They are placed on pans containing the mixture quoted above, and just covered with a thin layer of sandy peat. They are then arranged in a close propagating frame and, in a few weeks, growth will be visible. When sufficiently advanced they are potted off and gradually inured to cooler surroundings.—T. W. B.

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IMPERIAL BOTANICAL CONFERENCE

Chairman of Executive Committee—SIR DAVID PRAIN, F.R.S.

THE Imperial Botanical Conference will be held at the Imperial College of Science and Technology, by kind permission of the Governing Body, from July 7th-16th. The subscription for attending the Conference is £1. Those intending to be present are requested to notify the Secretary (Mr F. T. Brooks, 31, Tenison Avenue, Cambridge), as soon as possible. The issue of special tickets for students is under consideration. There will be accommodation at the Conference for exhibits of botanical interest.

PRELIMINARY PROGRAMME

I.—SYSTEMATIC BOTANY AND ECOLOGY.

1. THE BEST MEANS OF PROMOTING A COMPLETE BOTANICAL SURVEY OF THE DIFFERENT PARTS OF THE EMPIRE.—Discussion to be opened by Dr. A. W. Hill, F.R.S., followed by papers by Dr. I. B. Pole Evans, C.M.G., Lieutenant-Colonel A. T. Gage, I.M.S., and Mr. J. S. Gamble, F.R.S.

2. CORRELATION OF TAXONOMIC WORK IN THE DOMINIONS AND COLONIES WITH WORK AT HOME.—Discussion to be opened by Mr. J. Burtt Davy, followed by papers by Dr. A. B. Rendle, F.R.S., Professor W. Wright Smith, and Professor W. G. Craib.

3. VEGETATION SURVEY IN DIFFERENT PARTS OF THE EMPIRE, AND TRAINING IN FIELD ECOLOGY.—Mr. A. G. Tansley, F.R.S., will introduce the discussion by briefly summarising the accounts of work already done. This will be followed by contributions from the following: Dr. O. Stapf, F.R.S.; Professor Troup; Professor J. W. Bews; Mr. R. S. Hole, C.I.E.; Dr. T. F. Chipp; Professor F. J. Lewis; Dr. L. Cockayne, F.R.S.

II.—GENETICS.

1. THE ECONOMIC POSSIBILITIES OF PLANT BREEDING.—Discussion to be opened by Professor R. H. Biffen, F.R.S., followed by Mr. F. L. Engledow, Dr. R. N. Salaman, Mr. F. Parnell, Mr. M. A. Bailey, and Mr. J. M. F. Drummond.

2. THE VALUE OF SELECTION WORK IN THE IMPROVEMENT OF CROP PLANTS.—Discussion to be opened by Professor J. Percival, followed by Professor R. G. Stapledon, Dr. W. L. Balls, F.R.S., and Mr. G. O. Searle.

III.—PLANT PHYSIOLOGY.

1. COLD STORAGE OF APPLES: AN ECONOMIC BIOLOGICAL PROBLEM.—For some time a comprehensive investigation of the problems of fruit storage has been in progress at Cambridge and London, organised by the Food Investigation Board of the Department of Scientific and Industrial Research.

2. CROP PHYSIOLOGY: MODERN METHODS OF ATTACK.—It is hoped that part will be taken in the discussion by Sir John Russell, F.R.S., Professor V. H. Blackman, F.R.S., Dr. W. L. Balls, F.R.S., Mr. R. A. Fisher, Mr. G. E. Briggs, and others.

IV.—PLANT PATHOLOGY.

1. OBSCURE PLANT DISEASES OF WIDESPREAD OCCURRENCE.—(*a*) Sugar-cane mosaic: Discussion to be opened by Mr. S. F. Ashby, followed by Mr. H. H. Storey. (*b*) Bud-rot of coconut and other palms: Discussion to be opened by Dr. E. J. Butler, C.I.E., followed by Mr. A. Sharples, Mr. S. F. Ashby and Mr. W. Nowell. (*c*) Brown-bast of rubber trees: Mr. A. Sharples and Dr. A. S. Horne.

2. THE RELATION OF PLANT PATHOLOGY TO GENETICS.—Discussion to be opened by Mr. F. T. Brooks, followed by Dr. R. N. Salaman, Dr. W. B. Brierley and Dr. W. F. Bewley.

3. THE RELATION OF FOREST PATHOLOGY TO SILVICULTURE.—Discussion to be opened by Dr. W. Borthwick, followed by Mr. W. E. Hiley, Dr. Malcolm Wilson, and others.

V.—EDUCATION AND RESEARCH.

1.—The possibility of promoting an interchange of staff and of post-graduate students between the Overseas and Home Universities and Research Institutions.

2. The desirability of providing further facilities for botanical research in the tropics and Dominions.

The discussion on these topics will be opened by Professor J. B. Farmer, F.R.S.

VI.—MISCELLANEOUS.

1. WOOD TECHNOLOGY.—Professor P. Groom will open a discussion on "Fungal Attacks on Timber." Professor V. H. Blackman, F.R.S., Dr. E. J. Butler, Dr. W. Borthwick, Dr. W. Brown, and others will take part in the discussion.

2. NOMENCLATURE.—A sub-committee has been considering the "Rules of Nomenclature," and an opportunity will be given to discuss its report.

3. LECTURES (illustrated by lantern slides).—Professor A. C. Seward, F.R.S., "Records of Ancient Plants within the Empire: what we know and what we need."

Mr. F. A. Stockdale, "The Peradeniya Botanic Garden."

EXCURSIONS.

The following excursions are being arranged:

Wednesday afternoon (July 9th). Royal Horticultural Society's Garden, Wisley.

Saturday afternoon (July 12th). John Innes Horticultural Institution, Merton.

Saturday afternoon (July 12th)—Monday (July 14th). Blakeney Point, Norfolk. (Conducted by Professor F. W. Oliver, F.R.S.)

Monday (July 14th). Rothamsted Experimental Station.

Tuesday (July 15th). Royal Botanic Gardens, Kew.

Wednesday (July 16th). Cambridge (this excursion may be limited to overseas botanists).

ANSWERS TO CORRESPONDENTS

THE FLOWER GARDEN.

The Treatment of Convolvulus Soldanella (E. S.).—This variety is a hardy annual, flowers rose, or rosy pink; the habit is prostrate or trailing. In an open, sunny position the seeds should be sown in the soil where the resultant plants are to flower. For a position such as our correspondent refers to (in the wild garden) there would be ample growth but fewer flowers, and the best plan would be to sow the seeds in a number of small pots in a frame and, in due course, transfer the plants in their pots to their flowering quarters. A nice ordinary loam will be suitable. Prepare the soil and plunge the pots containing the plants in it, burying the rims. Sow the seeds forthwith, plant out in May.

GREENHOUSE.

Physalis peruviana (W. P. W.).—This plant is a native of South America, but is naturalised in many warm countries. It was introduced to and cultivated at the Cape of Good Hope from where seeds were sent to New South Wales under the name of Cape gooseberry. It is a greenhouse climber, but grows freely in warm sunny positions outside in summer especially against a south wall or fence. In addition to seeds the Cape gooseberry is readily increased by cuttings. A preserve is made from the fruits, but it has never been very much grown in this country for the purpose, comparatively few being partial to the flavour.

TREES AND SHRUBS.

Pruning a Lavender Hedge (K. C.).—It will not be safe to cut the lavender hedge as low as our correspondent suggests, for lavender does not break well from the old wood. The best plan would be at once to layer sufficient of the lower branches to make a new hedge. They would probably be well enough rooted by autumn to remove and use as separate plants. Or cuttings may be inserted in a close but cold frame in June or July and planted to form a new hedge when large enough.

Restricting Tree Roots (D. D. O.).—A more lasting method of restricting roots is to make a wall of concrete 3ft. deep and 4ins. or 6ins. wide about 3ft. or 4ft. (or more) from the trees. The roots cannot get through this as they would through the sawdust in time. Or sheets of galvanised iron may be sunk and they take up less space.

THE HARDY FRUIT GARDEN.

Diseased Apples (Mrs. E. M. W.).—The cause of the brown spots which our correspondent mentions appearing under the skin of apples which are otherwise sound, is probably due to the presence of fungus. Several species of fungi cause the spots on apples in a characteristic manner, and it would be difficult to give the exact name unless we saw one or two specimens. Such fungi occur very commonly in cases of imported apples. It is rather unusual to find it occurring on freshly gathered fruit. When storing the apples, it is advisable to keep them in a cool place and allow plenty of ventilation.

MISCELLANEOUS.

Treatment of Cacti (A Novice).—Although cacti and succulent plants thrive better in a greenhouse, they may be grown with some success if placed in the sunny window of a room where the temperature does not fall below 45° Fahr. (In nature these plants grow where they are subjected to heat and drought during some part of the year. Water the plants only when the soil becomes dry, which may not be more than once or twice a week in summer. Very little water should be given during the winter months. A useful and instructive book dealing with the cultivation of these plants is "Cactus Culture for Amateurs," by William Watson (price 2s.).

Name of Plant.—J. H., I. of W.—Ruscus Hypophyllum.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Beet.—The turnip-rooted variety may be sown in rows 1ft. apart, and, if the seed is sown thinly, no further thinning will be needed. The main crop of the long or intermediate varieties may also be sown during the present month, but 15ins. should be allowed between the rows, and the plants thinned to 6ins. in the lines.

VEGETABLES UNDER GLASS.

Tomatoes.—Seedlings that have been potted on will now be in pots 5ins. or 6ins. in diameter and ready for transferring to their fruiting quarters. About this date a house can be spared for tomatoes, and where the stages are suitable it is best to plant them out, otherwise pots of a large size will be needed. Turfy loam is an excellent rooting medium, and if pots are used space should be left for top-dressing later on when the plants have set a truss of fruit. Stout stakes are essential, and if these can be made fast to a wire near the roof they will remain in their proper place, and not bend over later on with the weight of the fruit. Admit plenty of air when the weather is favourable, and do not allow the roots to become dry. A watch should be kept for white fly, and only constant attention will hold it in check. Until the fruit is well advanced the plants may be sprayed with an insecticide and the house vaporised with one of the white-fly fumigants. Later plants may be potted on, and if intended for the open ground they should be grown in a cool house to produce stocky specimens.

THE FLOWER GARDEN.

Hardy Primulas.—Under this heading will be found a large number of plants, but, unfortunately, many of them cannot be termed a success in several gardens—for instance, the Chinese cowslip, P. Forrestii. However, some of the best are easily grown, and they include P. pulverulenta, P. japonica in variety, the beautiful P. helodoxa, P. Veitchii, P. Bulleyana and its hybrids. They are readily raised from seeds, and if sown about this date good plants will be available for next year. The seeds are sown in boxes of light soil, and they should be placed in a cold frame, well shaded, and never allowed to become dry. When the seedlings are large enough, prick them off in boxes or prepared nursery beds, and keep them free from weeds. It is a good plan to collect a little seed each year and raise a few plants annually.

Flower Beds should be weeded and any dead leaves removed, while the soil between the plants may be lightly stirred over. Grass edgings should be clipped and the lawn mown occasionally, and so give the whole a pleasing appearance. Hardy ferns may be lifted and divided if required. Water lilies may also be divided if overcrowded, and fresh loam given to any that require it.

Pansies.—There are now several fine strains of pansies in existence so that it is not the general rule to increase by cuttings but from seed. Sow the seed thinly in boxes or pans, and when the seedlings are ready prick them off in a cool part of the garden, and here they may remain until large enough for their flowering quarters. A rich soil is needed, and the position should be shaded from the midday sun.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Beans.—Kidney beans are held much in esteem as a vegetable, and where a south or west border is available a sowing should be made thereon. The soil should be deeply worked and well manured. Drills should be taken out 15ins. apart and 2ins. deep, and the beans placed therein at 4ins. distant from each other. We find Canadian Wonder a reliable variety.

Carrots.—The remaining section of the ground should be thoroughly raked, so that the surface soil for a few inches in depth is made fine. The drills should be drawn out 1in. deep and 15ins. apart and the seed sown thinly therein. To the varieties already mentioned in former notes may be added Altrincham, and those who prefer the stump-rooted type will find Guerande quite a good kind.

Onions.—Now that soil conditions are warmer, preparations should be made to have the ground in good order on which the plants raised under glass are to be grown. Plant in lines 15ins. apart, and allow a distance of 6ins. between each plant in the lines.

Tomatoes.—Many grow the love-apples in pots and boxes, and the old custom of only filling these receptacles half-way up at the time the young plants are put into them is certainly good practice. The remaining spaces should be filled when the plants are well advanced, as then they require extra feeding material.

THE FLOWER GARDEN.

Calceolarias.—The bedding varieties should be well watered, then lifted from the frames and set out a few inches apart in leafy soil in the celery trenches; this will allow frame room for various seedlings which require pricking off. Stakes should be placed across the trenches to support pea trainers or wire netting, so that frame mats or other covering material can be laid thereon as a protection to the plants when frosts threaten.

Nemesias sown last month should be pricked off into boxes filled with moderately fine soil. It is wise to take a little extra care in the cultivation of these plants, and on no account let them get drawn up in heat, but when established in the boxes keep them as hardy as possible until set out in June. Nemesias, to be effective, should be planted in beds or large patches. The variety Sutton's Hybrid Blue Gem grows from 12ins. to 18ins. high, and under good cultivation produces flower heads 8ins. in diameter. The pale blue colour of the flowers is most charming.

Violets.—Plants grown and flowered throughout the winter in pots or frames should be taken up now and the larger torn asunder, choosing the young and healthiest portions to replant. The ground on which the plantlets are to be set should be enriched with well decayed manure or leaf-mould, and the site selected should not be fully exposed to the sun. Plant in lines 12ins. apart, and allow 8ins. between each plantlet in the lines. A good watering should be given if the weather is dry.

Lawns.—Those contemplating sowing lawn grass seed should do so now. Where moss has been raked or daisies forked out, the bare places should be made up with old potting soil which has been finely sifted, and the seed sown thereon. A little of the fine soil should be sprinkled over the seed and gently beaten down with the back of the spade.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Reinwardtia tetragyna and R. trigyna.—These two yellow-flowered plants are natives of India and are specially useful and beautiful for winter flowering in the greenhouse. They are easily propagated at this time by means of cuttings, which root readily in a case with slight bottom heat. They should be potted on as required, 5in. or 6in. pots being large enough for the flowering size: they grow freely in any good potting compost and should be grown during the summer in a cool, airy greenhouse. They are very subject to attacks by red spider, which must be prevented by a free use of a syringe during bright weather. R. trigyna should be pinched several times to induce a bushy habit, while R. tetragyna throws up suckers from the base and does not require pinching.

Gardenias, at one time so popular, are seldom seen at the present day. They are generally regarded as stove plants, but they stand and flower freely at this time in the warm end of a greenhouse. Cuttings root readily in a warm propagating case. They should be grown in a temperature of 60° to 65°, pinching them several times to get well furnished, bushy plants. If grown on for several years they make fine large specimens.

Hippeastrums, which are so useful for greenhouse decoration during the spring months, should as they pass out of flower, be returned to a warm house and, if possible, plunged in a bed where bottom heat is at one's command, although this is an advantage during the growing season it is not really essential, as hippeastrums are by no means so difficult to grow successfully as many people imagine. Plants that are growing freely and are well rooted will take ample supplies of water, and should be fed with diluted liquid manure, alternated with some approved artificial fertiliser. Their successful flowering next season depends very largely on good cultivation during the growing season.

Azaleas of the indicum section, as they pass out of flower, should be placed in a house where a warm moist temperature can be maintained to encourage growth, a temperature of 55° suiting them very well. During bright weather they should be syringed several times throughout the day. This will encourage growth and prevent attacks by thrips, to which they are somewhat liable. As they finish their growth they should be accustomed to cooler conditions, to prepare them for being stood out of doors during the summer months. There are now quite a number of the small-flowered Rhododendron (or Azalea) obtusum—the Kurume azaleas being referred to this species. In cultivation they are very free flowering, force readily, and are very pretty for decorative work, having a charm which the large-flowered indicum varieties do not possess. They are easily propagated by means of cuttings of half-ripened shoots which root readily in sandy peat, plunging the pots in a case with slight bottom heat. They soon make useful plants and flower freely in quite small pots. There are some beautiful shades of pink and salmon to brick red among the Kæmpferi varieties, and it is surprising that they have been overlooked so long for greenhouse work. All the stronger-growing indicum varieties are just as easily increased by means of cuttings, and in the long run such plants are better than grafted ones.

J. COUTTS.
Royal Botanic Gardens, Kew.

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JAPANESE CHRYSANTHEMUMS

IT is possible to grow Japanese chrysanthemums in 7ins. pots with very good results. This system of culture has several points to recommend it. The plants are useful for the front of greenhouse groups and are of a convenient size for house decoration. They give no trouble during the dark, trying days of winter and spring, as there is no need to insert the cuttings until the last week of March. Care is necessary in the treatment of the parent stock. Each parent plant should have occupied a light cool position during winter, and the strength of the cuttings is increased by top-dressing with loam in January. Each cutting should be inserted at the side of a thumb pot in the following compost: Three parts of loam, one part of leaf-mould and one part of sand. A greenhouse in which a night temperature of between 50° and 60° Fahr.can be maintained will supply suitable rooting conditions. I do not find it necessary either to shade the cuttings or stand them in a propagating case. As soon as the cuttings are firmly rooted they should be removed to a cold frame and —gradually, of course—be inured to an outdoor existence like the main batch of chrysanthemums. When the thumb pots become too small the plants should be repotted into a 4in. size, using a compost of two parts loam, one part leaf-soil, one part half-decomposed cow manure, and one part sand. No special cultural treatment is necessary between now and the final potting, which will be in the early part of June. The above compost, with the addition of a 5in. pot of bone-meal to the barrowful of soil, will be found suitable. Firm potting is conducive to the development of a sturdy growth, upon which so much depends. Feeding may commence about the second week in July and continue until the colour of the petals appears. It is well to ring the changes on fertilisers. Plants, like animals, appreciate a change of diet. My practice is to use dilute farmyard manure water, soot water, and a good proprietary chrysanthemum manure in turn, and feed twice a week. I never grow more than one flower on a plant, and I secure it by very simple treatment. If a bud develops before the third week in July it is removed and the strongest lateral shoot is retained for the production of a second crown bud. It is rare, however, that such a course is necessary. The majority of the buds develop in mid-August, which is an excellent time. Weather conditions will make it necessary to house the plants soon after the end of September. Cool, well ventilated conditions must prevail under glass. Chrysanthemums are intolerant of nothing more than a close, warm environment.

GEO. H. COPLEY.

BOOK REVIEW

THE MANURING OF MARKET GARDEN CROPS.

This little manual* should prove of service to the average market gardener, whose duty is to raise good crops with a moderate outlay. The subject is skilfully treated, each crop being dealt with separately—with a table showing the annual cost and the average annual yield per acre under the various methods of treatment with artificial fertilisers. The results have all been arrived at experimentally, having been carried out on one of the farms at Golden Green, Hadlow, Tunbridge, and go far in proving the considerable value of a dressing of artificial manures in raising market-garden crops.

*THE MANURING OF MARKET GARDEN CROPS, by Bernard Dyer, D.Sc., and F. W. E. Shrivell. New Edition, 1924. (G. Street and Co., Ltd., 1s. net.)

A Cup for Peonies.—Peonies are so comparatively easily grown that it is a matter of surprise that they are not more largely used in our gardens than appears to be the case. In America their value has been realised for some time, and there seems to be many enthusiasts who cultivate a great number of varieties. Among them the best known is Mrs. Edward Harding, who published in 1917 "The Book of the Peony" and, more recently, in 1923 a smaller volume on "Peonies in the Little Garden." So convinced is Mrs. Harding of the value of peonies for garden decoration that she has presented to the Royal Horticultural Society three cups, to be awarded in 1924, 1925 and 1926. The first is offered for competition at the R.H.S. Show on Wednesday, June 11th, 1924, for the best exhibit by an amateur of three flowers each of six varieties of peony. Medals will be awarded as the second and third prizes if the exhibits are considered to deserve them. It is hoped that Mrs. Harding's generous offer will encourage a keen competition among amateur growers of peonies. Entries should be received by the Secretary of the Royal Horticultural Society, Vincent Square, London, S.W.1, not later than the first post on the morning of Wednesday, June 4th, and all exhibits must be staged not later than 11 a.m. on the morning of Wednesday, June 11th.

International Spring Flower Show in Holland.—An international flower show is to be held in Holland in 1925. The General Bulb Growers' Society at Haarlem, which celebrated its half-centenary in 1910 by a two months' open air show in the Haarlem wood, is now organising an exhibition of an international character for next year. It will be held in a most beautiful and appropriate site, being a part of the Groenendaal Park at Heemstede, near Haarlem, affording a unique opportunity of showing many kinds of bulbous and other plants to their best advantage in natural surroundings. The open air exhibition will continue during two months, from March 13th to May 21st. Besides, there will be six temporary shows in a building specially constructed for the purpose. Each temporary show will be of a special character, three of which will chiefly be devoted to Dutch horticulture. The Belgian nurserymen and amateurs under the auspices of the Chambre syndicale des horticulteurs Belges, have already decided to organise real "Floralies gantoises" for the temporary show to be held from April 24th to May 3rd and it is expected that other horticultural countries will also arrange representative shows of their specialities in flowers and plants. Great Britain and Ireland will doubtless send cut flowers of their new and remarkable daffodils to the daffodil show to be held in April, but, besides, such grand specialities as carnations, sweet peas, roses, orchids, hippeastrums, etc., would make a brilliant display as a thoroughly British temporary show from May 15th to 21st, probably coinciding with the flowering season of the late tulips, which will be one of the chief attractions of the exhibition. Another feature might be a display of British rock gardens either outside in the permanent show, or in the building, and as there is a growing demand for such gardens just now in Holland, it would doubtless be the right moment to demonstrate what British taste and experience have produced in this line. The exhibition has H.R.H. the Prince Consort of the Netherlands as Protector and three State Ministers and two Governors of Provinces as Presidents of Honour.

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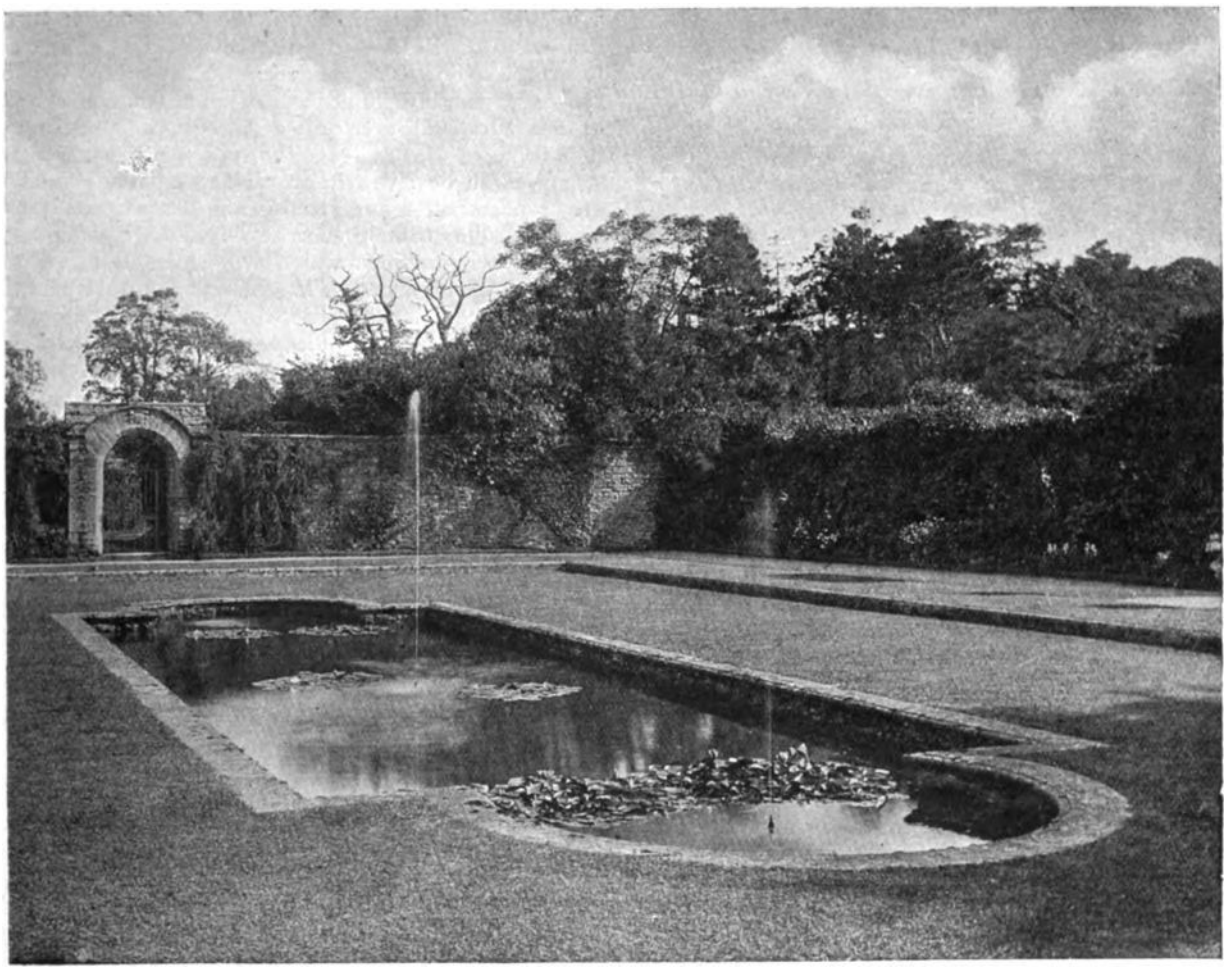

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AN INVITATION

MANY an old gardener has all the lore and the science of gardening at his finger tips. He can make plants grow and flourish as if he had grown them for thousands of years instead of during his short span of life. But although he may be able to make the desert flourish like a bay tree, he may be inarticulate. He could tell you the methods he employed, but there is more than method in his gardening. Other people could use the same methods and fail dismally, for there is a great deal in gardening beyond the ordinary rule of thumb: there is some subtle understanding between a grower and his plant which only comes from years of affection and contemplation.

Gardening is the most elusive of occupations. With many who live in the British Isles it is instinctive, for they have been bred and born among gardens, and their knowledge is not learnt by rote. Some, like Miss Gertrude Jekyll, Mr. Clutton Brock and Mr. Reginald Farrer, to name a trio whose names happen to run off my pen, possess the gift of being able to write about some of the subtleties which surround gardening like an intangible aura, but such lucky ones are like grains of sand among the masses who in their hearts feel the same subtleties but may not have the gift of expression, or rather may think that they do not possess it.

It is easy to write the bald facts about a plant: that it was discovered by someone at a certain date in Greenland or in Timbuctoo, that it flowered for the first time in z year and was duly shown at Vincent Square, that it will grow in peat or in the sea, that it has leaves 4yds. long and microscopic flowers, that it is propagated by cuttings and not from seed, that it grows better in the Shetlands than in Cornwall. This kind of information is simple, too simple, for the facts are thrown at one like bones to a dog. It is useful in the same way that a catalogue or a guide book is useful.

On the other hand, such facts are useless for the purpose of judging the subtle distinctions between the values of different plants. Personal taste is left out of the question, and personal taste is a governing factor in gardening. To take Miss Jekyll as an example: she has knowledge, she has taste, she knows her own mind. That is all common ground shared by thousands of gardeners, but she has some gift which is above the reach of many of us which gives her the power of capturing the spirit of a plant or of a garden and of describing it on paper for the benefit of fellow gardeners.

Given full or comparatively full knowledge of facts, it is possible to write that which is of infinite use, but the subtleties of the subject and the spirit which surrounds it can only be dealt with by the owners of gardens and by those who work in them constantly. We are sure that not one but hundreds of our readers are conscious of this aura and must of a surety be able to express it in words.

We can deal with the ordinary mundane subjects which are so necessary for the well-being of a garden, but we invite all our readers to help us to supply those little and sometimes intangible somethings which will assist all lovers of flowers to make their gardens even more beautiful than they were before. There is no garden in which there is no room for improvement; and, besides, everyone has some pet theory which he puts into practice with excellent results. A will have a little scrap of information which will dovetail into that which B already possesses. A may grow a rose to perfection, which B also loves but may not be so successful in its cultivation. You may be sure that B will have something to give in return.

This is the same theme of co-operation of which I have written before, but it really is all-important for the improvement of our gardening knowledge. It is for this reason that we invite our readers to send us notes, whether long or short, upon the gardens and plants which they love so well. It matters little whether the plant be rare or common to every garden. Our knowledge of the vagaries of even the commonest plant is not so extensive that the subject is finished and done with, and no story of a plant or a garden is ever completed.

Everyone has some gardening need, something which will help to make his garden more attractive, perhaps some particular plant which ought not to be afforded, but which none the less is coveted. We shall be glad at the end of each year to give an order for £5 for anything advertised in our pages to the contributor who sends in the best note during that year.

E. H. M. C.

FORTHCOMING EVENTS.

April 24.—Midland Daffodil Society's Exhibition, to be held at Birmingham (two days).——Royal Botanic Society's Meeting.

April 25.—Manchester and North of England Orchid Society's Meeting.

April 29.—Royal Horticultural Society's Rhododendron and Auricula Show (2 days).

April 30.—Morley Paxton Society's Meeting.

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SOME EARLY-FLOWERING BULBS

BY W. R. DYKES.

IF in these days I could arrange a garden for myself, I should confine myself to shrubs, bulbs and to such herbaceous plants as are self-supporting. Plants that need careful staking at an early stage are always troublesome, for it may not be easy to do the work just at the right time and, once that time has passed, the plants get out of hand and never look their best.

Bulbs, however, are self-supporting, and, even if some of them need lifting annually, this has its advantages, because it gives us an opportunity of rearranging our borders and of obtaining more pleasing effects. Permanent plantings in thin grass of snowdrops, crocuses, scillas, fritillarias and narcissi are delightful in early spring, and are certainly to be recommended, provided that the piece of ground is in such a position that the grass can be left uncut until the leaves of the crocuses and narcissi have turned yellow and collapsed. Then the grass may be scythed and subsequently mown with a machine.

THE SNAKESHEAD FRITILLARY, F. MELEAGRIS.

If this arrangement cannot be contrived, the alternative seems to be to have a lawn of irregular outline surrounded by deep borders of flowering trees and shrubs. In front of these and in bays between them many bulbous plants will succeed admirably, and in warm light soils the experiment can be tried of leaving in the ground such bulbs as must usually be lifted in order to induce them to flower. The effect of planting these bulbs among the roots of the shrubs, or rather where the roots of the shrubs will run among them, is that in summer the moisture is sucked out of the ground and that the bulbs obtain the ripening which is essential to their success. In these positions such plants as Tulipa saxatilis, the beautiful Cretan species, with its pale mauve flowers and striking yellow base may remain undisturbed with a good chance of flowering nearly every year. In the open border they always remain flowerless unless the bulbs are lifted and kept warm.

Tulipa Kaufmanniana is one of the easiest of all the wild species of tulip. The bulbs may be planted 6ins. or even a foot deep and left to themselves for several years. It is generally at its best in March, although in this late season it is nearly a month late. Usually the flowers are white inside with a yellow centre like a water lily, and more or less vividly flushed with bright red on the backs of the three outer petals. Others, however, are wholly yellow inside and others, again, wholly scarlet both inside and out.

Of scillas the commonest are bifolia and sibirica. Bifolia is the earlier and has starry flowers of a somewhat dull slate blue. Sometimes among collected bulbs specimens appear with crimson anthers, to which the varietal name of taurica has been given. This is certainly a pleasing variety, though the difference is only apparent on fairly close inspection. Scilla sibirica is rather later and the colour much more brilliant; in fact, it is almost a Prussian blue.

SCILLAS AT THE FOOT OF A TREE. THEY BLOOM BEFORE THE FOLIAGE OF THE TREE APPEARS.

Closely allied to the scillas are the chionodoxas, and their affinity is proved by the fact that, when scillas and chionodoxas are grown together, hybrids between them always appear sooner or later. To the eye the chief difference is that in the scillas the anthers stand out separately, while in the chionodoxas they are crowded together in a white cone in the centre. The earliest of the chionodoxas to flower is sardensis, which comes not from Sardinia, as might be supposed, but from the neighbourhood of Sardis in Asia Minor. The flowers are relatively small, but of a brilliant blue colour, relieved by the white central cone of the anthers. C. Luciliæ has large flowers, of which the blue colour at the tips of the petals fades to white at the centre, while the so-called gigantea has larger flowers, usually somewhat similarly coloured, but sometimes wholly of a soft shade of a rather dull Wedgwood blue.

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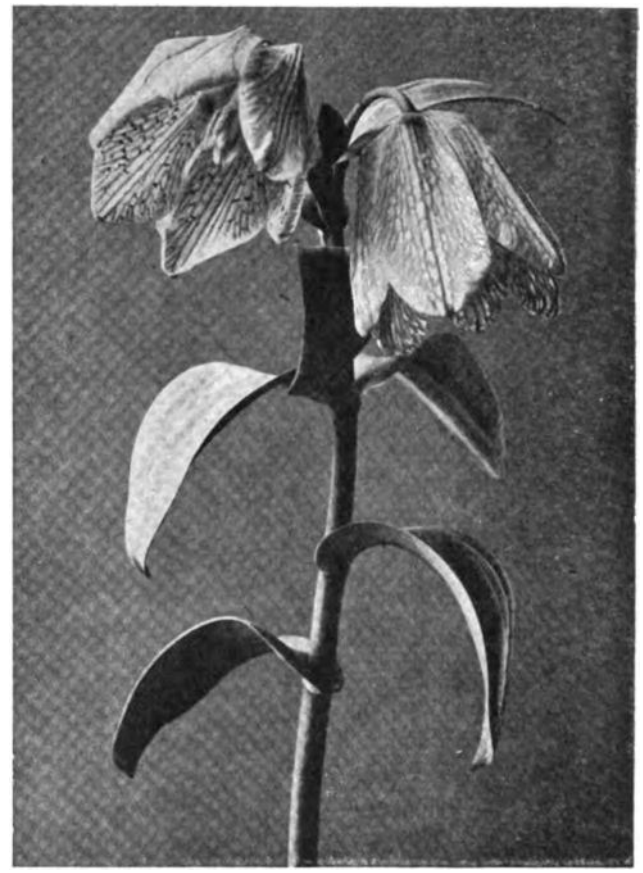
Another blue-flowered bulb is the muscari, of which the pale blue varieties are very charming. Less frequently grown are some dull yellowish-flowered species, of which one is probably M. moschatum. These need, unfortunately, a very hot dry position if they are to do well, though their scent is so wonderful that it is worth while to grow them in pots in a cold greenhouse. Hybrids between these scented species and the well known variety Heavenly Blue would be very desirable, but it does not seem easy to make the cross. In the garden a very telling effect can be produced by planting muscaris thickly round bushes of Forsythia intermedia.

Fritillarias are strangely neglected. It is true that the yellow and scarlet Californian F. recurva only goes on from year to year in light, warm soil, but nothing could be easier than F. Meleagris, which grows wild in the meadows round Oxford and of which the white variety is particularly pleasing. In some gardens this fritillary seeds itself freely, and its growth is so light and slender that it is never in the way. An equally easy plant is F. latifolia with broad, hanging bells of dark reddish purple or yellowish brown. The colour is always lighter inside and the chequered markings more conspicuous. F. pyrenaica is taller and more graceful, and quite easy to grow in the open border. The best of all fritillarias is perhaps F. pallidiflora, a Turkestan species with very glaucous foliage and among the upper leaves six or seven large pale yellow bells. This species especially deserves to be much more widely known and grown, and it would be if only gardeners realised that it has the peculiarity that its bulbs are only rootless for a very short period; in fact, for only about a fortnight, and that this period begins almost before the stems have collapsed. Therefore the bulbs must only be moved while they are rootless during this period, for if they are dug up later in the summer, when the new roots have grown, they will receive a check from which they do not easily recover. If the bulbs must be kept out of the ground for some time, each one should be wrapped in thin paper, and this will enable them to be replanted without damaging the roots, which will be found to have grown to some length. The same treatment is very useful when crown imperials (Fritillaria Imperialis) have to be dug up, and there is no doubt that in many gardens these fine plants flower much more freely when they are dug up and replanted every year. Any bulb which is entirely rootless at some period of the year must obviously do better if, during that period, it is shifted into a position where its roots will push out into fresh soil. Some dislike the scent of the crown imperial, but to others it resembles that of coffee and is by no means displeasing.



ONE OF THE BEST FLOWERING FRITILLARIAS, F. PALLIDIFLORA.

CHIONODOXAS *alias* GLORY OF THE SNOW *alias* "CHINIEDOXIES."

Scented flowers are always attractive, and an effort should be made to grow Hermodactylus tuberosus, of which the beautiful green and velvety black flowers are strongly honey-scented. These appear in March and April from among what look like the leaves of strong-growing clumps of Iris reticulata. The curious, finger-like tubers give the plant its name, and my experience is that the flowers are not numerous unless the tubers are lifted when the leaves collapse and replanted late in August or early in September. The flowers resemble those of an iris in shape, but there is a botanical difference in the formation of the seed-vessel that makes it impossible to include this plant in the iris genus.

Even earlier than any of the bulbs already mentioned come crocuses, especially if we value shape, colour and markings above mere size, and therefore grow the wild species instead of the garden varieties of Crocus vernus, which with the common yellow are the only crocuses to appear in many catalogues.

One of the best of all the early spring crocuses is C. Imperati from the neighbourhood of Naples. The flowers are large and usually of a light buff on the outside, more or less conspicuously marked with three branching veins of dark purple. The flowers are a bright lilac colour inside, and one of the merits of this species is that each corm produces several flowers in succession and that the corms themselves do not all begin to flower at the same time. A large patch of C. Imperati will therefore usually provide flowers for more than two months. There is also a very fine white variety of this species. The outer petals are slightly tinged with cream on the outside, but otherwise the flowers are pure white. A few bulbs of this variety were sent to me originally from Naples, and, as I found that it reproduced itself from seed, I have been able to give away corms to friends. Crocuses do well in rather rich, light soil, and are all the better if they are replanted about every third year.

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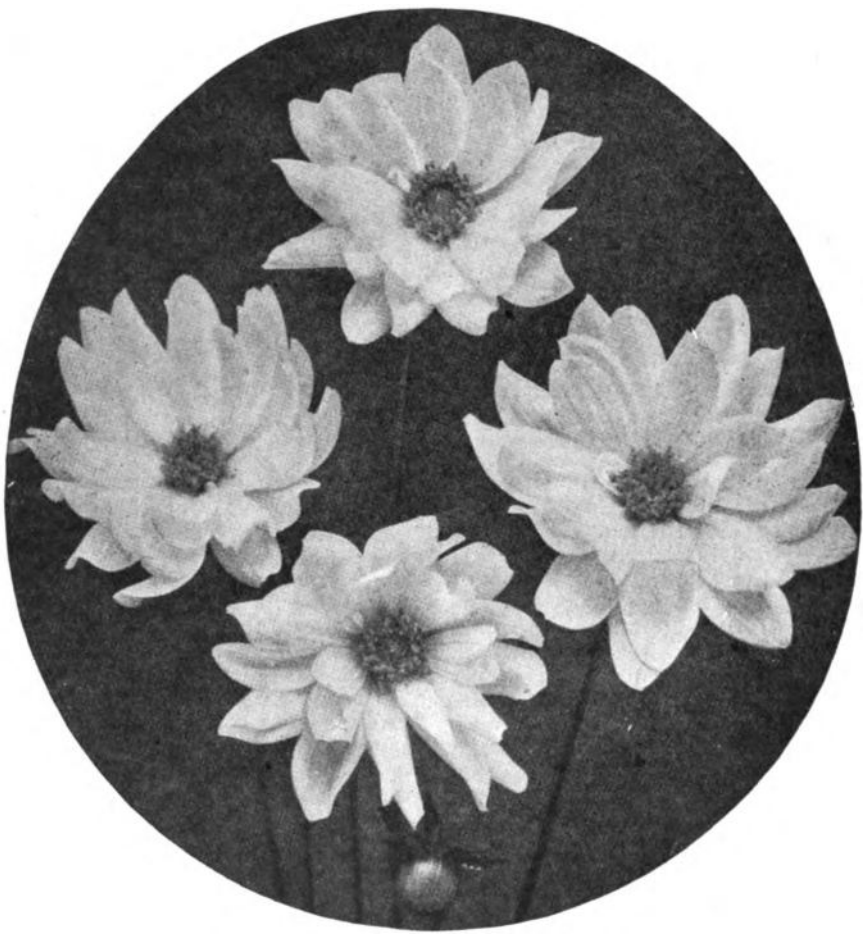
POPULAR DAHLIAS

(*Continued from page 239.*)

STAR DAHLIAS.—Of the numerous classes of dahlias most people have a preference for one or more, in which they may specialise, and I need only give, at the most, a selection of the principal classes. The Star dahlias are infinitely beautiful as garden plants, on account of their graceful habit, free flowering character, and the manner in which they carry their flowers above the foliage on stiff, wiry stems; and for these reasons they are most elegant and graceful in the cut state. Crawley Star was the first introduction of this race and its clear pink flowers are charming in artificial light. A beautiful combination of tangerine-orange and copper is met with in Surrey Star, which has been honoured with a first-class certificate. The colours are indicated by the names in White Star, Mauve Star, Primrose Star and Bronze Star, the latter being an introduction of last year. Most of these have a fine habit of growth, and so have the crimson, apricot and purple Southern Star, and the apricot and pink Reigate Star. Autumn Star is terra-cotta, shaded with red, resembling beautiful autumn tints; and a rosy purple variety of perfect habit has been named Eastern Star. A charming variety for table decoration with soft salmon-pink flowers, was introduced last year under the name of Dorking Star. All of the above resemble single flowers, with several rows or tiers of rays, slightly incurved or cupped, and that, along with their varied and beautiful colours, has greatly taken the public fancy.

GARDEN CACTUS DAHLIAS.—Since the introduction of Dahlia Juarezii about 1879, an immense advance has been made in the development of a new race, most beautiful withal, but with flowers giving trouble in bending their heads and hiding them among their foliage like the original. The beauty of the incurved, whorled or spreading-petalled varieties of the show Cactus dahlias is transcendent, but they have always given trouble in this respect. The garden Cactus varieties have been selected for beautiful colours and erect stems, produced freely and standing well above the foliage. The best white for garden decoration is Alabaster, but three others have enjoyed a considerable run of popularity, namely, Mrs. D. Fleming, Snowdon and Silverhill Park, the latter being introduced in 1921, and much newer than the other two. The scarlet Mary Purrier, the exquisite pink Sweetbriar, the pinkish-salmon Arthur Pickard, the crimson-maroon Conquest, the reddish-orange F. W. Fellowes, the fine scarlet Sportsman, and the light orange Thos. Parkin are all popular and beautiful varieties. Others not less desirable are Edith Carter, yellow, shaded rosy carmine; Golden Wave, deep yellow; and Iris, orange, shaded with scarlet.



WHITE STAR, A POPULAR VARIETY.

POMPON DAHLIAS.—This class originated about 1850, but many of them were still of rather large size in 1880, though they were then numerous. Since that date the aim has been to obtain varieties with small, neat and compact flowers, and many of this type are practically perfect. They are equally good for garden decoration, cutting or exhibition. Handsome ones are White Aster, Tommy Keith, red, tipped white; Nerissa, pale rose; Mars, rich scarlet; Irene, soft rosy mauve; Electra, deep orange; Darkest of All, maroon; Daisy, amber; Little Beeswing, yellow, well edged with red; Ideal, clear yellow; Glow, salmon-cerise or rich coral; and Bacchus, a beautiful crimson-scarlet, though not so free as some of the others.

LARGE DECORATIVE.—These are large varieties, often with flowers rather flat on the top, though the aim is to have them nearly hemispherical, or similar in shape to a camellia. They range through all shades of colour, carrying their flowers more or less erect and make a brave display in the garden. The florets are much less quilled than those of show dahlias and are often nearly flat when fully developed. Two of the largest and brightest are Souvenir de Gustave Douzon, reddish scarlet; and President Wilson, vermilion-scarlet. A lovely rose pink, beloved by everyone, is Delice. White Cloud, Orange King and Brentwood Yellow, bespeak their colours, while Pearl is a pale silvery rose. Queen Mary is a beautiful and soft shade of pink. A shade of violet or violet-blue pervades Porthos, making a distinct break in colour. Other excellent varieties are Paul Crampel, brilliant scarlet; Ben Lomond, another of a violet shade; and Mrs. Sturdy, an introduction of last year, yellow, shaded with amber.

COLLARETTE DAHLIAS.—This class is characterised by a ring or collar of florets that are deeply divided and elongated, but always shorter than the rays, and usually of a different colour, which makes them more durable than single flowers, and more suitable for cutting, while they are equally handsome for garden decoration. Choice varieties are Princess Louise, crimson; Diadem, rose; Queen Bess, orange scarlet; Regularity, purplish crimson; Tiger, white, edged with scarlet; Holyrood, scarlet, with yellow collar; Henri Farman, yellow, blotched with red; Madame Poirier, blue, with white collar; Admiral, nearly black with a pure white collar; Vera, bright yellow; Glenlyon, white, banded with orange; and Eden, which is choice with its pure white blooms.

SHOW DAHLIAS.—These include all those massive, hemispherical, and beautifully quilled dahlias which delighted the

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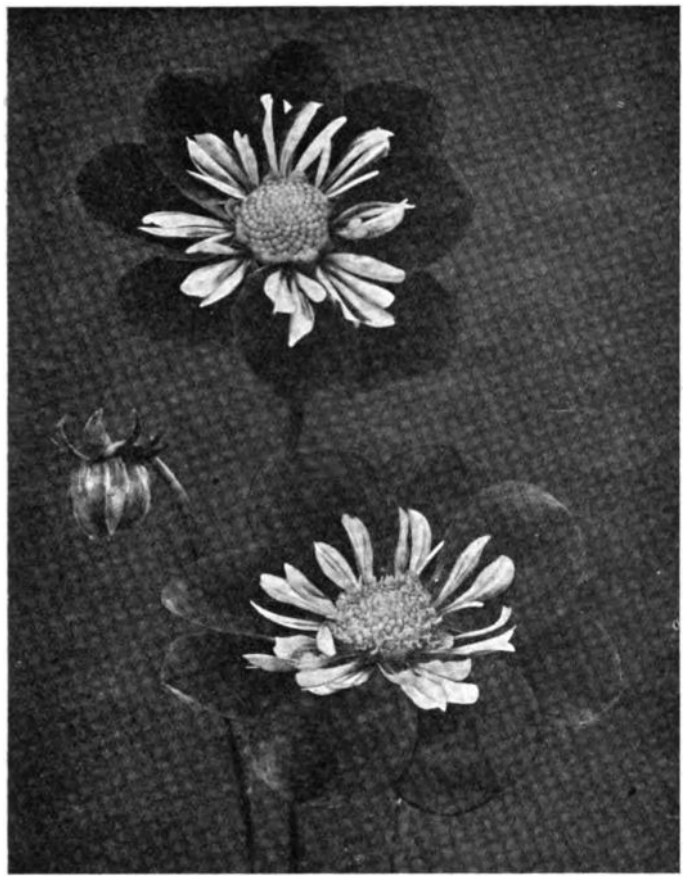
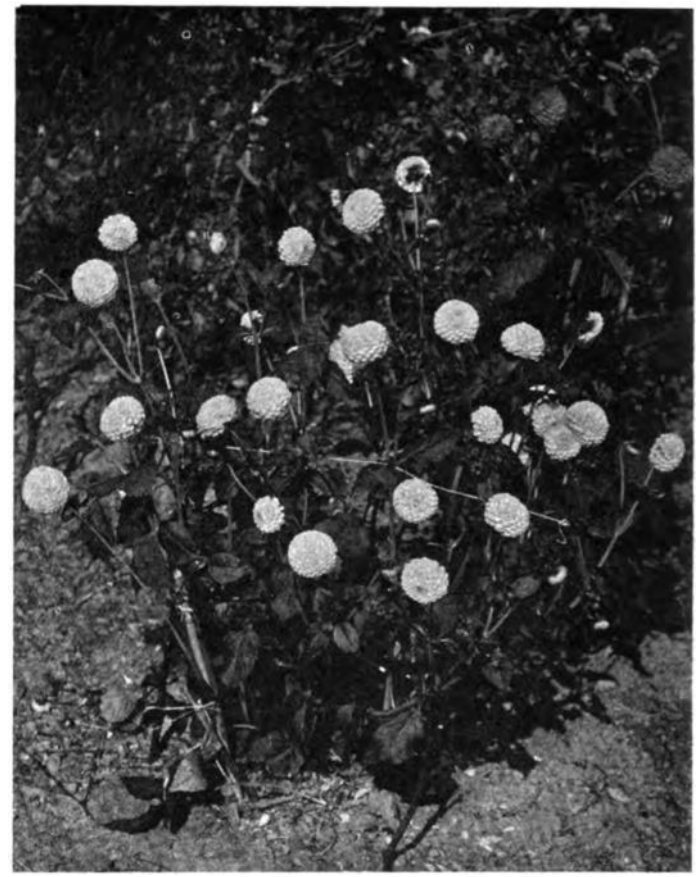


ONE OF THE COLLARETTE TYPE, ADMIRAL.



POMPON DAHLIA, IDEAL.

florist during the past century, and though they are not grown to the same extent now, they were the first of the dahlia varieties to reach perfection in the eyes of the florist, and because they were first in the field they enjoyed universal popularity in the British Isles. Shapely and handsome varieties are Warrior, brilliant scarlet; Gracchus, orange buff; Mrs. Gladstone, soft blush; Willie Garrett, cardinal red; Mr. Chamberlain, dark maroon; John Walker, the best white; Harry Keith, rosy purple; Florence Tranter, blush, edged purple; and A. M. Burnie, orange. Very handsome fancy varieties are Mrs. Saunders, yellow, tipped white; Mrs. J. Downie, orange, striped with scarlet; and Goldsmith, yellow, striped crimson.

SINGLE DAHLIAS.—Some of the most beautiful singles are William Parrot, orange-scarlet, tipped white; Butterfly, pure white; Owen Thomas, crimson-scarlet, tipped white; Leon, glowing scarlet; Flora, orange terra-cotta; Brenda, white, edged scarlet; Eileen, white, edged rose; Fugi San, bronzy yellow; Snowdrop, white; Red Cross, white, edged with glowing red; Beacon, golden yellow; and Hilda, of a dainty flesh colour, with a yellow margin.

Besides the various sections mentioned there are the large peony dahlias, good examples of which are Lady Denman, scarlet, flushed and edged yellow; and Dr. Tongue, scarlet, suffused with gold. Then there are the miniature-flowered peony dahlias of which Leonie Cobb, pink, and Lady Beatty, salmon-pink, flushed rose are fine sorts. In 1922 a new type of dahlia was raised, it is called Novelty and might be termed a double collarette. The colour is crimson-scarlet. J. FRASER.

THE BEST HARDY STONECROPS

BY DR. LLOYD PRAEGER

NOT long ago the Royal Horticultural Society issued in its Journal an "Account of the Genus Sedum," on which I had spent a good deal of time. It ran to over 300 pages, with 185 figures, and it seems quite likely that many a modest gardener, alarmed by such a portentous presentation, may have been scared away from this useful and interesting group of plants instead of being attracted towards it. I venture to think, therefore, that a few notes on the group and an indication of its more valuable constituent species may serve a useful purpose.

First of all, one must be very cautious about sedum names. The nomenclature of the group in gardens is still utterly confused. The commonest species masquerade under all sorts of false colours, and if you would escape disappointment, shun alluring appellations, charm they never so sweetly. See your plant before you buy it. In many English lists half the names really refer to one or other of seven very common species—acre, album, reflexum, rupestre, sexangulare, spurium, Telephium—all of which are quite easily recognisable. There is no excuse for the confusion which exists.

Let us take the sedums group by group and make a selection of those which are best worth growing, and which are obtainable, hardy and good "doers." First comes the section Rhodiola, of which the well known roseroot of our mountain rocks is the type. These are very interesting plants botanically. The stems are extremely fleshy, sometimes elongate, sometimes forming a congested mass at ground level; they produce neither flowers nor leaves directly, their leaves being mostly reduced to mere chaffy scales. The leaves and flowers are borne on annual shoots arising from the axils of these scale-leaves. Quite the best thing in this section is S. Kirilowii var. rubrum, from Turkestan, with flat flower-heads of a unique bright brown-red. In nurserymen's catalogues it usually appears as S. linifolium rubrum or S. Rhodiola linifolia rubra. Then our native roseroot, S. roseum (=S. Rhodiola=Rhodiola rosea), well deserves a place, with its handsome glaucous foliage and yellow panicles of bloom. S. trifidum, from Himalaya and China, is an attractive plant, producing annually a few upright stems with toothed leaves crowded on their upper part and loose heads of red flowers; but it is not over easy

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in cultivation. Care is also desirable in the case of S. primuloides, from China, which forms a tiny bush, the scale-leaves being replaced by flat diamond-shaped green leaves. Its white bell-shaped flowers are usually not so freely produced as one would like. Most of the remaining Rhodiolas found in cultivation are rare and do not grow freely.

The section Telephium is exemplified by the well known and native orpine or livelong, and its members are valuable in the rock garden because they are late bloomers—August to October. The group is especially characterised by its very fleshy tuberous roots. The two best are S. spectabile and S. Sieboldii, both from the Far East—the former with massive, erect, leafy stems and large flat heads of purply pink flowers, beloved of Red Admirals in September; the other with low, arching stems and roundish leaves in threes, a favourite pot plant, and often seen in cottage windows, sometimes in a variegated form. The orpine, S. Telephium, also is by no means to be despised, flowering as it does when blossom in the rock garden has become very precious. The European S. maximum, which typically is very like an opposite-leaved green-flowered orpine, has a range of purple-leaved often pink-flowered variants; these are effective, especially the very large form, with stems 3ft. in length and leaves in triplets, known as var. atropurpureum. S. Ewersii, from Siberia, a low twiggy plant with opposite roundish leaves and rosy flower-heads, is like the other Telephiums, late blooming and effective.

Next comes the Aizoon group, consisting of half a dozen yellow-flowered flat-leaved species from the Far East. Several of these are useful and well known plants: S. Aizoon (=S. Maximowiczii), with tall, erect stems like a yellow orpine; S. kamtschaticum and S. Ellacombianum, lower plants of tufted growth, the former with dark green sharp-toothed leaves, the latter with light green blunt-toothed leaves; and S. hybridum, much like these two but with creeping rooting stems. S. kamtschaticum has a variegated form which is one of the most effective of stonecrops.

We now come to the large and varied group Seda Genuina or Eusedum, to which belong all our common creeping species and others besides. Their leaves are flat or subglobular or sausage-shaped, and their flowers white or yellow or green or red. It is in this group in particular that erroneous names abound, and for the fourteen species which I am about to refer to at least fifty names are found in English catalogues. To take the white-flowered species first, we have the very common S. album, which, though variable in leaf, is always easily recognisable, and has no claim to all the names that are bestowed on it. The most valuable form for the garden is var. murale,

THE CURIOUS FOLIAGE OF SEDUM REFLEXUM.

with purple copper leaves and pinkish flowers—a very distinctive plant. S. Lydium is one of the tiniest of sedums, forming a fresh green mat, in exposed places tinged bright red. S. dasyphyllum and its ally S. brevifolium are really choice, tiny species needing a warm, very dry place, such as an old wall, in which situation the former may be found wild in southern England. S. dasyphyllum forms small pinkish grey tufts of egg-shaped leaves and white flowers; while S. brevifolium is smaller still, with white and red mealy globular leaves. S. populifolium, from Siberia, is an attractive plant of unique growth among hardy sedums, forming a deciduous twiggy bush up to a foot in height, with aspen-shaped leaves and clusters of hawthorn-scented blossoms.

Of red-flowered members of the Seda Genuina the dark-flowered form splendens of the familiar S. spurium gives a very fine patch of colour; and S. stoloniferum, allied to spurium and often confused with it, makes a fine mass of narrow-petalled pink stars. It is easily known from spurium by its smaller pale green untoothed leaves and wide open flowers. Very different is the North American S. pulchellum, with fresh green linear leaves and showy bright pinkish four-petalled flowers set on radiating recurved branches at the summit of 6in. stems. Unlike most sedums, this plant is fond of a damp spot.

Then there are a lot of yellow-flowered species, including the very common SS. reflexum, rupestre, sexangulare and acre. Forms of the first two constitute much of the rubbish that is sold under a multitude of spurious names. S. sexangulare is valuable on account of its neat green mats of foliage and profusion of golden bloom. The native S. acre has an interesting variety majus from Morocco (often named Maweanum) with much larger pale green leaves, which is worth a place in a choice collection. S. amplexicaule, which hails from southern Europe, is a curiosity, as it dries up in summer into a tangle of thread-like stems and grey slender buds, which in autumn again break into hair-like leaves with a peculiar sheathing base. S. spathulifolium and S. oreganum (often misnamed obtusatum) are two good yellow-flowered plants from the north-western United States. The former has diamond-shaped mealy leaves in lax rosettes. Its variety purpureum, larger and with the leaves flushed purple, is quite one of the best sedums in cultivation. S. oreganum has green spathulate leaves flushed with red, and forms a pretty mat. Lastly, of this section, the Moroccan S. multiceps may be

ONE OF THE MOST LOVELY OF THE SEDUMS, S. SPATHULIFOLIUM.

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SEDUM ROSEUM, A NATIVE SPECIES.

mentioned, a linear-leaved plant forming a minute branching bush of curious appearance.

Finally, we reach the sections Sempervivoides and Epetium, which consist of biennial or annual species, and furnish three plants well worth growing. S. sempervivoides and S. pilosum are biennials, producing in the first year downy rosettes much resembling those of a sempervivum—lax with broad leaves in the case of the former, dense with narrow leaves in the latter. In the second year they send up one or several flat heads of flower, scarlet in sempervivoides, rose-coloured in pilosum. Although biennials are out of place in the rock garden, the beauty of these two Caucasian species demands an exception in their favour Lastly, there is one annual sedum which cannot be omitted from a good collection—S. cœruleum. It forms a tiny bush a couple of inches high, and alone in the whole genus has blue flowers. A clump of it when growing in the sun with red-tinged leaves and innumerable tiny sky blue stars is a lovely object. Like S. pulchellum, it likes a moist situation.

From among the sedums known in cultivation—in number 150 species or so—I have in the above notes selected thirty as best for the English rock garden: as being attractive, hardy, obtainable and easy under cultivation. Of course, tastes differ, but speaking from a wide experience of the genus, I do not fear criticism. The selection stands as follows: S. Kirilowii rubrum, roseum, trifidum, primuloides, Telephium, maximum atropurpureum, spectabile, Sieboldii, Ewersii, Aizoon, kamtschaticum variegatum, Ellacombianum, hybridum, album murale, lydium, dasyphyllum, brevifolium, populifolium, spurium splendens, stoloniferum, pulchellum, sexangulare, acre majus, amplexicaule, spathulifolium purpureum, oreganum, multiceps, sempervivoides, pilosum, cœruleum. These vary in height from an inch to 3ft., and include carpeters, clump-formers, bushy plants and erect herbs; the majority are evergreen, and all but the three last perennial. In leaf they are of many shades of green, glaucous, purple or variegated; in flower white, yellow, orange, pink, purple, scarlet, blue. The flowering period of the series extends from June till October.

I have only one word to add. In the milder parts of the British Isles some of the Mexican sedums are quite hardy, and in a warm, dry place will enhance any collection. The kinds most to be recommended for hardiness and appearance combined are S. confusum, S. compressum, S. Palmeri and S. retusum; but these plants are not readily obtainable, though now included in a number of British collections. The first three have the merit of flowering in April, two months before any of the Old World species.

THE ESSENCE OF SPRING

THE war, with its immense upheaval of so many recognised things, wrought much evil in our gardens; but it was (as time and distance have proved) an evil out of which good has come. Pre-war—most hateful phrase, though useful—the garden boasted a border, filled each autumn with bulbs in quantity, that for weeks was gay with the finest daffodils, tulips, etc. To-day, no vestige of its former glory remains; but a more satisfying array has replaced the old-time bulbs, that being nothing less than a collection of old-fashioned hardy border flowers, which have come to be known by the name that heads this article.

I do not regret the past, the present is too rich; and—while the remainder of the garden is but waking and making ready — thither I direct my steps to the fulness of spring actually in being and rich with promise of still more to follow. Though old-fashioned flowers have been so largely used, this does not mean that only old varieties appear. Far from it, for I have searched and searched again for the "best" of everything that blooms during the youth of the year, and, while much that was familiar to our grandfathers is lavishly employed, wherever anything that is strikingly better has been achieved, it is that which has been chosen.

As an instance, the old-time Alyssum saxatile was a gay old plant; but its modern descendant—plenum—is a much better one and figures in great stretches of grey foliage that now are literally sheets of gold dust. One can afford to be lavish in one's use of this, for it is an all-the-year-round plant and very decorative all through the summer and a welcome spot of brightness on the dullest winter's day.

Life and flowers are so abundant on all hands that it is difficult not to be distracted hither and thither; but let me concentrate on the dwarfer material first. Forming dense low-growing patches, not more than two or three inches high, Adonis vernalis is freely used, and its golden yellow flowers are among the most welcome contributions of early spring. The leaves are fern-like; but, in this respect, Adonis amurensis is a far finer plant, and liberal use has been made of this, too. The fact that the border was originally composed of bulbs gives an initial supply of those which are more or less permanent in character, and hard by the patches of Adonis are masses of the thin grass-like leaves that mark the spot where Fritillaria Meleagris holds court. These go on, year after year, and although they do not increase much, they do not become less, and April and May never fail to produce a wealth of those large pendent tessellated bells that are so unique. These are, indeed, flowers to earn our love, and three or four blooms cut and placed in a clear glass "specimen vase" are a joy to rejoice the artistic soul. How marvellously the petals are chequered. How strangely they vary in depth and how exquisite are the white varieties in which this chequering is only hinted at in palest green.

Considering that the soil is such a light one, you may, naturally, express surprise to see those wonderful sheets of hepatica in white, blue and vivid pink. It really does seem as if they were intent upon hiding the fact that they possess foliage, and the question is often asked: "How can you do it on this soil?" I cannot. It is accomplished by means of one of those "little dodges" so familiar to the keen gardener. I needed hepaticas—needed them badly—and so the natural earth was removed to a depth of 15ins. and replaced by several spadefuls of rather heavy loam mixed with a little leaf-mould, and—there you see the hepaticas, and they entirely justify the trouble.

You will have gathered, by this time, that every good thing which can be pressed into the service of the "essence of spring" is used without hesitation, so that it will be no surprise to find great patches of the annual Silene pendula bursting with buds and which will give sheets of intense vivid pink that endure for weeks. This, of course, is sown in August, just to make sure; although, by allowing Nature to take her course and

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by leaving the old plants alone, it is seldom that the supply of self-sown plants is short. I scarcely need to comment upon the forget-me-nots (please forget that the botanist calls them myosotis); they are self-evident, and, where these break into and intermingle with the silene, one has a charming picture indeed.

February and March gave the common primrose, reinforced by the coloured forms and particularly the blues in plenty; but to-day, interest centres round the polyanthus. Here are riches without stint, more especially as one can purchase the seed separately, more or less to colour. I would not claim that this is "true." It is not, but it does enable one to plant great sweeps and drifts of dark reds, crimsons, yellows and whites, that thrust up their flower heads in great sheaves and, by the very density of their massing, call to one from afar. Here, again, the "blues" are prominent, and he who will take the trouble to isolate his seed plants can work up a splendid strain of really clean colours that is a long way ahead of the "blues" supplied by the nurseryman.

Still among the primulas, another reliable perennial species that provides us with something "quite different" is to hand in P. denticulata. Happy is the border where a couple of dozen or so of these flourish in one group. The foliage rather resembles the ordinary primrose, save that it is always distinguished more or less by mealiness, a feature that becomes so pronounced in some specimens that it is as attractive and beautiful as the flowers. The flower heads are circular, borne on very stout stems, and

ADONIS AMURENSIS WHICH FORMS DENSE LOW-GROWING PATCHES.

a lovely bright lilac that is distinct in hue from any other flower of its season. Of course, another primula bulks large throughout the scheme of planting—the auricula. These originally were planted as seedlings in mixture, but to-day I have improved upon that. Propagation by division has enabled me to sort up the colours, and now they stand in large tufts of browns, deep crimsons, mauves, rich yellows, etc., set in those large rosettes of leathery leaves that add so much to the floral beauties.

From the ethereal to the solid is only a short jump, and we come down beside yet another grow-anywhere plant in Bellis perennis, in white, pink and crimson. Before winter has released its grip, these are flowering and will carry on, becoming smaller and smaller in their endeavour to keep going until summer has well begun—a grand old flower to which we owe a deep debt of real gratitude. And now attend closely, please, for here we have a curio—nothing less than the hen and chickens variety. This not only produces the large double flowers with which we are all familiar, but, clustered round this, a number of short stalks appear, and they, too, bear smaller double blooms. The double white arabis is too good to exclude, but we must keep a sharp watch upon it or it will certainly overrun its neighbours, to their detriment. A severe clip back with the shears after blooming, however, does much to check this rampant luxuriance, improves the plant and protects its neighbours, and the billowy masses of snow white flowers are well worth this small demand. Similar treatment is meted out to the aubrietias, and, in return, they lavish upon us circles and ovals of every possible shade from royal purple through warm crimson to lilac and the softest mauve. Use these lavishly, and dibble in among them any spare tulips of suitable colour and stature that you can spare, and you will gather a colour feast of inimitable richness.

Cropping up all over the place are anemones in variety. Not the brilliant tuberous forms, though these are good for select positions, but such gems as apennina, Pulsatilla, sulphurea and sylvestris. At the start there was a certain amount of order in their grouping, but now, happily, my efforts have been overruled and little plants have chosen their own homes and peep out here and there from the edging or the base of other plants in a manner that is charming and attractive.

That shaded corner, which appears to be barren, is a delusion, and a few days' warm sun would expose its falsity: for that is where the lilies of the valley flourish, and up will spear those closely rolled twin leaves and fragrant flowers that never lack appreciation. Near by, because they appreciate similar conditions, but much more advanced in their programme, are the trilliums or wood lilies—a host in themselves—upon the large flowers of which it is always a temptation to expatiate.

But I must hurry on to the taller growers: for, rich as the array of dwarf plants has been, there is still much to see, and we may now lift our eyes and look. Those shrubby sheets of dark green leafage, buried beneath their showy canopy, are the perennial candytufts, and you will not be long in noticing how soon the bees, both the great humble and the hive forms, get busy supping their nectar. No trouble with these, at any rate, for the soil in which they will not flourish has surely yet to be discovered.

Wallflowers! Ah! What a name, and what a plant! These are not the mean little specimens used for bed filling and torn up to make way for impatient successors. This is the wallflower as a *perennial* plant, given full opportunity to reveal its capabilities. This, reader, is where I get height and colour too. Great bushes 3ft. tall, smothered by a welter of sprays of blood red, brown, striped golden yellow, primrose and violet. Even as we watch, a hibernated example of the lovely brimstone butterfly skims overhead and descends—guided by its colour instinct to the palest primrose, there to expand and close its wings in the warm sunlight. Before leaving the subject of wallflowers, we must comment upon the grand doubles in their sturdy formality, stiff and upright as stocks and a fine chestnut red and golden yellow. These are uncertain in their flowering; but, with a warm and rather sheltered position, do well in average years, and one does not grudge the trouble entailed by sowing a packet of seed each May.

Not far away is another stock-like plant that gives grand heads of double white flowers at the minimum of trouble—the white rocket. This may be propagated either by taking cuttings and rooting these in a cold frame immediately after flowering, or by division of the older plants. This is only necessary once in two years, however. Among the taller plants, those stout stems, encircled by whorls of shining green leaves, reveal the presence of Fritillaria Imperialis—the Crown Imperial. Towering upwards to a height of 3ft., the stem is encircled at the top by a complete ring of large bright golden or dusky orange flowers, surmounted again by a further tuft of the green leaves that look as if they had been thrust through the ring of flowers as an afterthought. The common old honesty can be used in masses in the background, care being taken that the seeds are all from purple flowers, because this *en masse* is a telling hue of great value that is lost in the whites.

Finally, all those dwarf tufts of glaucous foliage represent Iris pumila, of which the flowers are nearly as large as their taller brethren, although they do not exceed 15ins. in height. These provide a marvellous show of royal purple, lavender, sulphur, yellow and white, for two or three weeks. Do I regret my bulb border? I do not. Essence of Spring is more than compensation. H. W. CANNING-WRIGHT.

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DROPMORE AND ITS CONIFERS

AS this is the year of the Wembley Exhibition there will be thousands of visitors from overseas who may wish to see something besides London and the packed crowds at the Exhibition. In that case we advise them to visit Dropmore, which, owing to the kindness of the owner, Mr. Fortescue, is open to the public on Mondays, Wednesdays and Saturdays from 11 to 5. As it is only a mile or two from Maidenhead, it is within easy reach of London.

We visited the grounds in early spring, when the photographs were also taken, but even at that unbecoming time of the year, the impression gained was entirely that of amazement. A Canadian, who has lived with trees all his life, was in our party and his one remark was that he had never seen finer specimen conifers.

The charm and the beauty of Dropmore undoubtedly lies in the surroundings of the countryside. The magnificent and stately conifers raise their heads over an unending stretch of wooded country. One receives the idea of the interminable ages with their forgotten past, and yet not wholly forgotten, as these many relics remain testifying to the grand sense of beauty which must have existed in bygone days.

The estate is famous first and foremost for the giant cedars which rear their tall crowns and seem to crush out and suppress their less fortunate neighbours by casting around them a dense shade. Three species are to be found. The first, the Cedar of Lebanon (Cedrus Libani), one can recognise by its intense dark foliage and blackish bark. The Atlas Cedar (C. atlantica) and its close ally, the Deodar (C. Deodara), with their lighter coloured foliage and dark greyish smooth bark which later becomes fissured, form a picturesque sight. Most of them were planted about 1840, and show a remarkably fine growth reaching to 70ft., and bearing numerous spreading horizontal branches which in many cases are weighed down by countless upright unripe cones resembling miniature beehives. These trees, both young and old, are scattered throughout the whole estate and there is no mistaking their habit and characteristics.

On walking along one of the main drives, one is presented on the right hand by a handsome specimen of the Colorado Douglas fir (Pseudotsuga Douglasii). It is the finest Douglas, and also one of the finest trees on the estate. Planted probably about 1845, it is now about 85ft. in height with a spread at the base of 20yds. Its whorled branches have a pendulous appearance owing to the enormous weight of the dark glaucous foliage.

In contrast to the stateliness and dignity of the Douglas, one finds a small tree, from 20ft. to 25ft. high, of Torreya californica. This is an uncommon tree in England. It is another representative from North America, its common name being the Californian Nutmeg. The tree is shapely and of a pleasing colour, with its greyish-brown bark and slightly pendulous branches bearing linear yellowish-green leaves. This specimen is probably about forty years old and appears to enjoy the conditions at Dropmore. Farther along the drive two giant "Silvers" call forth words of praise from the visitor. They appear to be twins on a superficial glance, but on closer examination one notes the specific difference, designating one as Abies Pinsapo, with its spreading branches covered with radially arranged leaves, while the other is the Grecian silver fir, A. cephalonica. They are from 70ft. to 75ft. in height and present a noble appearance with their tall, erect stems.

A MAGNIFICENT SPECIMEN OF PINUS INSIGNIS.

Bearing away to the left from the drive down towards the lake, one becomes lost in a maze of North American thuyas, pines, cypresses, spruces and cedars. A fine, well proportioned specimen of Thuya gigantea, 65ft. in height and about sixty years of age is to be found at the lake edge in company with one of the giant redwoods of California, Sequoia sempervirens, still farther round the edge a deciduous cypress (Taxodium distichum) comes into view, characterised by its twisted bark.

On leaving the lake one wanders along many paths hedged by bushy rhododendrons. Unfortunately, there will, in all probability, be a dearth of flower this year. Here they are allowed free play and in late spring with their trusses of handsome and gaily decorative blooms spreading here and there throughout the woods and forming a dense under-cover and carpet, they should present a pleasant picture to the eye.

Other paths are lined along their sides with cedars, C. atlantica glauca and a few specimens of Picea Smithiana with their tall erect stems 70ft. high, and pendulous branches bearing their long pointed green needles. At the end of this path a glorious sight meets the eye. If we were in the eighteenth century, verses would certainly pour forth in description of a truly magnificent representative of Pinus insignis from North America.

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The Monterey pine (P. insignis or radiata) rears its crown heavenwards. It commands a wide space and is more or less isolated. The pyramidal outlines which are seen in younger trees of this species throughout the estate give way in this case to a wide sweeping crown made up of stout branches with numerous dense blackish-green needles. The whole appearance of the foliage at a distance is that of the richest velvet. The stems and branches are tinged with a coppery red. What a strange fascination such an isolated pine has for one. Were this the only tree on Dropmore, it would be worth a visit.

A CORNER OF THE LAKE WITH A GIGANTIC CEDAR IN THE BACKGROUND.

Another section is devoted to conifers from Japan. Many Cryptomerias are to be found (C. japonica). On looking across from Dropmore to Windsor Castle and Ascot Downs, one especially fine specimen is to be noticed in a hollow. A low form, with pendulous branches and longer leaves which turn bronze red in autumn is especially graceful nestling as it does beneath a giant Deodar at the side of a pool. Many forms and varieties of cupressus and chamæcyparis should be noted, their golden tints showing up in striking contrast to the deep glaucous foliage of the silvers, cedars and pines.

One leaves the estate with a feeling of having acquired a vast store of knowledge with regard to the number of coniferous trees which are to be found in our country to-day. One begins to realise the myriad differences and variations which crop up within a single genus of the Gymnosperms, and how these specific variations all appear to dovetail into some prearranged plan, resulting in the stretches of picturesque woodland which beautify the countryside of these islands. The question of adaptation to environmental conditions is one which appears to be solved at Dropmore as all the conifers, without exception, seem to be thriving. In fact many of them appear to prefer conditions in this country to that of their native *habitat*, if one can judge from their majestic and healthy appearance.

A HANDSOME DOUGLAS FIR (PSEUDOTSUGA DOUGLASII).

ABIES CEPHALONICA AND A. PINSAPO.

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POTATOES FOR EXHIBITION

HOW TO GROW AND HOW TO SHOW THEM.

POTATO-GROWING for exhibition is becoming daily more popular, and the present writer, as a judge at horticultural shows has more than once during the past few years had 250 plates of potatoes to judge, even in quite small exhibitions. Unfortunately, many of these plates were easily weeded out, being of poor or indifferent quality, and it is in the hope of helping growers to produce really first-class tubers that these few notes are penned.

Much depends, first, on the selection of varieties, and although such selection is influenced to some extent by local conditions, the following three may be relied upon, and should thus be widely grown:

Early Immune: Edzell Blue.

Mid-season Immune: Great Scot.

Maincrop Immune: White City.

Where the schedule provides that potatoes of a special shape must be exhibited, the following selections will be found useful, although, of course, there are many other valuable varieties:

White Kidney: New Guardian and Sharpe's Express,

White Round: Crofter and Windsor Castle,

Coloured Kidney: Prizetaker and King Edward VII.

Coloured Round: The Rector and Kerr's Pink.

Too great importance cannot be placed upon the thorough preparation of the soil. The potato always likes a light, friable soil, and this is absolutely essential if exhibition tubers are to be produced. On ordinary loams there should be very little difficulty about this, as it is only a matter of working the ground freely shortly before planting. In the case of the stronger soils, heavy clays and very stony land, special preparation will be required, and it generally pays the grower to dig out trenches, putting a layer of manure at the bottom of these and covering it over with not less than 8ins. of fine old potting soil to which plenty of burnt wood ashes have been added. A little of the potato fertiliser to be mentioned directly can be scattered over the surface and lightly forked in.

Reverting now to the average garden soil, best results are obtained by manuring almost immediately before planting. Old hotbed manure or well rotted vegetable refuse should be worked in at the rate of at least a large forkful per two square feet, the potato being a hungry subject. Lime must not be used, as it is very apt to cause scab, which, of course, renders the tubers entirely unfit for the show bench. Chalk or ground limestone can, however, be applied where it is known that the land is deficient in lime, as neither of these materials will scab the tubers. As regards preventing ordinary land scab, I have found flour of sulphur to be useful, and it should be scattered lightly over the ground at the rate of about an ounce per square yard and forked in. Where, however, the land is known invariably to produce scabby potatoes, it will be necessary to plant the tubers in holes 2ft. apart, filled with half-rotted leaves or rather dry manure from the roads, for a few years. If this is done they will be found to come up perfectly clean.

Corky Scab is another malady which is far from uncommon, and it is necessary to take steps to prevent it attacking tubers intended for exhibition. There are various ways of doing this, one of the most reliable being to dip the seed sets in dilute formaldehyde solution before planting. About a quarter of a pint of the concentrated liquid is dissolved in 7 gallons of soft water and the tubers are immersed in this from one to two hours, after which they are taken out and allowed to dry thoroughly before being planted in rows 2ft. apart, planting being completed by the end of May.

The following fertiliser will be found very valuable for producing exhibition potatoes, and 2 oz. per square yard or even rather more can be used at planting time, a similar amount being applied before any earthing-up is done:

Sulphate of potash ..	1lb.
Superphosphate of lime..	1lb.
Sulphate of ammonia ..	½lb.

I need not, I am sure, remind readers of the importance of carrying out the usual cultural operations, such as stirring the soil between the rows, thinning the growths both before and after planting, generously earthing-up the rows, and spraying with Burgundy mixture or some other similar preparation to protect the plants from blight or ordinary potato disease. As a judge I never, under any circumstances, award a prize to tubers affected by blight, as it is so very easy to protect the plants from it.

Just a hint or two now on staging the tubers at the show. Particular care should be taken that the number of specimens agrees with that provided by the schedule, and that each group is of one variety only. The tubers should be carefully lifted with a large fork and washed with warm soft water, a sponge or soft rag being used to move the adhering soil. After this a further washing will be desirable, and milk to which a little soft soap has been added should be used, as this strengthens the skin much more than is commonly recognised. Finally, it will be well to take a very soft piece of rag and dip it in one of the patent furniture creams, rubbing the tuber all over with this, and then immediately rubbing off with another soft piece of cloth. On no account attempt artificial faking of tubers, such as painting in red eyes on white kidney varieties, as any judge who knows his job is certain to spot such work and will promptly disqualify the exhibitor. The potatoes should be staged at the latest possible moment if the show is a two-days affair, as otherwise they may become green before the exhibition is over.

E. T. ELLIS.

THE NEW VIOLAS

THE following are the choicest of the viola novelties for 1924. The name in parentheses is that of the raiser, where two names appear the first is the raiser and the second the introducer.

AGNES BROWN (Stevenson).—A variety of somewhat similar colour to Annie Hamilton, side and bottom petals glossy black and top petals light lavender. It has a glistening appearance. Mr. Andrew Stevenson tells me that, unfortunately, he has lost a lot of the stock of this variety during the winter, so that it will not be available in quantity till the autumn.

DAVID STEWART, JR. (Stewart—Penman).—A purple self of smooth texture, good size and shape.

ELETHEA (Woolman).—Mr. Tooby Desmond has a new variety of this name, and I believe that it is the one Mr. Woolman lists. It is a pretty "sport" from Annie Hamilton.

DOROTHY WINN (Winn).—Deep yellow with a band of helio-blue toning off to a picotee-edge late in the season. A fine flower of good texture and build. It will probably be one of the leading varieties in the picotee-edged section.

GALA DAY (Woolman).—Deep yellow with neat edging of blue. One of the most distinct of the new violas and an acquisition. A seedling from Maggie Stevenson.

JACK MILNER (Milner).—Crimson with purple stripes. A very large flower with a fine under petal and a neat eye.

JAMES BLAIR (Robertson—Penman).—Rosy purple self. A large well built flower.

JEAN D. COWAN (Stevenson).—Pale chrome yellow with band of pale lavender, top petals lavender grey. A new colour break and a flower of fine form.

JEAN DRUMMOND (Robertson—Penman).—A large clear lemon-yellow of good form. A beautiful self and one of the best of its class. A good companion flower to John Adamson.

JENNY SIMPSON (Cochrane—Douglas).—A large rich lemon self of thick texture. A different type of flower from Jean Drummond.

JESSIE CAMERON (Cochrane—Douglas).—A canary self. Finely built flower of splendid texture. Strong habit.

JOAN BARRETT (Tooby Desmond).—A large flower of good substance, deep violet purple that shades out to lavender on the top petals. Mr. John Smith of Galemire, Whitehaven, lists this variety.

JOHN ADAMSON (Robertson—Penman).—A very fine orange-yellow of large size and smooth texture. One of the best new varieties and regarded by many good judges as the best of its colour. Although it is reputed to be scarce Mr. Penman assures me that he has ample stocks to meet all demands.

KATHLEEN CONDRY (Condry—Bastock).—A purple self of very large size, and said to be the best of its colour. Larger, rounder and of better quality than Milton Jumbo.

LIZZIE WILSON (Stevenson).—Bottom and side petals dark purple, top petals with lighter shading. Glossy texture, large size and fine form.

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MARY J. STEVENSON (Stevenson).—White with bottom and side petals belted heliotrope and top petals flecked with heliotrope and violet. A seedling from the beautiful viola Rita Stevenson.

MARY DOUGLAS (Cochrane—Douglas).—Very large picotee-edged flower, cream, edged with mauve. Beautiful colour, good form and texture.

MAUD BELL (Bell).—Violet-carmine with small cream centre. A new colour break. Good substance. Fine for vases.

MEG SCOTT (Cochrane—Douglas).—A very useful white self of fine form and texture.

MISS BATES (Harrison and Sons).—A waxy pale yellow self of fine form and texture. It is rayless, a good grower and has a dwarf habit. Fine long stems. Good for vases.

MOSELEY SUNRISE (Bastock).—A very large yellow self. Distinct from Moseley Perfection. Rather tall habit but a good exhibition flower.

MRS. ALEX. MILLAR (Millar—Macfadyen).—White with broad band of bluish purple. Tall growth. Very large flower.

MRS. A. DURIE (Macfadyen).—White, suffused and bordered pale heliotrope, top petals dark heliotrope. Medium habit. Very large flower. Vigorous growth and thick stems.

MRS. DAVID FINLAY (McAlpine).—Crimson-purple ground, marbled and striped rose. A fine flower of good texture and a splendid under petal.

MRS. DAVID TORRANCE (McAlpine).—Cream ground with broad band of sky-blue on lower petals. Upper petals mottled sky-blue. A flower of the same type as Ronald Mason.

MRS. F. J. BELL (Bell).—Deep primrose, edged and belted with blue. A primrose coloured Mrs. J. McEwan. Rayless, of glossy texture and fine form.

MRS. H. HYNDS (Stevenson).—Mid-chrome with belt of deep lavender, top petals shaded with lavender. A seedling from Maggie Stevenson.

MRS. JOHN SCOTT (Macfadyen).—White with broad band of bluish purple. A very beautiful edged variety of dwarf habit. An improved Mrs. J. Terris.

MRS. ROBERT BEVERIDGE (Beveridge—Penman-Pye).—Soft delicate pink. A new and pretty shade. Held its colour well last season and should be very popular in England. Large size and fine form. A better top petal than Maggie Rutherford. One of the best novelties of the year.

MRS. WM. BOYES (Macfadyen).—A very large lemon yellow edged with lavender. Medium habit, very long stems. A very choice novelty. Mr. Forrest, one of the leading Scottish growers, tells me that he considers it one of the best twelve violas in cultivation.

OLIVE HARRISON (Harrison and Sons).—Pale primrose with a neat edge of sky blue on the lower petals, top petals suffused with sky blue. It is a good grower with a neat, dwarf habit. I can recommend this as a sterling new variety.

PHYLLIS BECKETT (Beckett — Milner).—Purple-blue suffused over a white ground with a carmine wire edge. A richer coloured Edith Bastock.

SHEILA MATHEWS (Mathews—Douglas).—A new colour break. Creamy-champagne, mottled and suffused with dark rosy mauve. A beautiful colour.

SHIRLEY DELIGHT (Woolman).—Cream edged with blue. Vigorous habit and long stems. Very free flowering. One of the best of its class.

SHIRLEY PURPLE (Woolman)—Dense purple. Darker than Milton Jumbo. Vigorous habit, neat eye and well built flower.

SHIRLEY YELLOW (Woolman).—A good yellow for exhibition purposes. Rather tall habit. A seedling from Mrs. Jamieson.

SNOWDRIFT (Woolman).—One of the finest white selfs of recent years. Pure colour and neat eye. Very large petals. An improved William Barr.

VIOLET BELL (Bell).—Glossy black, bottom petal tipped with lavender, top petals glossy black, feathered with lavender. Similar in form and habit to Annie Hamilton.

WHITLEY BEAUTY (Bell).—A good plum purple. Similar to Annie Hamilton except in colour.

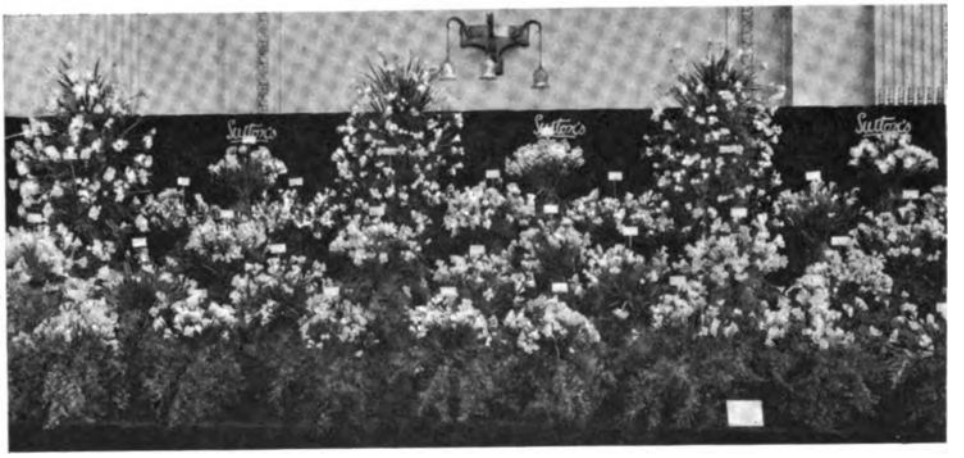
NORMAN LAMBERT.

EASTER FLOWERS AT VINCENT SQUARE

CONSIDERING the cold weather it is extraordinary how the supply and quality of the plants at Vincent Square keep to the high average. This show of April 8th was noteworthy for the high degree of excellence of the bulbs. If any criticism could be made about the Show, it was the poor variety of alpines which were shown, and this does not apply to this Show alone. After all, there are few classes of plants which can be propagated so easily as alpines; new forms and varieties are constantly coming into being as well as hundreds of new species. Yet the same saxifrages and bellis and primulas were shown which must have been seen at dozens of previous R.H.S. shows. It is not that these valuable plants should not be shown, but that some added variety might well be included. Many rock gardeners have advanced beyond the stage so obviously catered for by exhibitors at Vincent Square and we heard several expressions of disappointment that prospective customers had to go away empty handed owing to lack of variety.

The exhibits of bulbs, on the other hand, were full of novelties and unnamed seedlings. The beautiful exhibits of tulips by Messrs. Dobbie and Co, Edinburgh, and Messrs. R. H. Bath and Co., were a feature of the Show. These lent a varied touch of colour to the hall and showed what can be done with these graceful May-flowering bulbs. Among the varieties which were exhibited on Messrs. Bath's stand were La Tulipe Noire, which recalled to mind immediately that famous story of Alexandre Dumas. Unfortunately the name does not bespeak the colour, since it is more of a dark purplish hue. Ultimately, perhaps, the black colour will arrive. From the dark tints, one wandered to the warmer and more delicate hues in the pinks, yellows and reds, light mauves and purples, such varieties as Princess Elizabeth (rose pink), Avis Kennicoth, with its long oval yellow corollas, Margaret (pinkish red), Bartigon (deep red), and Blue Bird (light-mauve). How pleasing to the eye also was Messrs. Dobbie's gorgeous array of the double-flowered forms in all the colours of the rainbow. Such varieties as Tournesol, Turban Violet, Anna Roozen (a rose pink, paling towards the base of the petals and finally giving way to a light yellow), Alba Maxima (soft white), El Toreador, which lives up to its name with its red and orange hue like a toreador's cloak, Lucretia (a light pink) were included. These firms, including the Maytham Gardens, Kent, indeed deserve credit for the raising of so many of these beautiful spring flowers.

The best exhibit of daffodils was to be seen on Messrs. Barrs' stand. All the various sections were here represented—the daffodils, these narcissi with the large centre, being much in evidence. No family of plants has been more improved by hybridisation in recent years, and the results of this were shown to-day in the large number of new seedlings, which are too numerous to mention. One can find all gradations from whites to deep pure yellows. With an ever-increasing band of hybridists and co-workers the number of varieties has been so much added to that they literally seem to be without end. But yet each is distinctive in its own particular way.



MESSRS. SUTTON AND SONS' BEAUTIFUL EXHIBIT OF FREESIAS.

HYBRID FREESIAS.—Much has been done during the past few years in improving these deliciously fragrant flowers. On the present occasion Messrs. Sutton and Sons showed a vast collection of these plants. Never before have we seen such an exhibit of freesias at the R.H.S. hall. Without question it was the

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premier exhibit at the Show. Here were to be seen excellent specimens of such varieties as Apogee, soft primrose yellow, darker at the tip; La France, mauve, with white throat; Monette, creamy white, suffused pink; Apple Blossom, pink, white centre; and Bluebeard, blue-mauve, brown markings on throat.

Messrs. Carter's show of cinerarias arranged in the form of a carpet was a delightful feature. Gorgeous blooms of all shades of blues, pinks and reds were massed together in perfect harmony. the whole was relieved by bowls of double tulips placed tastefully throughout the exhibit. Carter's Bouquet Blue was an especially fine variety of a deep shade of blue.

Messrs. Stuart Low Company were again to the fore with their carnations, but what struck the eye most were the acacias with their small clusters of yellow flowers intermingling with the light green of the foliage. They were indeed handsome mimosas. The species on view were A. grandis, A. armata, and also a pendulous variety of armata. A charming shrub at this stand was Chorizema cordatum, a member of the Leguminosæ.

Among the many and varied exhibits was that of Messrs. Jarman and Co., Chard, Somerset, with a tasteful array of pelargoniums and violas. The pelargoniums were a novelty and worthy of attention. Owing to the many sections of this genus in cultivation they form a most extensive class and are also among the most useful of greenhouse plants. Many beautiful varieties were on view the best of which in our opinion were the following. Maxim Kovalesky, of a good bushy habit, with large trusses of scarlet yellow flowers. St. Louis, with immense flowers of vivid scarlet-crimson with a bold white eye. Dublin, with bold flowers of a rosy magenta shade and a splendid dwarf habit. The whole exhibit was indeed distinct and attractive.

Dahlias were to the front in the capable hands of Messrs. J. Cheal and Son, who had a collection of Mignon plants which are extremely useful for bedding-out purposes. Included in their collection were chionodoxas, aubrietias, and various saxifrages. A very picturesque little group of the famous "Gaygarden" St. Brigid anemones, with their cup-shaped double blooms, each varying from three to four inches across, was shown by Messrs. Reamsbottom and Co., Middlesex. Their daring colours ranging from intense scarlet and deepest blue to the paler tints and white were such as to mark them down for a place in the garden.

Mr. Lowinsky of Tittenhurst showed some excellent plants of Rhododendron bullatum. Although growing to a bush of 4ft. it has the advantage of flowering young and is fairly hardy. It received an award of merit last year. He also showed another of Farrer's rhododendrons, R. calostrotum, a charming dwarf with grey-green foliage and large rose-purple flowers. This plant is well worth a place in the rock garden as it is perfectly hardy and of quick growth. Rhododendrons grown out-of-doors were also shown by Mr. R. J. Hanbury of Inverewe, Invernesshire. Although they had obviously suffered from the long journey, yet they showed clearly what can be grown in this mild climate of the West of Scotland.

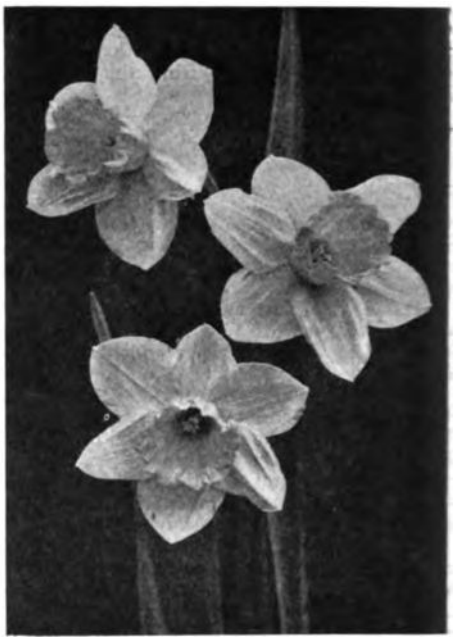
The following exhibits were also to be noted at the Show.

Messrs. Skelton and Kirby with alpines and shrubs. A dainty little plant of Viola gracilis lutea Firbright var. was also exhibited.

Messrs. Wm. Cutbush and Son with azaleas and alpines, etc.

Messrs. L. R. Russell, Limited, Richmond, with azalea species and various species of clematis.

Messrs. Pulham and Son with a collection of dwarf shrubs and ericas.



A GRACEFUL DAFFODIL, NARCISSUS FORTUNE.

Awarded a first-class certificate.

Messrs. W. H. Rogers and Son, Limited Southampton, with primulas, cupressus, andromedas, etc.

Messrs. Maxwell and Beale with aubrietias, omphalodes, myosotis, anemones and hepaticas.

Messrs. Ladham's, Limited, Southampton, with violas, omphalodes, double-flowered forms of Caltha palustris.

Messrs. Geo. Whitelegg with alpines and shrubs, and also a bush of Rhododendron Pink Pearl.

Messrs. Bakers of Wolverhampton with Primulas Wanda and denticulata, andromedas, etc.

Messrs. R. Tucker and Sons, Oxted, with a collection of alpines.

Messrs. G. H. Waterer, also with an array of alpines.

Mr. Clarence Elliott with well grown Saxifraga Griesbachii Wisley var., and graceful plants of Sisyrinchium grandiflorum.

Messrs. Carter Page and Co., Limited, with alpines, violas and dwarf shrubs.

Messrs. Geo. Bunyard, Maidstone, with their usual fine collection of apple varieties.

Messrs. Dicksons, Hawlmark, Belfast, with poppy anemones, giant hybrids.

Miss Hopkins with a tasteful collection of polyanthus.

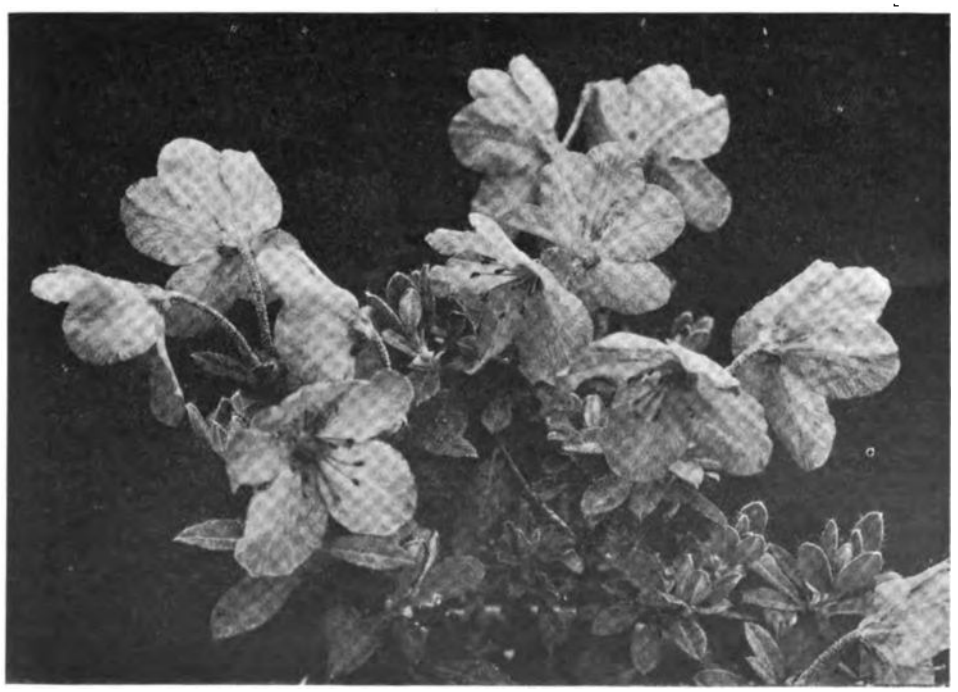
Mr. J. J. Kettle and Mr. B. Pinney, Blandford, with violets.

Mr. F. G. Wood with pulmonarias, cytisus, Pemberton roses, etc.

Mr. James Douglas, with auriculas.

Mr. G. Reuthe with rhododendrons, andromedas and other shrubs.

Messrs. Allwoods and G. Engelmann again had their stands tastefully decorated with their charming perpetual-flowering carnations of every hue and shade, which focussed the attention of all present. Such fine varieties as Edward Allwood, White Pearl, Mary Allwood and Sunshine were again brought to the notice of the horticultural enthusiasts



RHODODENDRON CALOSTROTUM, A CHARMING DWARF WITH GREY-GREEN FOLIAGE AND ROSY-PURPLE FLOWERS.

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as at the British Carnation Society's Annual show three weeks ago.

NEW AND RARE PLANTS.

NARCISSUS FORTUNE.—A fine daffodil borne on stiff, wiry stems. The flowers are of good size, deep yellow in colour with orange centre. First class certificate. Shown by Messrs. Walter T. Ware, Limited, Bath.

ARCTERICA NANA = Andromeda nana.—A dwarf-growing shrub from Japan with typical foliage and small bells of a dingy white. Although not particularly striking as a single plant, it should be of use in the rock garden. Its greatest advantage is its strong scent of honey which is not so sweet as to be sickly. Award of merit. Shown by Mr. G. Reuthe.

PROSTANTHERA ROTUNDIFOLIA. — A handsome shrub about 4ft. high with a mass of tiny flowers of a shade of pinkish-purple hanging in short terminal racemes and which stand out in bold relief to the light green of the broadly ovate leaves. The plant is a member of the Labiatæ with resinous glands and strongly scented. The flower is uncommon, the anthers being prominent and spurred. Award of merit. Shown by the Director, Royal Botanic Gardens, Kew.

ELDORA.—A beautiful fancy variety of a perpetual flowering carnation. In colour, it is clear white at the base, which gives way to rose pink edges. The blooms are exceptionally well formed, are fragrant and freely produced. Award of merit. Shown by Messrs. Allwood Bros.

VIOLET PRINCESS MARY.—A delicate and graceful little plant of a deep purple shade and exceptionally fragrant. Award of merit. Shown by Mr. J. J. Kettle.

RHODODENDRON PROSTIGIATUM. — A dwarf rhododendron, a cross between R. prostratum and R. fastigiatum. The growth is very vigorous while the flowers are open campanulate and large for the size of the plant. The colour is violet. Award of merit. Shown by Mr. E. J. P. Mayer.

ORCHIDS

AWARDS OF MERIT.

LÆLIO-CATTLEYA ORANGE BLOSSOM VAR. JUNE (L.-C. Elinor × L.-C. Trimyra), from Lieut-Colonel Sir George Holford, K.C.V.O., Westonbirt, Tetbury, Glos. A beautiful hybrid, the well developed plant carried three spikes, each bearing three flowers of medium size, in colour bright orange-yellow, tinged with gold, equally suffused throughout all the segments.

ODONTOGLOSSUM DUKE OF YORK (percultum × illustrissimum), from Mr. R. Gerrish, Milford Manor, Salisbury. A distinct advance towards the desired "blue-tinted" odontoglossum. In this example the roundly formed flowers were blotched with violet-rose in which a bluish tinge was clearly visible.

WILSONARA WENDY VAR. CARDINAL (Odontoglossum Lambeauianum × Oncidioda Cooksoniæ), from Messrs. Charlesworth and Co. An interesting hybrid composed of the three genera odontoglossum, oncidium and cochlioda. The erect spike bore fourteen large flowers of rich cardinal red evenly suffused through the segments.

ORCHIS PAPILIONACEA, from Major Albert Pam, Wormley, Bury, Broxbourne. Several examples of this species of terrestrial habit were shown growing in a shallow pan. The expansive labellum is prettily marked with lines and spots of deep mauve colour.

ODONTOGLOSSUM CRISPUM VAR. MARY GRATRIX, from Messrs. Sanders. A fine example of the Pacho type of imported crispum, the flowers having broadly developed segments, white, except for a few small spots on the labellum.

CYMBIDIUM CONINGSBYANUM VAR. MAMMOTH (grandiflorum × insigne), from Messrs. Sanders. A splendid result in which the tall spike bore eighteen unusually large flowers, cream coloured, the sepals tinged with rose pink, the openly displayed labellum prettily marked with numerous small spots.

CULTURAL COMMENDATION.

To Messrs. Sanders for the above-mentioned plant of Cymbidium Coningsbyanum, which exhibited an excellent condition of high cultivation.

To Mr. F. Streeter, gardener to Major Albert Pam, for Ophrys lutea, or closely allied species, of which several robust flowering plants were exhibited together in a shallow pan.

Several excellent groups were staged, the finest being that of Messrs. Sanders, and to which a gold medal was awarded; Sir Jeremiah Colman, Bart., Gatton Park, Surrey, and Mr. H. T. Pitt, Stamford Hill, both received silver-gilt Banksian medals for finely cultivated species and hybrids.

ANSWERS TO CORRESPONDENTS

TREES AND SHRUBS.

Camellias and Stuartia (C. J.).—Camellia Sasanqua can be grown in a cold greenhouse with the different varieties of C. japonica. As it is a less vigorous bush, it ought to be given a position where it will not be crowded by stronger plants. There are several varieties of C. Sasanqua, some with white, others with red or rose, and others, again, with double flowers. In Guernsey it ought to grow quite well outdoors with other camellias. Stuartia Pseudo-camellia ought not to be planted indoors, for it gives good results in outdoor borders and may be expected to blossom better outdoors than under glass. Plant it in well drained loamy soil containing a little peat or leaf-mould, and do not disturb it once it has become established.

Hornbeam Hedge (M. C.).—It depends on the type of plant whether pruning is required. If nicely furnished to the ground with twiggy branches, all that need be done is to take off the top or leading growth to encourage the development of a closely grown hedge. Should the small plants be thin young trees, pruning of the side branches and top will be desirable.

Improving Box Edging (J. W. T.).—The correct way to deal with overgrown box edging would be to lift it, tear it apart in small sections, taking care to keep a few roots on each section, at the same time cutting the tops back as far as required. Then dig over the borders, adding a little manure if very poor, tread the borders, lay down a line and chop the margins out with perpendicular or almost perpendicular sides; then lay the small sections of box in the trenches close to the edges of the borders, keeping the tops about 2ins. above the natural level of the dug borders and covering up the roots at once to keep them moist. Tread the soil firmly about the roots and, if the weather is dry, water well. This work can be done at once. If, however, our correspondent is unable to go to this trouble, he may cut the box edging back severely, and new shoots may be expected during the summer. The pruning should be done as early as possible.

Plants for Dry South Bank. (E. B.).—Brooms should be very suitable for such a position, a selection of the best being Cytisuses albus, scoparius, Andreanus, præcox, purpureus and Genista hispanica, also Spartium junceum. The rock roses are another family which thrive in dry sunny positions; six of the best are Cistuses corbariensis, cyprius, ladaniferus, laurifolius, Loreti and Silver Pink. If the position is a warm one, Cistus purpureus would be excellent.

Tree or Shrub for Grey Hedge (C. E. A.)—Two evergreens likely to suit the position described are Cupressus Lawsoniana Silver Queen and Cupressus (Retinospora) pisifera var. squarrosa. Failing these, Atriplex Halimus is a splendid seaside shrub and should give a good silvery effect at Torquay. In the mild climate of the south-west, Teucrium fruticans has the appearance of a greyish-leaved shrub because of the white under-surface, but our correspondent would probably find this too spreading in habit to form a neat hedge.

MISCELLANEOUS.

The Treatment of Heavy Clay Soils (A. B.).—The soil that our correspondent refers to, a portion of a trenched field three years ago, should prove to be a very productive one. Unless a great quantity of lime was applied, over-liming would not result. The lime should do this particular soil much good. Stones, if not very large ones, will not be very detrimental to crops. The ground, now, may need humus; vegetable refuse will supply some if applied in the autumn. Well-rotted manure should be applied now. The humus makes light soils firmer and renders clayey ones more porous, and also helps to retain potash and ammonia in the soil. Use farmyard manure for preference.

Various Questions (A. K. M.).—Rabbits are quite as likely to eat the plants mentioned (Sweet Williams, sunflowers and montbretias) if they are short of food. The dianthi can be grown in pots for flowering in the house, using 4in. or 5in. pots. Use a good sandy loam with lime rubble, and grow in a cold frame. Alpine strawberries can be easily grown for fruiting in pots. For the last shift use a 5in. or 6in. pot, and put three plants in each pot. The best soil is a good loam, to which should be added some well decayed cow manure or guano. When in fruit, feed with liquid cow manure, or artificial manure like Clay's Fertiliser.

Names of Plants.—(A. E. H.).—(1) Saxifraga Stracheyi alba; (2) S. Elizabethæ; (3) S. Petraschii.——(H. V. B.).—Grevillea longifolia.

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CORRESPONDENCE

RHODODENDRON TRIFLORUM.

I AM glad to see Mr. Lionel de Rothschild standing up for this rhododendron (page 212). There is no species that flowers more profusely every year, and the colour in one of a good type is quite as good as R. lutescens. Moreover, it starts late in growth, escaping the destruction so often wreaked by frost on the blossoms of R. lutescens, which flowers in February, whereas here R. triflorum defers its display till the latter half of May. The sun shining through a bush 7ft. or 8ft. high lights up the loose bark on the stem with splendid gleams of madder and burnt sienna.—HERBERT MAXWELL, *Monreith*.

DOUBLE YELLOW WALLFLOWER HARPUR CREWE.

IN a recent account of one of the Royal Horticultural Society's Shows this flower is mentioned. I think it may be of interest to know how very ancient this "novelty" is. It has been grown in my gardens for last three generations, but never had a name put to it till of recent years it was "baptised"! This is the best time to put in cuttings, which grow freely, as it has the nature of a shrub, not a seedling, and they grow "like a weed." I do not think there is a better early spring flower than this old-time plant. If any lovers of it wish for cuttings I shall be glad to send some if postage be sent with application.—J. HILL POE, D.L. (Captain), *Riverston Nenagh, Ireland*.

EMPEROR NARCISSUS.

I ENCLOSE a photograph of a basket of narcissi grown from bulbs supplied by Messrs. Robert Sydenham, Limited, Birmingham. These are four bulbs of Trumpet Narcissus Emperor, and these produced fourteen flowers. The bowl has been greatly admired, owing to its richness and profuseness in bloom.

It may be mentioned that the bulbs were English grown. The flowers are borne on long, slender, graceful stems which set them off to advantage.–(MRS.) BENYON, *Moseley, Birmingham*.

A CHARMING BASKET OF NARCISSUS EMPEROR.

A HYBRID EUCRYPHIA.

IT may be of interest to readers of THE GARDEN to see a photograph of a natural hybrid between Eucryphia pinnatifolia and E. cordifolia. This plant was raised by Colonel L. Messel, of Nymans, Handcross, Sussex, from seed taken from Eucryphia cordifolia.

In Colonel Messel's garden there are two old specimen eucryphia trees, one cordifolia and one pinnatifolia, growing side by side. Usually these two plants flower at different times — cordifolia in September and pinnatifolia in August—but in certain years both plants have flowered at the same time, and this hybrid has resulted from the natural cross. The hybrid flowered for the first time on September 6th, 1922, in my garden in Sussex.

The flowers have four petals, as in pinnatifolia, but the leaves, which are evergreen, though more like the leaves of pinnatifolia to look at, are thicker in texture; the leaves also have the curious habit of being both simple and pinnate, even on the same branch.

It is interesting that Eucryphia cordifolia and the hybrid both grow well on a lime soil, and that Eucryphia pinnatifolia does not appear to like lime and has never yet succeeded in my garden.—F. C. STERN.

A HYBRID EUCRYPHIA BETWEEN E. PINNATIFOLIA AND E. CORDIFOLIA.

DAPHNE LAUREOLA AND D. MEZEREUM.

SIR HERBERT MAXWELL is so carefully observant that I have been accustomed to take anything he writes about a plant for gospel. But he is curiously wrong in his repeated assertion (page 212) that the spurge laurel is scentless. Being very susceptible to *nuances* of scent, I have always prized this native plant, and have given it a place in the garden proper because of its distinct and (to me) delightful fragrance—quite a typical daphne scent, but very distinct from that of D. Mezereum. It is true that it is what old writers call "fast" of its scent, *i.e.*, it does not give it out into the air except on very warm, moist evenings. If Sir Herbert will cut a bit and put it in water in a warmish room, I feel sure he will apologise to the plant. It is, of course, possible, though unlikely, that it has lost its scent in its migration to the north. I have never seen bees visit it, nor do they visit D. Mezereum in my garden. But as the spurge laurel exhales its scent at night it is possible that it is fertilised by inconspicuous night-flying or crawling insects.—G. H. ENGLEHEART.

I WAS much interested in the remarks of Sir Herbert Maxwell on the Spurge Laurel, Daphne Laureola, in THE GARDEN, March 29th. The small shrub is rather plentiful in the woods and lanes around here. I gathered the enclosed specimen this morning and think you will find that the flower has quite a strong perfume. This is most noticeable on a sunny day or in a warm room.

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A friend and I found the plant some years ago, and although not knowing it then, we thought it must be a daphne from its scent.—ELEANORA READING.

[The specimen sent was certainly fragrant.—Ed.]

THE BREAKING OF TULIPS.

THE experiences of Mr. W. A. Watts quoted on page 233 are most interesting, as all efforts to elucidate the mystery of the "break" must be, to those who are devoted to the cultivation of tulips.

The dressing of the bulbs with sulphur would seem to be in the direction of providing an antidote to the attacks of aphides. If it be that breaking is caused by some disease—mosaic or otherwise—and that sucking insects carry the poison when attacking the shoots of the bulbs, the dressing would seem to be an effort in the right direction, as also would insect powder and the spray in keeping down the pests.

Mr. Watts tells us of a number of bulbs which he had dressed with sulphur returning to their self colour again. If this can be established—that is to say if, after a plant has exhibited signs of a break, or a pronounced break, the resultant bulb is dressed with sulphur, the next plant returns to the self colour again—we should have made a definite step in our knowledge of the subject. I have been told of broken flowers reverting to the breeder type, but in my experience broken flowers have never reverted to true breeder type, though sometimes they have come muddled and full of colour, quite different from a true self or breeder.

I will certainly, as an experiment, try what the result of dressing some long-confirmed rectified tulips may be, as Mr. Watts suggests.

Loathing, as I do, the attacks of all aphides, and as "green fly" came over in clouds last year, I fumigated the shed wherein the bulbs were stored once or twice, and kept the bulbs fairly free during their resting stage. The Darwins and the garden tulips did not seem to be attacked at all, or very rarely; the English tulips were a prey to the insects. The harder skins of the former varieties did not seem as attractive to the insects as the softer skins of the English tulips.

Besides bulbs in boxes and on trays, there are bulbs (seedlings) which, after having been dried, are stored in large paper bags and kept free from fly; yet out of these bags come both broken flowers and breeders, even though the broken ones were eliminated from the breeder stocks at taking-up time, and isolated. —C. W. NEEDHAM.

PROLIFIC HYACINTHS.

IN your issue of March 29th Mrs. Coalston draws attention to a hyacinth which produced five blooms. It is impossible to say if this was a freak or if it was a multiflora type which got among the ordinary bulbs in the grower's hands; but it is not such a novelty as her expert friends suggest, although it would have been a few years ago.

Last autumn I got from Messrs. Barr and Sons, London, half a dozen bulbs of a multiflora type of hyacinth; some I potted in ornamental pots, with a layer of pebbles and broken charcoal in the bottom and ordinary potting soil above, the others in 8in. ordinary flower pots, only one bulb in each pot. Five of these produced eight blooms each, the sixth giving only six, but all were beautiful, the colours being as ordered, two a charming light yellow, two a lovely soft pink, and two "heavenly" blue. As we have had a long cold winter they have lasted wonderfully long in bloom—nearly two months. I hope to have more of them for next winter.—D. C. B.

NOTES FROM CONTRIBUTORS

FRITILLARIA PYRENAICA.

SOME people do not care for the fritillarias, but I must confess that they make a strong and strange appeal to me. Some, it is true, are almost weird in their markings and colour tones, but most of them have many points of charm about them, not always visible to the many, but to the well versed these flowers are full of delight and induce them to make many a pause before them, to lift up the bells and revel in the beauty so frequently displayed by the interior of the flowers. I have passed most of the species in commerce—and some not in the trade—through my hands in the garden, and some day I would fain write more about them and their ways, which, candidly speaking, are not always acceptable to those of us who take most pleasure in plants which are almost eternal in their duration of life.

There is, at least, one among the fritillarias of exotic origin which can hold its own well in gardens and which appears to be among those least susceptible to any trouble arising from our climatic conditions. This is F. pyrenaica, the Pyrenean fritillary, which I have occasionally met with in old cottage gardens where it had been from time immemorial, withstanding all the vicissitudes of our weather and the neglect some of these gardens so often experienced. There it sent up its stem to a height of 18ins. or more, bearing flowers of a greenish purple outside, but of most beautiful glossy colouring in the interior, and of exquisite form. It is not a showy flower—the reverse, indeed, is the case—but it is one for the amateur who can see in such flowers points of beauty concealed from the average man. For the inner colouring I cannot do better than quote the description of an able authority who speaks of it as "chequered with purple brown on a yellowish ground." Fritillaria pyrenaica will do in ordinary garden loam, and may be planted in the border or, better still, on rockwork above the level of the eye.—S. ARNOTT.

SPRING TREATMENT OF PEACHES AND NECTARINES.

THE young shoots grow rapidly on trees under glass when the weather is normal outside, even if there is no artificial heat. At this stage very close attention should be given to the daily management—watering, syringing, ventilation and fumigation. These matters cannot be neglected without harm resulting to the trees generally. Then there is the work of thinning out the shoots and the fruits. If more shoots

HOW TO DISBUD AND THIN FRUITS.

are allowed to remain on the branches, resulting in overcrowding, and if the current year's shoots with the buds on them do not mature properly, then the next year's fruit crop is rendered very uncertain. The timely disbudding of the branches allows all those which have been retained ample room to grow in, the majority of the leaves and all the fruits being fully exposed to the maximum amount of light. This exposure from an early stage of the growth of the fruits results in very highly coloured specimens when they ripen. They should be fully exposed when of the size of a hazel nut; then they will at an early date become a bronze-red colour and there will not be any scalding of the skins when ripening. If, however, the fruits are covered by leaves and during the last three or four weeks suddenly exposed to the full sunshine, much damage to the skins may result, and certainly the tempting crimson suffusion of skin will be lacking. So the correct placing of both branch and fruit depends largely upon the way that the disbudding and the thinning out, respectively, is done. Fig. A in the accompanying sketch shows a branch bearing shoots and fruits prior to disbudding. Fig. B shows the same branch properly disbudded and thinned of fruits. All such work should be done gradually, spreading it over a week or ten days to avoid giving a check to growth. The arrows, Nos. 1, 1, point to badly placed fruits, which should be removed. No. 2 is well placed and should be retained. On a branch 18ins. or more in length a young shoot, No. 3, should be retained. On shorter branches two young shoots—the basal and end ones, respectively—will be sufficient. On the current year's shoots, No. 4, bears buds in the axils of the leaves, and these buds will be growth or fruit-buds next year. All small, sappy shoots growing from main branches, No. 5, should be removed entirely. Fig. C shows the approximate size of the fruits at the stoning age—when the stones become hard. During the stoning period, about three weeks, there is not much increase in the size of the fruit, and it is advisable to refrain from unduly exciting the trees by stimulants or extra heat. When the fruits begin to swell after this stage, feeding is an important matter; also syringing and the closing of the house with a moist atmosphere. Not only the fruits but the young shoots should be retained on the upper, not the lower, side of each branch.—G. G.

WIRE NETTING AS A WIND-BREAK IN THE GARDEN.

THE very long spell of exceptionally cold winds has caused plant lovers, generally, much anxiety. Coupled with these winds, the severe night-frosts followed by hot sunshine early, almost every morning, have seared the leaves of many thousands of plants. It has been next to impossible satisfactorily to transplant ordinary plants in many fully-exposed gardens. Our forefathers knew well the beneficial effect of a few branches placed on the north and east sides of young stock at this season. Nine-inch boards, placed on edge, will help materially in guarding tender plants

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against cold winds. Both boards and branches, evergreen for preference, I have used for many years when a spell of cold winds has prevailed. But I wonder how many cultivators have used fine-mesh wire-netting? Some readers may smile at the idea, I have acquaintances who have laughed outright. From some considerable experience I have proved the idea to be a good one. The fine (½-in.) mesh breaks up the cold currents of air, as it were, and the foliage behind is benefited. On a quite exposed plot the netting should be fixed upright, due north and south and about 15ft. apart if the netting is 2ft. high.

I well remember a garden on the sea coast of Lancashire, near Lancaster, where a hedge of laurustinus failed to grow satisfactorily, and a hedge of this kind was much desired by the owner. It was planted behind a very low wall. A gentleman suggested the wire-netting. The latter was fixed on the wall, and during the first year there was a marked improvement in the growth and appearance of the laurustinus. Soon it reached to the top of the netting, and then the old trouble was repeated.

The winds and fine spray from the sea at this point were strong and injurious to the majority of the plants growing there. The undoubted success of the wire-netting has induced me to use it frequently since, against north and east winds.—HANTS.

POLYANTHUS FROM SEED.

THE name Polyanthus, for the purposes of this note, is taken to include all the ordinary garden primroses, whether the early kinds on single stalks or the later and large bunch-flowering kinds, for the culture will be the same. It is an open question among practical gardeners whether it is better to sow the seed as soon as it is ripe, about the middle of July, or whether to hold it over till the following spring. It is probably a matter for experiment, the proof of which depends on local conditions of soil or climate; it can only be advised that those who are beginning the cultivation of these delightful spring flowers should try both ways and see which is best suited to their own conditions. In my own case I have found spring sowing much the best. The seed, harvested in July, is sown in the early days of February in mild heat; the seedlings are pricked off in the third week of April, either in an uncovered frame or some sheltered bed in the open, and the young plants are put in their places at any suitable time in August. My soil is of the lightest, a poor sand with a trace of peat; it has to be well enriched every year, with cow manure if possible, or with the best substitute that may be procurable. The primroses have a special place, for they are grown in some thousands. Following the indication of the natural homes of the wild primroses, which abound in local copses where there are oaks with an undergrowth of hazel, a place was chosen where there were oaks already, and nuts were planted in such a way as to give some summer shade in those places not reached by the shadow of the trees. It is, of course, necessary to see that the plants are never droughted during any spells of hot weather in the late summer; a copious watering may be necessary two or three times in the season. The falling leaves of oak and hazel are left for a time on the primrose beds, but some are removed if at any time they appear to be lying too heavily. They should be so left that they cover the ground and give the plants some protection, but not so as to smother them. It is useless to put out the large bunch primroses in the wild; they will only answer well to good cultivation. If primroses are wanted in wild ground the common native one is the most suitable and will take care of itself. The early, single-stemmed primroses may be more inclined to succeed in wild places, where there are natural beds of rich humus, than the large bunch kinds, though in consequence of their great variety of form and colour they seem more suitable for garden culture.—GERTRUDE JEKYLL.

GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

General Work.—The old stems of Brussels sprouts are about finished and should be removed. Dig the ground deeply and afford a liberal dressing of manure. This will do for a crop of potatoes, peas or runner beans. Peas, broad beans, etc., will need hoeing, and it is always advisable to stake peas before they are very far advanced. Runner beans and dwarf beans may be sown in boxes, and the seedlings raised in a cold frame from which frost is excluded. Continue to sow seed of spinach, peas, radishes, lettuce, mustard and cress, also a bed of parsley.

Onions.—The bad weather prevented the hardening off of the plants raised in boxes early in the year, and, consequently, their planting out has been deferred. They ought now to be set out in lines 1ft. apart and 9ins. between the plants. Make the soil fairly firm and deep planting should be avoided. If available, dust the plot over with soot and keep the soil free from weeds by an occasional use of the hoe.

FRUITS UNDER GLASS.

Melons can be successfully grown on a hot-bed, and in a week or two a frame may be spared for this purpose. In the meantime collect the necessary material, viz., leaves and stable manure in equal proportions, and turn over several times to allow most of the rank steam to escape. When making up the bed it should be made fairly firm, but not too hard, and it ought to be a foot or 18ins. larger than the frame. As a rule one plant will be enough for one light, and a small heap of good fibrous loam should be placed in the centre. When the bed is cooling down and the soil is just warm to the hand, it will be safe to put out the plants. Choose an open sunny position for the frame and when damping down early in the afternoon before closing the lights always use tepid water, or the plants may receive a chill. When the weather is bright a little ventilation will be necessary in the early part of the day. During a period of dull weather the frame may not require much air, and no damping down or watering will be needed.

THE FLOWER GARDEN.

Kniphofias, known also as Tritomas, are splendid plants for beds and borders especially such kinds as John Benary, Red Cap, caulescens, and rufa. They enjoy a rich sandy loam, but in most gardens they will succeed. Although they do not require frequent disturbance, the present is a very good time to lift and divide any clumps that are overcrowded and in consequence are producing spikes of inferior quality. Trench the ground and afford a liberal dressing of decayed manure.

Sweet Williams.—Two varieties viz. Scarlet Beauty and Pink Beauty are particularly worthy of wide cultivation, and are well adapted for beds. During the next few weeks seed may be sown in lines in the open ground and when the seedlings are large enough they may be transplanted in rows 1ft. apart.

Sunflowers.—Seed of these is best sown where it is intended for the plants to flower as they do not transplant very successfully.

THE HARDY FRUIT GARDEN.

Apricots.—These will need disbudding, but not so much as peaches. It consists of removing all badly placed growths such as those pointing towards the wall, where they have no chance of making headway, and all foreright shoots which if left would render the tree unshapely. Growth needed for extension should be tied in and allowed to develop, but others should be pinched at the third or fourth leaf. T. W. BRISCOE

(Gardener to W. R. Lysaght, Esq.), *Castleford, Chepstow, Gloucestershire.*

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Beetroots.—When favourable weather conditions prevail, thoroughly rake the ground and make fine on the surface. Drills should then be drawn out 2ins. deep and 15ins. apart, and the seed sown thinly therein. The following varieties have held their own for quite a number of years: Dell's Improved Black Leaved, Dobbie's Purple, Nutting's Improved Crimson and Middleton Park.

Cauliflowers.—Plants raised early in the year from seed sown in heat should now be well advanced, and should be set out in liberally manured and deeply cultivated ground. The lines should be 20ins. apart and 15ins. allowed between each plant in the lines.

Peas.—Those in late districts who have raised and forwarded plants under glass should have them planted out, while others in favoured localities will have rows on the early borders ready for staking. Others who have plants growing in pots under glass will have pods ready for pulling. Sutton's Little Marvel is a dwarf-growing variety with dark green leaves and excellent for pot work.

Turnips.—A few drills should be drawn out 15ins. apart and seed of Extra Early Milan sown. Preparations should also be made to have Golden Ball and one or other of the garden swede varieties sown. Swedes should be thinned from 6ins. to 8ins. distant from each other in the lines.

THE FLOWER GARDEN.

Alyssum minimum.—It may not always be convenient to sow this dainty and floriferous hardy annual where the plants are intended to flower, but they can be sown thinly in boxes containing moderately fine soil and raised in gentle warmth. When the young plants are large enough and hardened off, they may be set out directly from the seed boxes. This is really an ideal plant as an edging to beds or borders. There is a variety called Lilac Queen, but it cannot be compared to the beauty of the white-flowered varieties.

Nigella, popularly called love-in-a-mist, has been long in cultivation, yet it may surprise some to know that it belongs to the same Natural Order of plants as our common buttercup. It is an easily grown annual, and the seed should be sown where the plants are intended to bloom. The variety Miss Jekyll is the one most in vogue.

Seeds and Seedlings.—Chrysanthemum inodorum fl. pl. Bridal Robe, marigolds Dwarf Lemon, African Dwarf Orange, Perilla nankinensis and Tagetes Legion of Honour should be sown thinly in boxes of medium fine soil. The seedlings will then

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have sufficient room to grow until set in the open borders. The frames should be filled with various seedlings, such as Helianthus Primrose Perfection, H. Miniature, Lavatera splendens alba, larkspurs, asters, stocks, etc.

THE HARDY FRUIT GARDEN.

Black Currants.—At this time of the year, in some seasons, birds do a great deal of damage among hardy fruits. It is wise to keep a sharp look-out and place nets over fruit plantations if birds become troublesome. I have seen stems on black currant bushes almost stripped of buds, and even at the stage when the embryo flowers were showing. DAVID ARMSTRONG

(Gardener to North More Nisbett, Esq.), *The Drum, Gilmerton, Midlothian.*

FOR GREENHOUSE AND CONSERVATORY.

Cosmos bipinnatus is very useful for the conservatory during the autumn months. For this purpose the ordinary late-flowering varieties should be used. They are easily raised from seed at this time, and the resultant plants should be grown quite cool, or else they soon become weak and spindly. As they are strong-growing, free-rooting plants, they require large pots, and should be potted on as the necessity arises until they are in 10in. pots. During the summer they should be plunged in an ash bed in an open position. Keep them carefully staked and tied to prevent damage from high winds. These plants are very useful for furnishing a supply of cut flowers.

Fuchsias for baskets are invaluable for the conservatory during the summer and autumn. Plants that were made up in baskets some time ago should have the longer shoots tied down round the baskets, and should be pinched so as to obtain well furnished specimens. Plants for flowering later in baskets should now be made up, placing five or seven plants in a basket, the number varying according to the size of the basket. Varieties that are naturally of a somewhat drooping habit are best for this purpose. Mrs. Roberts is an ideal variety, as also is the double-flowered Ballet Girl. Caledonia, one of the gracilis varieties, is excellent for baskets. Wave of Life, a variety with fine yellow foliage, is also very beautiful in fairly small baskets. It is naturally of a slender drooping habit, and also has the advantage of retaining its foliage right through the winter. Fuchsia procumbens, from New Zealand, is yet another that is good for small baskets. Fuchsias will grow and flower under somewhat shady conditions, which is a great advantage where shading has to be used for other plants. They must have a rich compost and liberal feeding if a long display is to be maintained.

Astilbe simplicifolia, which has not proved very satisfactory outdoors, is a very pretty plant for a cold, unheated greenhouse. Excellent specimens may be obtained in 48-sized pots. This plant is easily raised from seed, or where a stock exists the plants may be divided and placed in suitable sized pots. This plant grows freely in any good potting compost, and should be grown in a cold frame or greenhouse.

Saxifraga sarmentosa is ideal for filling small baskets, but it should be more generally grown in pots. Well grown plants in 48-sized pots being very charming when in flower. This plant grows freely in any good potting compost, and should be grown in a cool greenhouse during all stages of its cultivation.

Eustoma Russellianum.—Seed of this beautiful greenhouse plant should now be sown. The seed pot should be watered some hours before the fine seed is sown on the surface. Only just cover the seed with a dusting of sand; afterwards cover the pot with a piece of glass, and shade it until germination takes place. When large enough to handle the young seedlings should be pricked off into well drained pans, using a compost of medium loam, with the addition of some flaky leaf-soil or fibrous peat, and enough clean coarse sand to keep the whole open and porous. When large enough the young plants should be placed singly in small pots. The aim the first season should be to get plants with a good rosette of leaves. These plants are best grown in a low cool pit, where a temperature of 45° to 50° Fahr. can be maintained during the winter. The following spring the young plants that have come safely through the winter should be placed in 48-sized pots, in which they should flower. Really good plants may require pots 6ins. in size. J. COUTTS.

Royal Botanic Gardens, Kew.

OBITUARY

JAMES W. BENTLEY.

A GREAT figure in the floricultural world of Manchester and the North of England has passed away in the person of James W. Bentley of Stakehill, Middleton, the president of the Wakefield and North of England Tulip Society. Coming from a family steeped in floral traditions and botanical lore handed down from father to son and uncle to nephew for generations, the recreations of his busy life were associated with the old-fashioned florists' flowers, auriculas, polyanthuses, pinks, tulips and carnations.

The cultivation of the auricula claimed his youthful attention, and if his seedlings in the edged sections have not been as famous as those of his friend, Horner, many of his alpines are flowers of great merit. Among tulips he was pre-eminent as a grower, famous as an exhibitor and authoritative as to the history of the cult.

Succeeding his uncle, Samuel Barlow, in the direction of the National Auricula Society and the Royal National Tulip Society, he was indefatigable in his efforts to foster their welfare and to create and maintain interest in these flowers. Familiar as he was with their properties and their culture, his counsel was often sought and always given. In facing difficulties his courage never failed; to those who knew and loved him his kindly sympathy was hopeful and inspiring.

Thirty years ago, when May-flowering tulips were almost unknown, at the instance of Peter Barr the Southern Show of the National Tulip Society was revived under the kindly auspices of the Royal Horticultural Society, and with a view to awaken interest in the culture of the tulip a series of articles on the florists' tulips, followed by a descriptive catalogue, appeared in the Journal of Horticulture, 1894, from the pen of Bentley.

In 1897 a tulip conference was held in connection with the show of the Royal National Tulip Society and under the ægis of the Royal Botanical Society at Regent's Park, Bentley contributing a paper on the histories and properties of the tulip. On this occasion Darwin tulips were first shown. Exhibitions and lectures to botanical societies followed at York, Birmingham, Middleton, Wakefield and Manchester.

If the more austere beauties of the florists' tulip appeal only to the few who have felt its fascination and learned the properties and possibilities of the flower, the gaieties, glories and grace of the garden and the Darwin tulips appeal to everyone.

Our friend and brother—all florists are brethren—was a very busy man, a chemist and colourist, the head of a great business organisation dealing with the bleaching, dyeing and printing of fabrics—Samuel Barlow and Co., Limited—an Alderman of the Lancashire County Council and the father of the Corporation of Middleton, that metropolis of Lancashire florists and botanists of long ago.

When the war came and his sons joined the Colours, he threw himself more and more into the public service, acting as military representative of his district and, responding to the increased call of civic duties, there was less time for the recreations of his garden, but his love for and his interest in his specialities, auriculas and tulips, never flagged.

Regret is felt that further length of days was not given him, but genial and good-hearted James Bentley's memory will remain green in the affections of his friends until they, in their turn, shall respond to the call. CHARLES W. NEEDHAM.

The Midland Daffodil Society.—The annual show of the Midland Daffodil Society, which takes place at the Edgbaston Botanic Gardens, Birmingham, on Thursday and Friday, April 24th and 25th, is an event of more than passing interest to all lovers of the daffodil. The Show was founded some thirty years ago by the late Mr. Robert Sydenham, and it has been well said that it is the Mecca of the daffodil enthusiast. The beautiful varieties that are seen exhibited in London notwithstanding, it is the very cream that is to be found at the great Birmingham Show, and it is a frequent remark of visitors that they would scarcely have believed such flowers existed. An award to a new daffodil at the Midland Show is of as great value as an award by the Royal Horticultural Society, possibly greater. The winning of the Bourne Cup, the principal trophy, for new seedlings, is undoubtedly *the* blue riband of the daffodil world.

If there be in England at the moment any Colonial growers of the daffodil, it is at Birmingham on the 24th and 25th that they will find the very latest English, Scotch and Irish-raised flowers, and a visit to the Show will be well worth the making. The Midland Society still has for Secretary, Mr. Herbert Smith, of 22, Tenby Street North, Birmingham, who will welcome all visitors heartily, whether amateur growers, traders, or market growers, and will readily forward a Schedule to anyone interested. Anyone who grows anything good in daffodils should make a point of studying the Birmingham Schedule, where the classes are arranged to suit both the large and the small cultivator, and there is no Show, be it where it may, where so much kindness and attention is paid to the exhibitors when staging their flowers.

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Those wishing to arrive at Birmingham the evening before the Show may leave Euston at 4.35, 5.50 or 6.55 p.m., or Paddington at 4.10, 6.10 or 7.10 p.m.

The hotel accommodation at Birmingham is plentiful and varied, but the majority of daffodil enthusiasts are usually found to foregather at the comfortable Grand Hotel in Colmore Row. One should add that it is well to write for accommodation in good time.—F. H. C.

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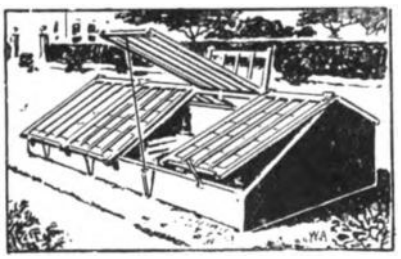

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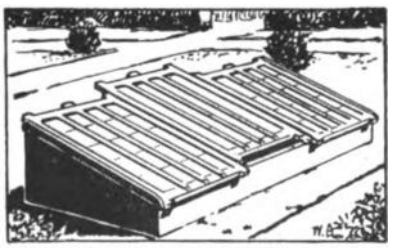

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THE GARDEN

VOL. LXXXVIII.—No. 2736. APRIL 26, 1924

A CHARMING SPRING SCENE WHICH SHOULD GLADDEN THE HEARTS OF ALL LOVERS OF NATURE. THE DARK TRUNKS OF THE ELMS AND OAKS SHOW UP IN STRIKING CONTRAST TO THE YELLOW PERIANTHS OF THE DAFFODILS "NODDING AND DANCING IN THE BREEZE."

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THE GARDEN

APRIL 26, 1924

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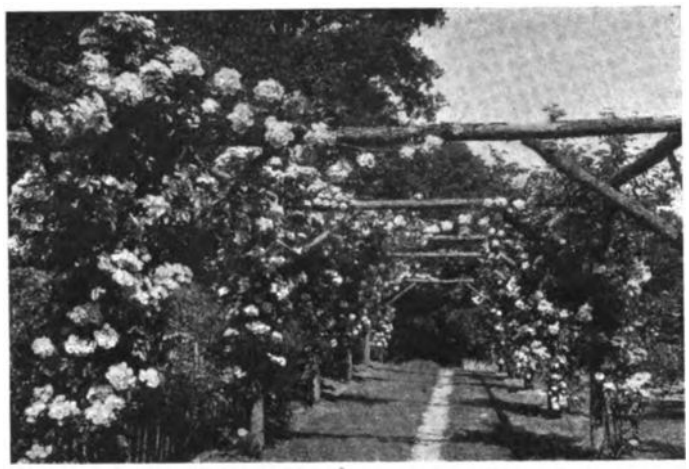

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THE EDITOR'S POST BAG

WE receive letters from all over the world; in one week epistles arrived from Chile, India, New Zealand, Italy, and Vancouver, besides our ordinary post from the British Isles and the United States. Such is life, and we are interested in our communications from the world in general. It gives us—for even the Editorial Staff has imagination—a feeling of expanse; we try to imagine the conditions in which the writers of the letters live, but there are difficulties attached to our correspondence. How are we to answer an enquiry from Nairobi as to the advisability of growing English annuals in a Nairobian garden? None of us has been lucky enough to visit East Africa. One of us has travelled, but not in Africa, another lives at Kew, yet another comes from Scotland. We join forces and ponder deeply over this intricate subject; we examine floras and works of reference and find little to assist us. The result is a tactful reply to the enquirer that some annuals may grow in Nairobi, and some may not, that seed packets only cost a few pence and so may be [illegible] with an inexpensive trial, that an examination of neighbo[illegible] might help to elucidate this intricate problem. This, by the way is an interesting subject; what flowers usually grown in English gardens will succeed in East Africa, Uganda, Australia, British Guiana or any other of our Colonies? Any notes from our readers would be of interest, for Englishmen usually carry a love of gardening even as far as the back of beyond. This desire for English products is sometimes carried to excess, as in the case of a gentleman from Peking, who wished to grow English plants in his garden without having an inkling that there are thousands of plants in Korea and North China which have never been grown in gardens and which our gardeners at home covet beyond price and are unable to obtain by hook or by crook.

There is another kind of letter which is of great interest, that which asks for cultural hints. Here is one which lies before me: "I should be much obliged if you could give me any hints as to the cultivation of the following plants: Rhododendron ambiguum, Kingdon Ward 4184 (one of the Lapponicum series), Forrest 20484 (one of the Dauricum series), virgatum, Gentiana Kurroo, Gentiana angustifolia." These are all interesting plants worthy of every gardeners attention. The answer has gone forth that Rhododendron ambiguum is accommodating and likes a certain amount of sun and is satisfied with almost any soil as long as it is lime-free; that Kingdon Ward 4184 has no objection to wind, but must have perfect drainage and a sufficiency of moisture; that Forrest 20484 and virgatum are very floriferous, like perfect drainage, have no violent objection to a certain amount of sun and are ideal for planting on a scrubby hillside; that we all envy the owner of a plant of Gentiana Kurroo, which is one of the finest of gentians and likes heat, good drainage and moisture during the summer; that Gentiana angustifolia used to be included in G. acaulis, which it copies in its likes and dislikes.

Such questions are a pleasure to answer, but—and it is a big but—our difficulties really begin when a letter arrives asking for information regarding plants which will grow on a dry bank. Here are a few of the questions we could ask our correspondent in return before we can form any definite idea of what is required, and these questions do not relate to cultural conditions. Is the garden in use all the year round, or is it a summer plaything? Is the owner's idea of the bank a riot of colour, or has it the severity of a churchyard? Are the plants to sweep the ground, or are bold-shaped shrubs required? Is the entire bank to be covered? What season of the year is the owner's favourite?

We sometimes feel like giving a lecture on the art of asking questions. We are here to give advice to our readers, and yet, what answer can be given to a question of this kind? It either means that we have to write a treatise on dry-bank gardening or that we make a guess at the owner's personal idea of what is required—and nine times out of ten we shall guess wrong. Every gardener has a very good vision in his mind's eye of the effect he wishes to obtain, and it is here that the personal equation comes in. Unless full information is given in such questions we are unable to give useful advice, eager though we are to help. Our readers would really assist us, if they could place themselves in an outsider's shoes for a moment and imagine the difficulties placed in the way of giving a satisfactory answer to a defective question.

These are only samples taken at random from our post bag. They are of just as much interest to us as they are to the writers and we hope that week by week they will increase until our post bag is full to overflowing, for it helps to show that THE GARDEN is appreciated and that our advice is useful.

E. H. M. C.

FORTHCOMING EVENTS.

April 29.—Royal Horticultural Society's Rhododendron Show (two days).——National Auricula and Primula Society's Show, to be held in conjunction with the R.H.S. Show.

April 30.—Morley Paxton Society's Meeting.

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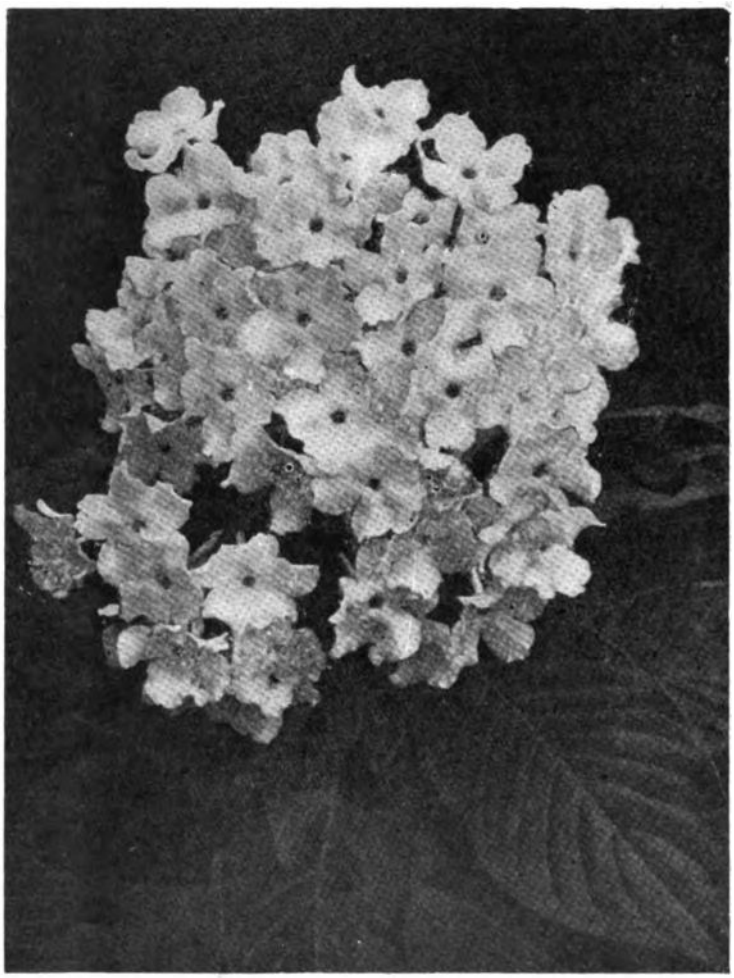
CLIMBERS AND OTHER PLANTS FOR THE CONSERVATORY AND GREENHOUSE

CLIMBING plants where they can be used without detriment to the other occupants of the conservatory and greenhouse undoubtedly add greatly to the interest, charm and general appearance of this form of gardening. Care should, however, be taken to use plants that are suitable to the size of the house, as many climbing plants are of a rampant habit and therefore quite unsuitable for small houses. On the other hand, there are a number of such plants that are quite satisfactory.

In using this class of plant one should have due regard for the other occupants of the house, choosing plants that will not unduly shade their neighbours standing underneath; in some cases the partial shade that climbers afford may be an advantage to certain classes of plants. For our purpose the term "climbing plant" is used in its broadest sense, and thus includes many plants that are not strictly speaking climbers, inasmuch as they do not support themselves by twining or by means of tendrils, but are of a suitable habit of growth to enable them to be trained to rafters, up pillars or on walls.



LUCULIA GRATISSIMA, A FRAGRANT GREENHOUSE SHRUB.

Undoubtedly the best place for growing and displaying a collection of these plants is a long corridor with a back wall, excellent examples of which may be seen at the Royal Botanic Garden, Edinburgh, and Cambridge Botanic Gardens. As a rule, such plants are seen to best advantage when they can be planted out in well drained beds or borders. In the case of some strong-growing varieties it is a distinct advantage if they can be somewhat restricted at the root. In any case it is a mistake to make the beds or borders too deep. Eighteen inches of soil is usually deep enough for most plants, not only climbers, but for other shrubby specimens that may be planted out for permanent show in large conservatories. All the plants dealt with should succeed in a cool conservatory where a minimum temperature of 50° can be maintained during the winter months.

In dealing with them in detail it will be both convenient and helpful to divide them into three sections, viz.: (1) The larger-growing and more permanent plants that are suitable for large buildings. (2) Plants of the same character but of more moderate growth, and therefore suitable for smaller houses. (3) Plants that can be raised from seed and will flower the same season.

In the first section: Acacia leprosa with its slender, graceful shoots is effective for draping pillars. A. dealbata (the silver wattle) is very beautiful but requires plenty of room. On the other hand, A. Baileyana with its lighter silvery foliage is just as charming and is not such a rampant grower. AA. Riceana and retinodes may also be used. They should be pruned hard back after flowering. Abutilons include quite a number of useful and beautiful plants for our purpose. The large broad-leaved varieties, as represented by Golden Fleece and Boule de Neige, are best grown on walls or pillars, as they are too dense when grown overhead. The slender-growing A. vexillarium and its variegated variety are ideal for draping rafters or training to wire under the roof glass. The same remark applies to the hybrid A. Milleri. The foregoing are suitable for small houses. A. insigne with its large, handsome leaves and long, slender, drooping sprays of flowers is ideal for draping rafters in a large or moderate-sized house. The large-leaved garden varieties require frequent thinning out to prevent overcrowding. The genus asparagus includes a number of fine species. A. falcatus is a rampant grower, making shoots 30ft. in length, and is particularly graceful when covered with its small white flowers.

Bougainvillæas may be used either in large or moderate-sized houses, and if they are to flower freely they should have full exposure to all the possible light and sunshine. The plants should be pruned hard back early in the year, and when they have made some growth all the weaker shoots should be drawn out. There are several varieties of B. glabra, the freest flowering being B. g. Cypheri and Sanderiana, the latter flowering freely in small pots. The most brilliant of all is the new variety Mrs. Butt, which can be flowered in 48-sized pots.

Hidalgoa Wercklei, with bright scarlet flowers resembling a single dahlia, makes growths 20ft. to 30ft. in length, and should be allowed to ramble at will or very few flowers will be produced.

Lonicera Hildebrandtiana and L. etrusca superba may be planted in large houses. The former is a giant among honeysuckles, but, unfortunately, does not flower freely. Lonicera sempervirens is very free-flowering, and is suitable for smaller greenhouses. They all enjoy free exposure to light and sunshine.

Passiflora cœrulea and its hybrids are all suitable either for large or moderate-sized houses. The white-flowered variety Constance Elliott is perhaps as fine as any and is hardy on warm walls in the south. They should be pruned back early in the year, as they flower on the current year's wood.

Tacsonias are leguminose evergreens from Australia, mostly with yellow flowers. T. Van-Volxemii is most commonly grown, but TT. manicata, insignis, mollissima and exoniensis are all worth growing. These plants should be pruned back in early spring, as they flower on the current year's wood.

Turning to the second section, we find quite a number of beautiful and useful plants for the small greenhouse or moderate-sized conservatory. Araujia sericifera (syn. Physianthus albens) is an interesting plant with white flowers, and is best planted out, but can be grown in a large pot. A. grandiflora

is probably not now in cultivation. If it is I should be pleased to hear of it.

Asparagus includes quite a number of species for our purpose. A. plumosus and its varieties are useful and popular. They may be planted out or grown in large pots. A. medeoloides (smilax) is so largely grown for decorative work that one need only mention it. A. laricinus and A. retrofractus are very distinct, and are very suitable for covering pillars, doing best when planted out in a bed of rich soil. A. Sprengeri, so largely grown for baskets, makes quite long shoots when planted out or grown in large pots.

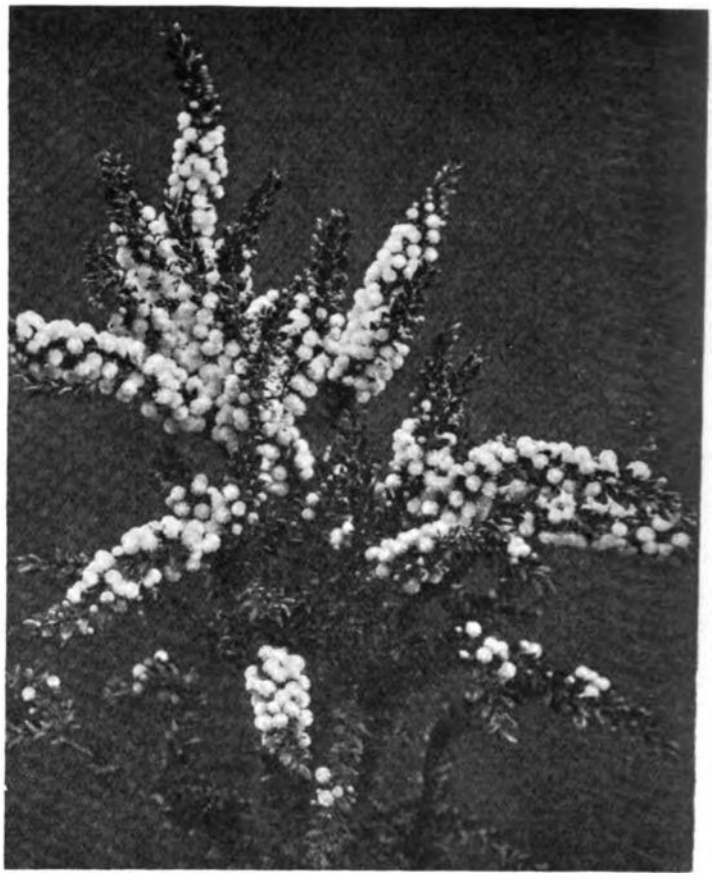
Berberidopsis corallina is very beautiful for a cool greenhouse, especially for training up a back wall that is partially shaded. This plant, if exposed to hot sunshine, is apt to suffer from attacks by red spider.

Bomareas include several distinct species, such as BB. Carderi, Caldasiana, oligantha and patacocensis. The last is a strong-growing species with beautiful crimson flowers. These plants are best planted out in a well drained bed, and they enjoy some shade during the hottest part of the day.

Cassia corymbosa is a shrubby plant which is excellent for training on a wall, and for a long time has been a favourite for this purpose. Cestrum elegans, C. aurantiacum and C. Newellii are all excellent for the same purpose or for training up pillars.

Clianthus puniceus, the parrot's bill, is also excellent for walls, pillars, or for furnishing rafters. It grows freely in any good potting compost, and can be raised from seeds or cuttings. C. Dampieri, the Glory Pea of Australia, is a very beautiful plant, but is just as difficult to grow as the other species is easy. It is raised from seed, but is very uncertain on its own roots, and is best grafted on young seedlings of Colutea arborescens. It can be successfully grown in large baskets or planted out in a well drained and raised bed in a cool greenhouse. In such a position I have seen plants make shoots 10ft. to 12ft. in length.

Fuchsias in many varieties are among the most showy and useful of climbing plants for draping rafters and pillars. If planted out in good soil they grow and flower freely for many months. Fuchsias enjoy generous treatment, and should receive frequent feeding. They also have the advantage of flowering freely in a considerable amount of shade. When they have filled their allotted space, they should be spurred hard back early in the year. They are very subject to attacks by mealy bug, which should be guarded against at all times. Any of the strong-growing varieties of fuchsias are suitable for this mode of culture.

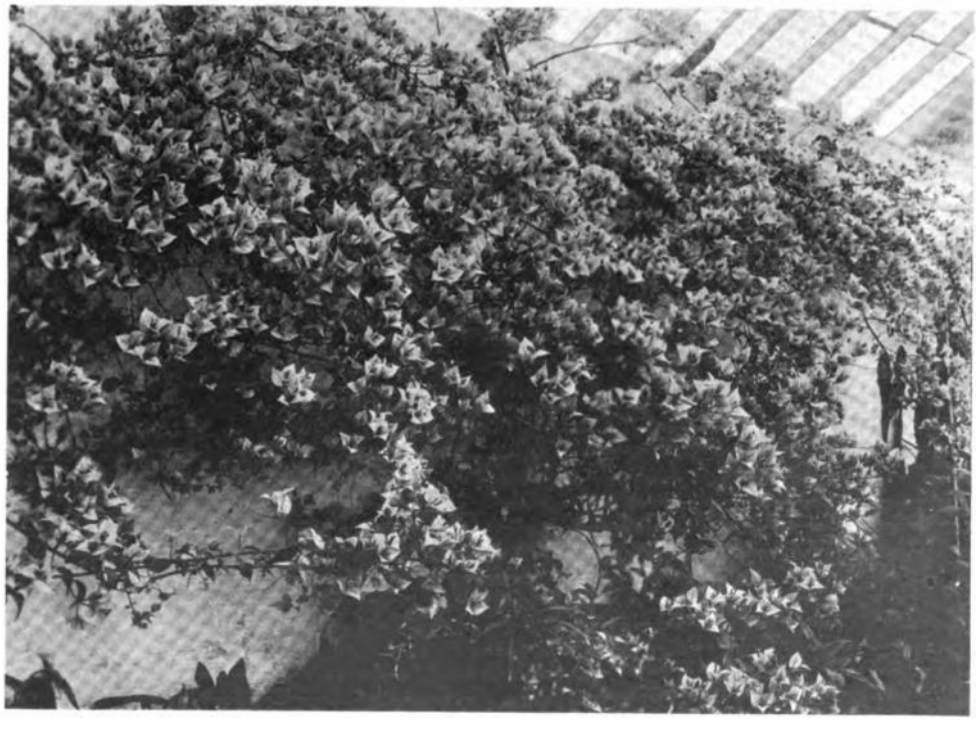


ACACIA ARMATA WITH ITS PRETTY CLUSTERS OF YELLOW FLOWERS AND LIGHT GREEN FOLIAGE.

Hibbertia dentata is a charming plant for a small greenhouse. It has dark copper-coloured leaves and bright yellow flowers, which are produced over a long period. This plant may be planted out or grown in a large pot, and it is easily propagated by means of cuttings or seed. Kennedya prostrata and K. rubicunda may be grown in pots or planted out; while Lantana salvifolia (delicatissima) is excellent for covering pillars.

Lapagerias are great favourites and enjoy a cool, moist position in semi-shade. They are best planted out in a well drained bed of loam and good fibrous peat. Lathyrus pubescens with lavender blue, sweet-scented flowers is very useful for a small house.

Mandevilla suaveolens is excellent for training up rafters. Plumbago capensis and its white variety are ideal for covering pillars, rafters or back walls; they also make fine specimens if grown in pots. Manettia inflata (bicolor) is very free-flowering and useful for small houses, and has the advantage of doing well in pots. Solanum jasminoides is ideal for an unheated house from which frost is just excluded. Clematis indivisa lobata is also very beautiful grown under the same conditions. Solanum Wendlandii is very picturesque at the warmest end of a greenhouse. It is rather a strong-growing species, and requires hard pruning early in the year. Some of the shoots will also require thinning out during the growing season. This latter remark, of course, applies more or less to all strong-growing climbers. Sollya heterophylla is very charming for training up pillars.



BOUGAINVILLÆA GLABRA MAKES A PICTURESQUE SHOW IN THE GREENHOUSE.

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Coming to the third section : where houses or conditions are unsuitable for permanent climbers, quite a number of plants can be raised from seed sown early in the New Year ; these will flower during the summer and autumn. Cobæa scandens is a rampant grower and is suitable for a large house. There is a variegated variety which should be propagated by cuttings of the young shoots. Ipomœa rubro-cœrulea, Maurandia Barclayana, M. scandens and their varieties, and Mina lobata are all useful, but perhaps the most charming of them all is Rhodochiton volubile. The latter may be grown in pots the first season, or planted out in a well drained border. This plant is really at its best the second year from seed sowing. Thunbergia alata and its varieties are useful and succeed in pots. This does not by any means exhaust the list of plants that may be used for this purpose, but will serve to show that there is plenty of choice for permanent furnishing.

I will now deal briefly with some other plants, chiefly of a shrubby nature, that are useful for permanent furnishing in cold conservatories. Most of them can be grown as specimens in large pots or tubs, but it is generally an advantage if they can be planted out. Not only do they grow better, but, what is very important, they do not require so much attention as regards watering. They nearly all thrive in well-drained beds or borders filled with light or medium loam with enough clean coarse sand to keep the whole open and porous. A little peat may be necessary for some plants, but it should be used carefully, as it soon goes wrong in indoor borders. Deep borders are not necessary, 18ins. of soil usually being deep enough, with ample drainage underneath.

Camellias, especially the beautiful single varieties, are very useful ; they also succeed on back walls in semi-shade. C. reticulata, the most beautiful of them all, should always be included, especially in large houses. Some of the smaller-growing acacias are very useful, such as AA. Drummondii, hastulata, armata and cultriformis. The latter with its silvery foliage is very beautiful, cut sprays being very useful for decorative work. Orange plants in tubs or planted out are effective, but require a good deal of attention to keep them clean, as they are subject to attacks by scale and mealy bug. Luculia gratissima with its fragrant flowers should always be included, and may be grown as a bush or trained on a wall. Pentapterygium serpens is very fine, and will succeed in a semi-shaded position, and may with advantage be trained on a wall. It should have very free drainage and a compost of rough fibrous peat, loam and sand. Daphne odora (indica) should always find a place, being well suited for the front line. Pimelia ferruginea is well suited for a small house, while P. ligustrina is better suited for large borders. Chorizemas are seen at their best when planted out, some of the strong-growing forms of C. cordatum being useful for training on walls or pillars. All the greenhouse rhododendrons do well either in tubs or planted out. Some of them of a somewhat straggling habit, such as R. fragrantissima and R. Forsteriana, may with advantage be trained on walls.

Tibouchina semidecandra is also excellent for a sunny wall, as also is Browallia Jamesoni. This plant should be exposed to all the sunshine possible. Desfontainia spinosa and Crinodendron lanceolata are very useful for a house from which frost can be excluded. Clivias, either in tubs or planted out, add to the variety, while Strelitzia Reginæ with its handsome foliage and extraordinary-looking flowers should always find a place.

For foliage effect Roupala Pohlii is necessary, whether grown in pots or planted out, as also is Bucklandia populnea. Where a quick-growing plant is required, Impatiens Oliveri soon makes a huge specimen and flowers all the year round. Callistemons, eriostemons, Mitraria coccinea and Lomatia ferruginea may be planted out. There are, of course, many other plants which could be mentioned. There are numerous ferns and other small-growing plants that may be used to carpet and edge the beds. Such beds provide just the right conditions for the successful cultivation of Lilium sulphureum. Many other bulbous plants that are not over happy in pots will do well when planted out.

J. COUTTS.

THE NEW PANSIES

ALTHOUGH there are not quite so many new pansies as violas, it is possible that the 1924 novelties will prove to be the best set that has been sent out for many years. Some of them are of outstanding merit. Mrs. Andrew Frater is a wonderful new colour, the Cochrane and Beveridge varieties are of first-rate quality, and Mr. James Paul is allowing some of his famous seedlings to pass into commerce. I have had the privilege of trying many of Mr. Paul's latest introductions during the past two years, and I can confidently recommend Mary Drummond, Dr. McKinnon and Jessie McLaughlin as being worthy of a place in any up-to-date collection. The names in parentheses indicate the raisers and introducers.

ADA M'COWAN (Cochrane–Douglas).—Dense dark plum blotches with margins of rose and lemon. The top petals are lemon, mauve and rosy purple with plum pencillings and a wire edge of white. A splendid flower.

ALEXANDER TAYLOR (Stevenson).—Dark plum blotches with margins of pale chrome yellow. The top petals are dark violet streaked with yellow and violet and edged with pale chrome. It is a seedling from Tom M'Callum. Mr. Andrew Stevenson sent me an advance trial of this variety last season, and I found it very reliable and distinct. It is a good grower and has a nice habit.

ANDREW MELDRUM (Beveridge—Penman).—Deep amethyst blotches with margins of cream and heliotrope. The top petals are cream suffused with amethyst and heliotrope. It has a fine smooth texture and is of splendid form.

ANNIE BEVERIDGE (Beveridge—Penman).—Deep violet-black blotches margined with terra-cotta shading to lemon. The top petals are lemon shaded with terra-cotta. A large flower of fine form.

DAVID STEWART (Beveridge—Penman).—Reddish purple blotches with margins of terra-cotta and cream. The top petals are cream marked with terra-cotta and purple. This lovely coloured flower has size, good texture and fine form.

CORRIEDALE (Paul—Douglas).—Dark purple blotches with margins of old rose and white. The top petals are light purple shading out to white. It is a very large flower of fine texture and perfect form.

DR. MCKINNON (Paul—Douglas).—This is the largest pansy I have grown. It is a well proportioned flower and the habit of the plant is good. The large blotches are plum coloured with margins of lemon. The top petals are lemon with splashes of rosy purple, and they are edged and suffused with light purple.

DRYDEN MACCOLL (MacColl — Douglas).—Dark plum blotches with margins of purple lake and gold. The top petals are pale gold with a deep edge of purple lake and a wire edge of gold. This is a large flower of very beautiful colourings.

JAMES CLIMIE (Stevenson).—Chocolate blotches with margins of yellow and crimson edged with white. The top petals are pencilled with chocolate with a band of yellow and crimson. It is a seedling from George Stevenson. A flower of wonderful colourings.

JAMES COWAN (Stevenson).—Deep violet blotches with light violet margins and a band of amethyst at the outer edge. The top petals are cream with a suffusion of amethyst. It is a flower of fine form with a grand under petal.

JESSIE MCLAUGHLIN (Paul—Douglas).—Deep brownish purple blotches with lemon margins. The top petals are lemon and crimson with splashes of purple. I have found it a very reliable variety, of good habit and pleasing colour.

JOHN PENMAN (Penman).—Amethyst blotches with margins of heliotrope and creamy white. The top petals are creamy white splashed with amethyst, with a wire edge of the latter shade all round the flower. It has a smooth velvety finish and is a flower of the largest size and fine form.

MARGARET ALEXANDER (McAlpine).—The blotches are Prussian blue with margins of white and rose. The top petals are white with Prussian blue pencillings and suffusions and an edge of rose. Unique and pretty colourings.

MARGARET BISHOP (Cochrane—Douglas).—Deep plum-purple blotches with margins of cream. The top petals are cream with purple suffusions and

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pencillings and a wire edge of cream. It is a splendid flower of large size, good form and fine texture.

MARY DRUMMOND (Paul—Douglas).—This is probably the best variety of its colour. Dark brown blotches with margins of deep yellow suffused with crimson. The top petals are deep yellow with an edge of crimson. It is one of the prettiest pansies that I have ever grown. The flowers are of great size, splendid texture and good form.

MRS. A. HARRISON (Harrison and Sons).—I saw blooms of this last season, and it promises to be the best of its class. It has dark violet blotches with cream margins and a suffusion of violet on the top petals. Virtually a cream self.

MRS. ANDREW FRATER (Frater—Forrest).—This new colour break is regarded by many as one of the great pansies of the year. It has deep plum-purple blotches with a ring of sulphur yellow that shades to old rose and magenta. The top petals are pencilled with the same rich colourings. It is a very beautiful flower of fine form and texture.

MRS. H. ANDERSON (Anderson—Penman).—Deep violet blotches with cream margins. The top petals are cream with streaks of violet. It is a large, smooth round flower of the highest quality.

MRS. JOHN FERNIE (Robertson—Penman).—Deep purple blotches with terra-cotta margins and a cream edge. The top petals are terra-cotta with purple splashes and an edging of cream. A richly coloured flower of fine form.

MRS. ROBERT MACFARLANE (Douglas).—A very fine flower of the Mrs. A. McAlpine type and one of the largest varieties in cultivation. The deep plum-purple blotches are margined with rich cream and the top petals are violet-purple with darker pencillings and a wire edge of cream. Very free-flowering.

MRS. WILLIAM TENNANT (Tennant—Forrest).—Dark plum-purple blotches shading to rich crimson with an edge of cream. The top petals are violet, purple and cream. It is a seedling from the popular variety Alex. Lister.

MISS WHITELAW (Forrest).—Dark plum purple blotches with cream margins. The top petals are plum purple mixed with cream. It is a large flower of fine texture.

ROBERT BEVERIDGE (Beveridge—Penman).—This will probably prove to be one of the sensational introductions of the year. It has deep purple blotches with magenta margins shading to white. The top petals are white streaked with purple and edged with magenta. Bright and unique colourings.

SAM HANNAH (Beveridge—Penman).—Deep maroon blotches with margins of pale yellow and red. The top petals are pale yellow marked with maroon and red. A flower of very brilliant colour and smooth texture.

SUSAN STEVENSON (Stevenson).—Dark blotches with margins of yellow and crimson. The top petals are pale gamboge with a band of crimson. Another very beautifully coloured variety and one that can be grown to the largest size.

In addition to the above 1924 introductions there are many fine varieties that were sent out in 1923, notably T. B. Cochrane (probably the best white self in commerce), Mrs. A. B. Cochrane (one of the best pansies yet introduced and very floriferous), Dr. Kelso (very fine in autumn), Jean Lister M'Kellar (almost a creamy white Alex. Lister), J. B. Macdonald, Robert Cochrane, Agnes Cochrane, Sunset, James Ballantyne and John Craig.

Older varieties that are indispensable for exhibition purposes include Andrew Stewart (which should be shaded for the best results), Nellie Cochrane (which is very fine in a wet season), Dr. Ogilvie, John Greig and Councillor Steel. Alex. Lister is an old favourite, very reliable, and invariably wins the prize for the best bloom in the show. NORMAN LAMBERT.

WIND-BREAKS

BY SIR HERBERT MAXWELL, BART.

WIND-BREAKS may be required for one of two purposes: (1) To afford shelter to a considerable extent of ground, be it open park or woodland; and (2) to protect flowering shrubs or garden borders from searching winds.

(1) Taking the larger proposition first, this should be effected by planting such forest trees as can rear themselves to a respectable height in extreme exposure. It was at Gosford, on the coast of East Lothian, if I mistake not, that a candidate for the vacant situation of forester, after inspecting the woods, declared that he could not undertake charge of them unless the existing staff was considerably increased. Being asked the reason for his refusal, he explained that the enormous amount of clipping to be done would require a great number of hands. This man's experience had been acquired inland, and he attributed to manual labour what really had been done by the sea blasts, smoothly shaving the shelter belts to a uniform slope.

The conditions affecting inland districts are very different from those near the coast, for not only are winds more constant and, usually, more violent in the latter, but they are also heavily charged with brine, which destroys young foliage. Still, there are many bleak and exposed tracts far from the sea in Great Britain, and judgment must be exercised in choice of

THE CORSICAN PINE (P. LARICIO) IS EXCELLENT FOR AFFORDING SHELTER.

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species for a shelter belt. There is no tree so well adapted for such a situation as the Corsican pine—P. Laricio—which grows erect in full exposure and has the merit of being rejected by rabbits. The Austrian pine, which some botanists reckon to be but a variety of the Coriscan, is equally fearless of wind, but is far inferior in habit and appearance; moreover, rabbits greedily devour it. If the windward side of a shelter belt is planted four or five deep with Corsican pine, the leeward portion may be filled with other conifers, or hardwoods such as oak, beech and sycamore.

The choice of species suitable for protection against wind directly off the sea is much greater than that for inland places. Here again reliance must be placed upon conifers for the windward side of a shelter belt. The Corsican pine may be used with confidence; but Pinus radiata (insignis), the Sitka spruce (Picea sitchensis), the Monterey cypress (C. macrocarpa) and the pinaster (Pinus Pinaster), being native to maritime districts, are specially well adapted for the purpose. Except the Sitka spruce, these species will not survive a hard winter far from the sea. The pinaster has the peculiar habit of thrusting out its strongest limbs in the teeth of the prevailing wind. The Landes of Gascony, extending for 100 miles between Bordeaux and Bayonne, were formerly a barren, windswept region, absolutely worthless for agriculture or any other purpose. They are now clothed with pinaster, "perhaps," as the late Mr. Elwes observed, "the most extensive forest ever created by the hand of man." Thirty years ago the planted area amounted to 1,715,000 acres, and in 1904 the average revenue derived from the sale of pit wood, resin and turpentine was reckoned at £560,000, or 7s. an acre. Shelter belts must always be liable to loss in exceptional gales, wherefore it is a wise precaution to underplant with beech, which will take the place of such trees as may be blown out. It is also good policy, especially where blown sand has to be dealt with, to line the outer edge of the plantation with sea buckthorn, which soon forms a dense hedge for the protection of the young trees.

(2) Turning now to consider wind-breaks for garden and pleasure ground, one is met with the same paucity of material for inland places compared with the abundance of species available for maritime districts. For the former, there is no more effective shelter-plant than the prostrate, or semi-prostrate, forms of Pinus montana. The varieties named Pumilio and Mughus are of spreading habit, forming in time a dense mass about 6ft. high which no wind prevails to disturb. It is a pity that its virtue is not more generally recognised, for it would prove of inestimable value if planted for the protection of windswept villa gardens in watering-places. Care should be taken to ensure obtaining the low-growing variety. I was supplied once with the variety uncinata, which attains a height of 80ft., and did not discover the mistake till several years later.

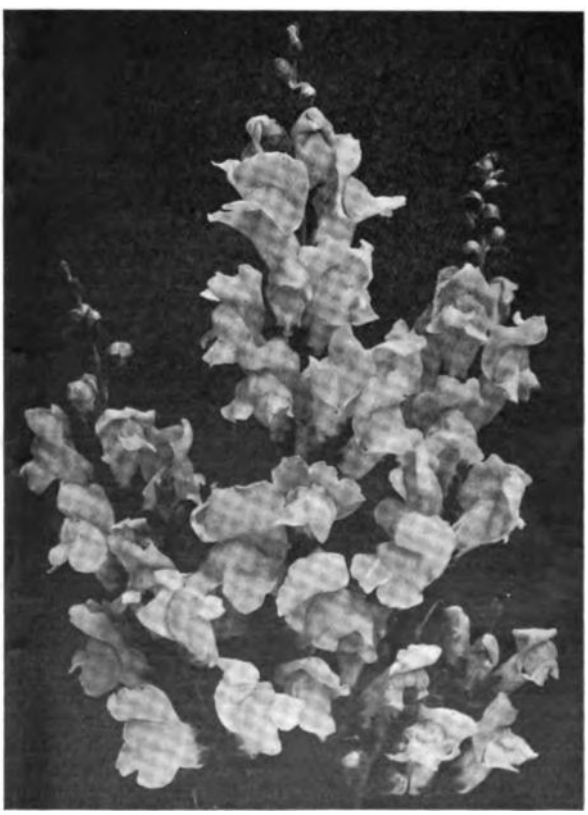
In maritime districts the Monterey cypress is invaluable for garden shelter, forming splendid hedges of lively green and standing clipping into any form. The hedge should be grown broad at the base with a good slope to a narrow top, else it is apt to get bare below. For this purpose, propagation may be rapidly effected by cuttings, which strike readily and grow very fast. Equally effective as a shelter from sea wind, but not of such rapid growth, is Grislinea littoralis from New Zealand. This also is easily raised from cuttings. Add to the aforesaid species, sea buckthorn (Hippophæ rhamnoides), taking pains to plant both sexes so as to ensure plenty of orange berries, and the tale of shelter plants against *extreme* exposure to wind from the sea is about complete; but there are plenty of others which flourish when encouraged by very slight protection, such as Olearias macrodonta and nitida, Leptospermum, Fuchsia Riccartoni and globosa. I had well-nigh forgotten to mention the holm oak (Quercus Ilex), which is an admirable forest tree in places near the coast. At Castle Kennedy it has been cut into a most substantial hedge for the protection of rhododendrons.

THE CULTURE OF ANTIRRHINUMS

THE days are not very far distant when the antirrhinum was raised entirely by cuttings. Although this method is still carried out with very special plants and in working up stocks of new varieties, the most popular and easiest method now is to raise from seed.

It was not until about 1913 that the antirrhinum was taken up by the seedsmen and cultivated intensively, with the result that they will now breed fairly true from seed. Although the number of varieties almost rivals the sweet pea, we are greatly assisted by the foliage, which, with few exceptions, varies in each variety, thus enabling those of different colouring to be detected when pricking off, and reducing the variations in the flowering season to a minimum.

The value of the antirrhinum as a bedding plant has attained a very high standard. We have only to go into our public parks and see the gorgeous displays in beds to verify this. Wonderful effects are attained by massing these handsome flowers. It has always been a wonder to me that it has not been taken up more as a florists' flower. There are some wonderful shades of colour afforded, and the handsome spikes in the tall varieties should make them esteemed by all florists. In America they are cultivated under glass for this purpose and always meet a ready demand.



HANDSOME SPIKES OF ONE OF THE MANY VARIETIES.

Antirrhinums are classified according to their height, viz., tall, intermediate and Tom Thumb. Although they will be found to differ slightly on various soils, the tall section usually attain a height of 2½ft. to 3ft., the intermediate 1½ft. to 2ft., and the Tom Thumb very rarely reach over 1ft.

Undoubtedly the intermediates are the most popular, because of the wide range of colour afforded and their value as bedding plants; but the tall varieties are the florists' and the exhibitors' flower; they produce the finest spikes, often with as many as three dozen blossoms, and the finest individual blooms. The Tom Thumbs are used largely for edging.

The antirrhinum can be raised as an annual or a biennial. Treated as an annual the seed should be sown in January or February, in boxes or pans, in a heated greenhouse, the seed being sown in soil containing a large percentage of sand, which should be watered before the seed is sown. As the seed is so very minute it is not necessary to give much covering—in fact, often they are sown with no covering at all. Place glass over them until germination takes place. Care must be exercised when watering; a very fine rose should be used and the water distributed evenly, otherwise an irregular germination will take place. When the plants are large enough to

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handle, prick off into boxes and allow them to remain in the house for a week, gradually hardening off by placing in a cold frame. By the end of April they should be ready for planting in their flowering quarters. A sunny position should be found for them, if possible, as they do not thrive in shaded places or in soil that is in any way damp. It is advisable with all varieties in the intermediate section to pinch the centre right out; this causes the plant to break and become sturdy and bushy. It is not an important factor to the amateur, but to the seedsman the antirrhinum presents no small difficulty in keeping each variety true to type and colour. The large bees work these flowers, constantly carrying pollen from one blossom to another, and unless each variety is strictly isolated the seed saved will produce a hopeless mixture; but even with the strictest isolation a certain percentage of variations will be found; still, as previously mentioned, these can, to a great extent, be detected when pricking off.

ANTIRRHINUMS, WHEN MASSED, FORM A PRETTY BORDER OF MANY COLOURS.

The best specimen plants are obtained by treating as a biennial. Sow the seed in August in a similar manner as when raising as an annual. When pricking off, it is advisable to do so into a frame which has had old manure incorporated with the soil. Here they are afforded much more room in which to make roots during the long period they are to remain than they would have were they pricked off into boxes. Immediately they are pricked off they should be shaded, or the sun will scorch the seedlings before they get properly rooted. They should be gradually hardened off until the sashes can be left off altogether during the winter months; by March they should be strong and sturdy plants ready for planting out.

In many districts it will be found that they will stand the winter outside quite well, and if this method is to be carried out the seed must be sown in June and the plants transplanted to their flowering quarters by the early autumn. Like sweet peas, it would prove very difficult to select varieties for everyone's taste, but the following are really first-rate:

Picture, a new variety this year, will only have to be grown once to make it a favourite. It has a golden yellow ground with lips and falls suffused apricot, and the standard bright apricot.

Eclipse, another new variety this year, is a very brilliant crimson, of ideal habit and very sturdy.

Prima Donna is a popular variety, as it comes very true from seed with hardly a variation. It is a lovely shade of apricot, with a white tube.

Other good varieties are Afterglow, Fascination, Maize Queen, White Queen, Amber Queen, and Roseum superbum, the latter being preferred to Nelrose.

The tall section does not offer such a wide selection, but the following can be relied upon: Yellow King, Queen Victoria, Crimson King and Moonlight.

The Tom Thumbs are generally known by their colours, of which T.T. Yellow, T.T. Crimson and T.T. White are the best.

G. IRELAND.

(Further articles on the Antirrhinum to follow.)

THE GOOSEBERRY MILDEW

THE term mildew is in many cases somewhat of a misnomer in that it has come within the last few years to be applied loosely. Any discoloration, generally whitish in appearance, such as may often be found on various domestic belongings and plants—boots, potatoes, roses, etc.—is referred to as a mildew. To the botanist or mycologist, however, the mildews form a distinct family of fungi entirely apart from their neighbours and are to be found under the name of Erysiphaceæ in the group of the Ascomycetes characterised by the production of an ascus and ascospores, which are analogous to the seeds of the higher flowering plants. The Erysiphaceæ is a large family embracing quite a number of genera and species which are to be found on many host plants. The family is said to be strictly parasitic, but the relationship between the parasite and the host is an interesting one, approaching in some cases, a condition of mutual benefit. The fungi are characterised by the possession of thin-walled strands which are interwoven to form a mass of cobweb-like mycelium which is greyish-white in appearance. This spreads over the surface of leaves, shoots, flowers, and in many cases, fruits. From these strands there are sent out small peg-like outgrowths, known as "haustoria" which are adpressed to the surface of the leaf. The epidermis of the leaf is ruptured and the fungus gains entrance to the tissues of the host. In many cases, the host appears to live happily for a long time after infection, but gradually a weakening occurs till, finally, death may ensue unless prompt remedial measures are taken to counteract the disease.

The American Gooseberry mildew (Spærotheca mors-uvæ) belongs to this family, and is a fungus which has been causing most extensive and serious damage to gooseberry bushes throughout the whole country. In many instances, the culture of the gooseberry has been rendered well-nigh impossible owing to its ravages, and it is to be hoped that some efficient remedial method and treatment will be evolved whereby it may be kept in check if not eradicated from our midst.

There are two stages in the life history of this fungus which correspond more or less to the season of the year. Let us commence with a gooseberry bush which has been infested by spores in spring. These germinate, and a whitish mycelium is the result, which spreads rapidly over the surface of the young leaves, stem and, later on, to the fruit. During this vegetative growth of the fungus, rapid reproduction is carried on throughout the summer by means of small oval-shaped spores known as conidia. These are borne in long chains at the end of the thread-like branches. Their number is enormous, but to a certain extent this is counteracted by the fact that they are short-lived, although they germinate rapidly under suitable conditions, such as moist and warm weather. The host plant now appears in mid-summer covered with a mealy or chalky powder, which is characteristic of the disease. This is the summer stage and occurs from May to about the end of October. The foliage, and fruit where infected, are greatly damaged. The leaves curl up and gradually assume a withered look, losing their green colour. The attacked fruits shrivel up and remain with a hard outer whitish skin till they gradually drop off and fall to the ground. Towards the end of the summer and during the autumn the whitish colour gives way to a brownish velvet covering the foliage and stem. As time goes on and if a careful examination be made, minute blackish spots will be

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seen occurring all over the surface of the host embedded in the brownish felt. These are the small globular winter fruits (perithecia) of the fungus. These bodies are brittle and thick-walled and able to resist a great deal in the matter of extremes of temperature. It is these bodies which tide the fungus over the winter months. The fruits fall from the bush in late autumn and lie dormant in the soil till the following spring or summer when the wall breaks, the asci, each containing eight spores being shot out, each spore capable of infection if conditions are suitable. By some it is held that these fruits may sometimes lie dormant over a whole year and infect a bush in the second year. It will thus be recognised how difficult it is to deal with a disease of this nature which has two entirely different modes of spread. Lately, some are also of the opinion that the fungus can exist through the winter in the form of a resting or dormant mycelium which is capable of springing into being through the stimulus of the warm spring days and giving rise to the summer spores. If such is the case, it is of enormous importance, as this mycelium would also have to be killed as well as the winter fruits.

The mildew attacks the young rapidly growing and vigorous shoots of the gooseberry bushes in moist and warm weather. Fortunately, the spread is not too rapid. Young sucker shoots arising in spring are more liable to be attacked than the older slow-growing ones. Thus, quick-growing varieties of gooseberry are more susceptible, especially when growing in highly manured ground. Apart from the question of vigorous growth, the varieties appear to have no special resistant powers. In districts where the soil is deep and porous, containing an abundance of moisture the disease is apt to spread rapidly, and this may to some extent account for the unequal distribution of the attack in areas where differences in the soil occur.

All growers of gooseberries should take the necessary precautions if they find the disease on their bushes. Infection may be the result of various agencies, such as wind, birds, insect and even man. The former, no doubt, do not come under the grower's control but he should do all in his power to lessen the chances of spread. When prompt action is taken after the mildew has been noticed, the chances of spread are limited to a large extent. If the attack be neglected, then the costs of prevention and cure are not worth the trouble. The bushes should be sprayed with a lime-sulphur mixture, and then grubbed up and carefully burned as well as the surface of the soil where the bushes existed. When the fruit is badly attacked this is the method to be employed. When working in an infected plantation, the clothes should be changed before proceeding into an uninfected part, as the spores will adhere to the garments and will be rubbed off when in contact with the clean bushes. This is an important point to be attended to, as cases of infection can often be directly traced to this neglect.

Care should be taken when buying new bushes to see that they are perfectly healthy. After planting, inspection should be carried out at intervals during the summer, and the bushes, if they seem infected, such as the whitish appearance on the under surface of the leaves, should be sprayed with liver of sulphur, or better still, lime sulphur, to prevent a rapid spread. Lime sulphur wash is very effective indeed, and the treatment lasts much longer than is the case with liver of sulphur. This wash should be applied with caution, as, unfortunately, if it is applied in too strong a concentration and too often it causes the leaves to drop off, and the bushes assume a withered appearance. The bushes should not be sprayed while in flower, but when the young fruits appear a light spraying is beneficial, as the disease generally attacks young fruits. If there is no fruit on the bushes Bordeaux mixture may be applied. A useful hint when making up these washes is to add soft soap, about 4lbs. to every 40 gallons of water. This ensures a thorough wetting of the bushes in that the spray will adhere to the foliage and stems. When the disease is prevalent, pruning of the bushes, after all growth has ceased, should be resorted to. The bushes should first be sprayed, then pruned and the prunings burned on the spot. The prunings must not be carried all over the plantation, as it is in this way that the spores are distributed. All twigs exhibiting the summer stage are highly infectious and should be removed immediately, also those showing the winter stage. These winter fruits often appear and drop off as early as August, so it is well to take preventive measures early in the summer. Slow-growing varieties are preferable, and nitrogenous manures should be applied sparingly as these encourage soft, rapid stem growth.

This mildew is found on many other host plants, including the wild gooseberry and if this occurs in the vicinity of the garden inspection should be made, and if infected it should be grubbed up and burned. If it is allowed to remain it will prove a source of infection to the cultivated bushes. Many weeds also act as carriers of infection, so that it is well to keep the surroundings of the bushes clean and tidy so as to give them every chance. This species of mildew now also appears to be attacking the currant, that is, it seems to be changing its host, but whether the damage to the currant will prove as serious as it is to the gooseberry remains to be seen. It is well, however, that the currants be grown apart from the gooseberries to avoid the possible contamination. G. C. T.

By kind permission o the Ministry of Agriculture.

Figs. 1 and 2, White or summer stage on young shoot and leaves;
Fig. 3, Summer stage on berries, passing gradually into the brown stage;
Fig. 4, Shoot showing brown felt of mycelium or winter stage;
Fig. 5, Portion of the same, magnified about four times, showing minute spore cases embedded in the felt of mycelium.

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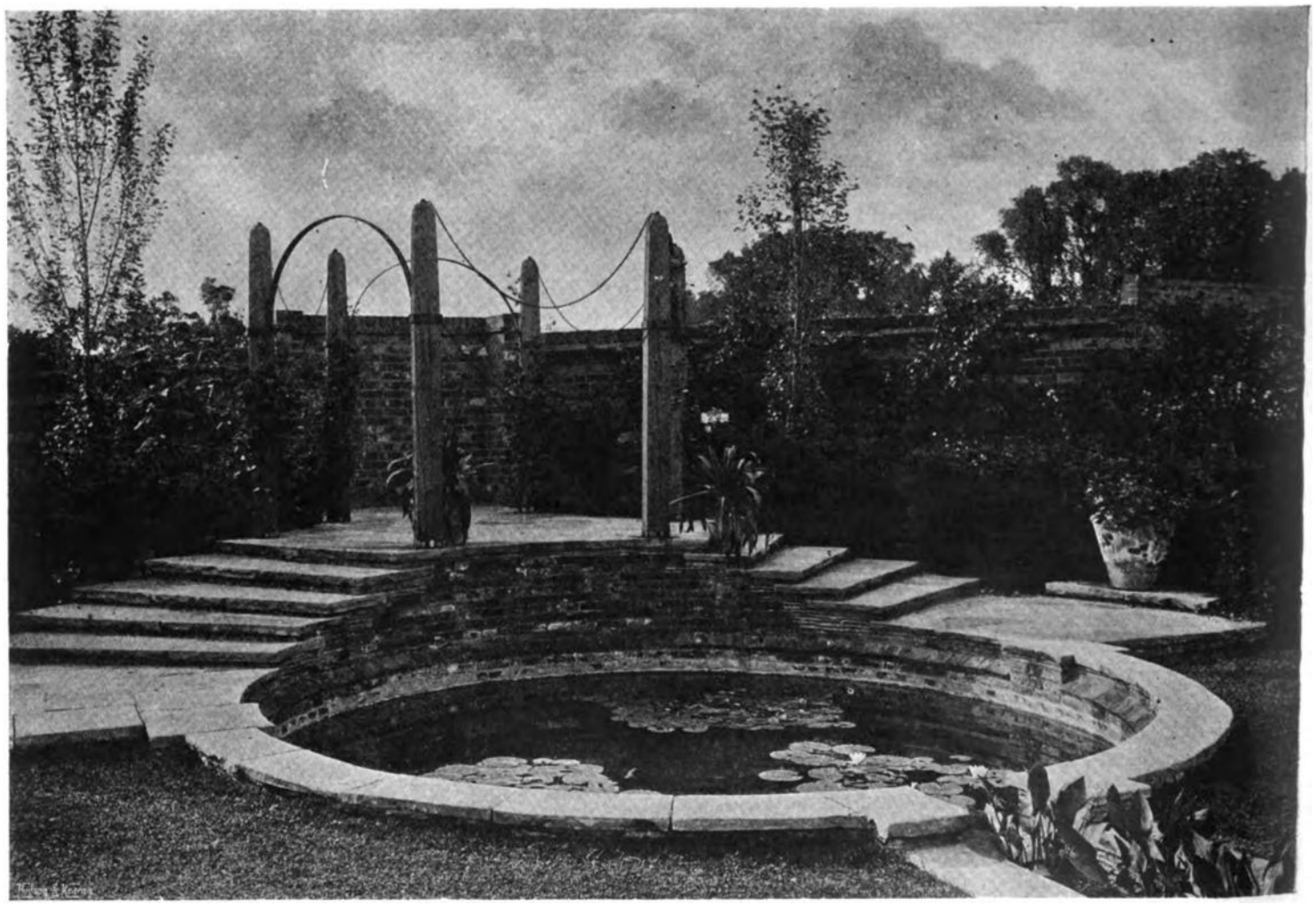
SOME GARDEN ORNAMENTS and ACCESSORIES

BY GERTRUDE JEKYLL.

FOR the best examples of outdoor ornament we must look to the old gardens of Italy. They may well have been the prototypes of all later decoration of the kind, for they were designed and carried out by the greatest living architects and sculptors of the time. Only a few of these gardens remain intact, many have passed into the hands of impoverished owners who have been glad to sell anything that could be removed, while some have gone into complete neglect and ruin, and others have been entirely destroyed. Stray items—urns, vases, carved seats and fountains—have come into the hands of dealers and have been widely dispersed.



LILY TANK WITH A CHARMING SETTING IN A GARDEN AT SONNING.

Vases, tazzas and urns originally stood as accentuating ornaments on the piers at the tops and bases of flights of steps, and on those that occurred at intervals in ranges of stone or marble balustrades. These vases were for the most part also of stone or marble, but some were of terra-cotta with a good deal of ancient classical feeling in the ornament. Such a vase is the one illustrated. The design is something of a compromise between that of sculpture and the terra-cotta tradition, for the form and detail of ornament belong to the terra-cotta, but the handles are unusual in this medium. It is impossible to say whence this vase, and many such examples that one meets with here and there in gardens, may have strayed from; the only thing evident is that it looks lost and out of place without anything definite to stand on, though in the vase shown this is less of a necessity than if the form and ornament had been more of the vase or tazza character. Tulips are but a weak kind of filling; the important aspect of garden vases demands something stouter or more woody. Two year old pelargoniums or well furnished fuchsias are among the best plants for vases, the pelargoniums especially, for they thoroughly enjoy the sun warmth that penetrates the whole body of vase and earth.

Sundials and other solid ornaments are often misplaced. In the old gardens for which they were designed they were always given a definite position, either in the centre or at the end of some distinct garden scheme, and they stood on some kind of base, generally of one or two wide steps. A large vase or urn on an imposing plinth would be placed at the end of a vista, sometimes, and always with good effect, in a niche of dark greenery. In modern gardens it is not unusual to find these ornaments placed in or about a lawn for no apparent reason and, worst of all, without any base and therefore looking, as they needs must, as if they had lost their way and felt forlorn. It is almost better to have no ornament than to have a good ornament badly placed. Another common defect is when one sees a number of vases, or whatever it may be, of different kinds and sizes scattered about a garden. These objects belong to formal design and well considered proportion, right and perfect in their original places, but not at all easy to use properly in a different environment. Such a mixture gives the same uneasy impression as is received on entering a room furnished with a Louis-Quatorze escritoire, an old English farmhouse linen hutch, an eighteenth century card table, and chairs of any period from Cromwell to Queen Victoria. Each piece may be genuine and good of its kind, but there can only be

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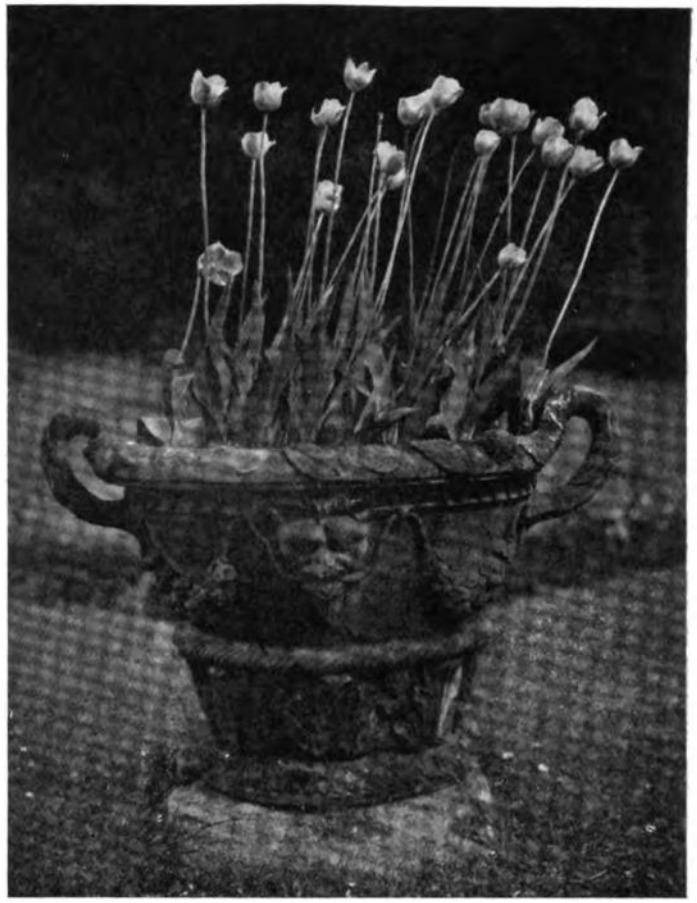
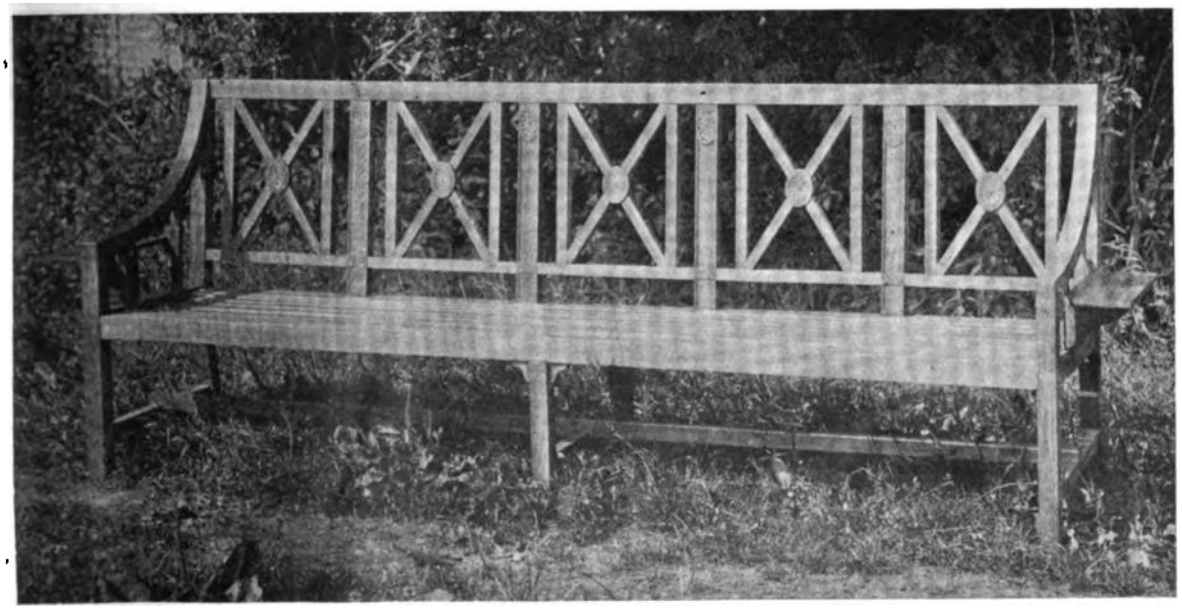
a sense of painfully clashing incongruity when they are brought together.

The same general considerations are applicable to garden seats. A great house of palatial character will probably have architectural features in any part of the garden that is near the main building. Here there will be wrought stone seats with sculptured detail as to supports and bench ends. A balustraded terrace in an upper level may have projecting bastions; places between these will be found for specially designed stone seats, and others will come at the ends of terraces and at other distinct points, as on the landings of wide stairways. An eighteenth century manor or dower house will be well suited with such a wooden seat as is shown in the illustration, or with one of the seats of French design of the same period that are still made and can be imported. For ordinary houses there are garden seats of good simple design made of hardwoods from old wooden ships. When a painted seat is used it is best to avoid the very harsh white that is so commonly employed, for it often happens that the glaring white of the seat attracts undue attention. It is easy to modify the colour so that it tells as white, if white is desired, and yet is not obtrusive. Plain oak weathers to a beautiful colour, a kind of silvery grey, if untouched. The maker will probably want to oil or varnish it, but this should be firmly resisted. It is delightful to have seats at many points in any region of home woodland that comes near the garden. Here they should be of the very simplest form, merely planks nailed to four stout stumps that are let into the ground. If a back rest is required, the back stumps should be chosen from a branching tree, the branch, which is to support the back rail only slightly diverging from the line of the trunk if it is to give suitable support, for nothing is less comfortable than a hard wooden seat that throws the sitter too far back. Seats are often fixed in summer-houses, but seldom with the care for detail as to height and width and slope of back that makes for simple comfort. If one may go by the evidence of illuminated manuscripts of the Middle Ages, it would appear that our far back ancestors were content to sit on grass banks, for so they are represented in the curious "Romanst of the Rose," which contains some of the earliest known illustrations of pleasure gardens.

Where a garden has the advantage of water in small or moderate volume there is no better way of employing it than in the narrow rill with little tanks at intervals. The width is not more than 15ins. to 18ins., so that it is easily stepped over. The sides of the rill, which passes through any space of lawn, are built in stone or brick with a flagstone top level with the grass. The water is shallow for the accommodation of such plants as the beautiful natives, the water plantain (alisma) and the flowering rush (butomus), which grow by river banks in water only a few inches deep. This kind of built and planted rill was first designed by Sir Edwin Lutyens for the garden at Sonning: the end tank and steps are seen in the illustration on opposite page. The tanks are built deeper than the rill to admit of the planting of water lilies. The steps that lead to the higher level have a very slight rise of about 4½ins. and are wide in the tread. Steps of such proportions are not only pleasant to walk, or even run up and down, but are also agreeable to the eye and mind, suggesting ease and slight effort. Where there are steeper slopes there may still be easy steps, for where it is too steep for them to go conveniently up and down a landing can be built straight forward and the steps be taken down to right or left or both, with a second landing and another square turn of the steps. The example shown is on the same principle, though the slighter difference of level does not need the second landing, and the form is circular, following the curve of the tank. The end of the planted rill shows in the foreground. In the case of some tanks that might be dangerous to children, a space about 2ft. wide can be built up inside. The space is filled with earth to the level of the inner wall for aquatic plants. Another way which is always beautiful is to build the whole tank in wide under-water steps, the successive depths showing in an interesting way by the deepening colour of the water.



ITALIAN FLOWER VASE OF AN EXCELLENT TYPE



A WOODEN GARDEN SEAT OF EIGHTEENTH CENTURY DESIGN.

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THE SPRING ROSE SHOW

NO doubt on account of the bleak, wintry conditions, the Spring Show of the National Rose Society did not attract such a large attendance at the Royal Horticultural Society's Hall, Westminster, on April 11th, as on some former occasions. However, the hall was comfortably filled throughout the afternoon and until closing time there was quite a crowd around the table containing the new roses.

THE MAGNIFICENT LARGE, WELL-FORMED PINK BLOOMS OF ROSE AMERICA.

Such a late spring as we have experienced this year has been very unfavourable, so that the exceptionally high quality of the blooms came somewhat as a pleasant surprise. Among the many exhibits it was a difficult matter to find half a dozen poor blooms and curiously enough the only really weak class was that for six blooms of new roses first put into commerce since the beginning of last year. Mr. E. J. Hicks was the only exhibitor and although he was awarded the first prize, the blooms, though quite fresh, were a poor lot. It would seem that the more recent novelties are of no value for forcing purposes. Yet, apart from these, there was a great variety on show, and of first-rate quality.

Decidedly the best blooms in the show were grown by amateurs and it would be difficult to imagine any finer forced roses than the specimens of Mrs. Foley Hobbs, Louise Crette, Muriel Dickson and Richmond, as shown by Mr. G. A. Hammond in his first prize board of twelve blooms of exhibition roses, for they were superb. Mr. E. J. Holland, who had to be content with the second prize also staged most admirable blooms, particularly of Caroline Testout, William Shear, Mrs. J. H. Welch and Hadley. The group of cut roses so well set up by Mr. Hammond was also of exceptional merit. He included a lovely basket of mixed sorts and vases of Mrs. Henry Morse and Frau Karl Druschki.

The circular groups of pot roses made a delightful display. With magnificent blooms of Mrs. Foley Hobbs, Mr. J. A. Hammond won the first prize for six of any variety, while Mr. L. P. Roberts, showing Augustus Hartmann, Dean Hole and Yvonne Vacherot of good quality, was first in the class for growers of fewer than thirty plants of pot roses.

The circular group of pot roses in the nurserymen's classes made a delightful display, and for elegance and graceful bloom the first prize exhibit of Messrs. A. J. and C. Allen has rarely been surpassed. Their tall plants of Dorothy Perkins, Blush Rambler and White Dorothy Perkins were especially charming, while the conventional standards of Hadley, Lady Hillingdon and Golden Ophelia were also profusely flowered. Among the dwarf pot plants which formed the ground work to the group, there were many brilliant little plants of the geranium-scarlet La Reine Elizabeth, a most vividly coloured little rose. In the second prize group of Messrs. Chaplin Bros. there were plants of Tausendschön, American Pillar, Golden Emblem, Lady Galpin, a delicately beautiful pink H.T. variety and a rich crimson seedling.

On first sight, the award of the first prize in the class for a group of cut roses arranged on tabling occasioned some little surprise until it was realised that the judges were influenced by the high quality of the smaller group which was so well arranged by Messrs. B. R. Cant and Sons. Their chief varieties were Sovereign, Covent Garden, Lady French, Constance Casson and Padre. The greater wealth of bloom shown by Mr. E. J. Hicks included vases of Paul's Scarlet Climber, Ophelia, Lady Hillingdon, America and Queen of the Belgians. Mr. George Prince, who was third, had lovely vases of Padre, Climbing Richmond and Allan Chandler, with masses of the graceful Coral Cluster.

The best group of polyantha roses in pots was arranged by the Rev. J. H. Pemberton, who showed Koster's Orleans, Edith Cavell, Ellen Poulsen and Echo of great beauty.

There were only two exhibits of twenty-four blooms of exhibition roses, but both were of considerable merit. Messrs. B. R. Cant and Sons were first with an even collection of such sorts as Covent Garden, Sovereign, Richmond, Constance Casson, Phœbe, Lady French and Lady Rodway of lovely colouring. The second prize collection of Mr. E. J. Hicks contained, in Ulrich Brunner, the silver-gilt medal bloom of the trade classes. America, Chas. E. Shea, Premier and Louise Crette were also noteworthy.

Showing delicious blooms of Maréchal Niel, Mr. A. F. Goodwin was first in the class for twelve blooms of any variety. Mr. E. J. Hicks was second with America, and Messrs. B. R. Cant and Sons were third with Constance Casson. Good baskets of Evelyn and of Lady Hillingdon won a first prize for Mr. E. J. Hicks

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and Mr. A. F. Goodwin was similarly placed with Maréchal Niel in the class for one basket of any variety; while Mr. Hicks was first with a basket of mixed sorts.

The decorative classes were a popular feature of the Show and the quality of the flowers so tastefully used was excellent. In the open class for a dinner-table decoration Mrs. A. R. Bide and Mrs. May were adjudged equal first and Mrs. E. Paul was second. Each competitor used Madame Butterfly. In the amateurs' section Mrs. Courtney Page added to her many artistic triumphs with a charming table, also of Madame Butterfly, while Mrs. Charlton and Miss E. Griffith were placed equal second. Mrs. Courtney Page, in the amateurs' class, and Mrs. A. R. Bide, in the open class, were the first prize winners with charming bowls of roses and Miss M. E. West had the best vase.

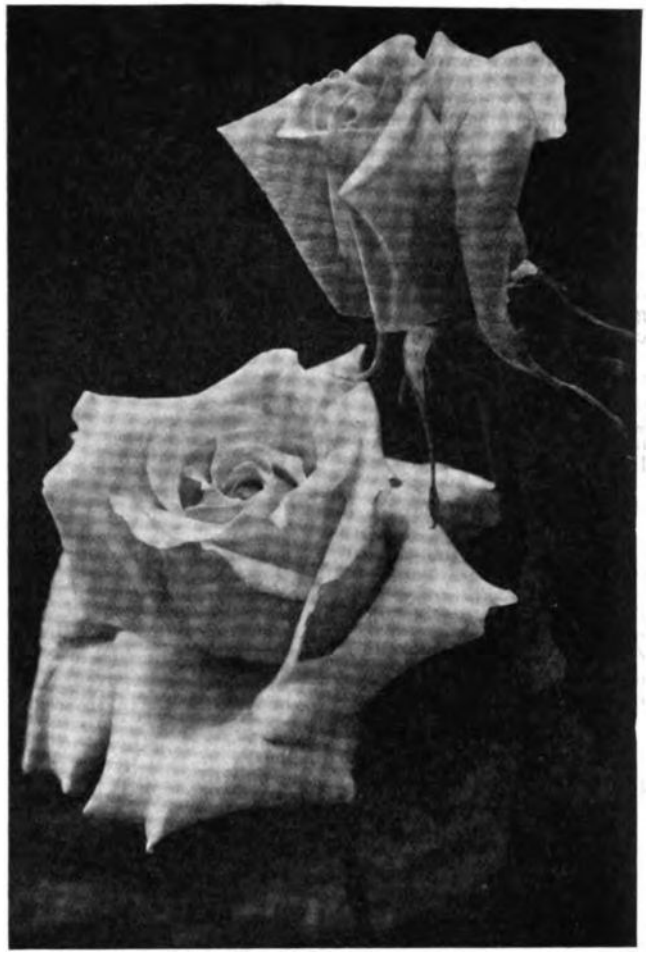
NEW ROSES.

AMERICA.—This magnificent rich vivid pink H.T. rose must now be a familiar variety to the London show-attending public, for quantities of splendid blooms have often been exhibited at the Royal Horticultural Society's Hall for some months past. No matter when shown, America has been of outstanding merit. The large shapely blooms are borne on long, stout stalks and they are of perfect form in all stages of development. Added to these perfections is the precious gift of rich fragrance with good lasting properties when cut. It is undoubtedly a rose with a great future. Gold medal. Raised by Messrs. E. J. Hill and Co. Shown by Messrs. G. Beckwith and Son.

CLOVELLY.—While it is never wise to praise unreservedly any new rose on first acquaintance, the obvious merits of Clovelly must be fully recognised. Like the foregoing it is, as shown, a fully double H.T. variety of exceptional vigour and is of good shape in all stages. It is of soft pink colouring and the broad, recurving petals seem to reflect the gracious colouring. The young foliage is a bright purple and the mature leaves are dark green. Certificate of merit. Shown by Mr. Elisha J. Hicks.

ELSIE BECKWITH.—An H.T. variety of rather more than average size and deep rose pink colouring which is lightened at the edges of the petals. The blooms are carried on good stems, but they do not seem to possess any fragrance. Shown by Messrs. G. Beckwith and Son.

SOUVENIR DE H. A. VERSCHUREN.—This seems to be a useful deep yellow H. T. rose of compact globular shape. The colour fades at the edges of the petals and the blooms have a strong, almost pungent scent. Shown by Messrs. G. Beckwith and Son.



ROSE CLOVELLY WITH BLOOMS OF SOFT PINK.

GARDENS OF INDIA

(*Continued from page* 105.)

BY SIR GEORGE WATT.

THE *neem* or *margosa* tree (Melia Azadirachta) is a constant associate of village life, because of its sacred character and its numerous medicinal virtues. The young twigs are ready-made tooth-brushes and the dried leaves can be employed against noxious insects. The *mulsâri* or *bakul* (Mimusops Elengi) is a large and beautiful evergreen tree, frequent in village sites. It produces, during the hot season, a great abundance of highly fragrant flowers and to such an extent as oppressively to perfume the neighbourhood. The flowers fall in showers, are then swept up and much valued in making garlands and as stuffing for pillows—they are sacred to Siva and as *tantric* offerings may also be placed before Vishnu. The bark is a domestic medicine much run after by ladies and the seeds yield a useful edible oil.

Seen from a little distance, the Indian village looks like a patch of forest with huts appearing here and there between the trees. Feathery bamboos, intermixed with a few trees and palms, with market gardens often seen jutting forward on high banks and with a tank or a few wells, complete the picture. But to the trees already mentioned may now be added one, the most conspicuous and remarkable in village life—the *semal*, or silk-cotton-tree (Bombax malâbaricum). A large deciduous tree, bold and aggressive, with its branches spreading horizontally from the stem, which is often buttressed and powerfully armed with great corky spines. Towards the end of December the leaves change in colour and in due course turn bright yellow and then fall in showers. Shortly thereafter, its great flowers attract attention. They are then seen to be thickly dispersed along the upper surface of the wide-spreading branches, and to stand erect. They are truly superb; hundreds of great cups, 3ins. to 4ins. in diameter, of a deep vermilion colour, with fleshy petals rigidly deflexed from the margin and having a brush of stamens rising from the middle of each. During the early morning these cups secrete a fluid of sweet acid flavour which, as the sun advances, becomes fermented and is then doubtless intoxicating. This attractive feast soon brings together all the birds and squirrels of the neighbourhood and the hilarity and squabbling that ensue are truly wonderful. Dr. D. D. Cunningham ("Plagues and Pleasures of Life in Bengal"), truly observes that "the scene is certainly one of the wildest dissipation, but the sense of moral disapprobation excited in an onlooker is tempered by the knowledge that the drinkers are doing something beyond merely enjoying themselves; for there can be no question that they are most efficient agents in securing the cross-fertilisation of the flowers."

THE HEDGE CLIMBERS.—Climbing over the hedge may very often be found the quaint American convolvulus—the *tarulatâ* (Ipomœa Quamoclit) which has pinnate leaves and crimson trumpet flowers. The *aparajita* (Clitoria ternatea), a modest little climber, hesitatingly intrudes rather than is cultivated. Its blue or white blossoms adorn the corner it occupies and are obtainable throughout the year. And yet this harmless treasure has been condemned, through a fancied immoral symbolism, from ever being offered to the gods though it may be presented to the goddess Durga.

Another trespasser of great interest is the *rati* or *gaungchi* (Abrus precatorius); this produces pods that, on ripening, burst open and reveal many small shining red peas with black faces. These peas are used by the goldsmiths as weights (they weigh 1.75 grains), and appear to be the origin of the carat weight. Throughout India they are perforated and strung as rosaries, hence their botanical name precatorius. But these harmless looking seeds, while they may be cooked and eaten, if ground down on a stone in cold water, and the paste thus obtained be hypodermically injected, are then found to originate one of the most elusive yet most virulent of all poisons.

But to bring our story of the climbers on the garden fence to a close, it may be added

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that, not infrequently, beans, cucumbers, gourds, or melons are trained over it, or on a special arbour in front of the house door, or up on to the roof of the hut itself. As representative of an extensive series, mention may be made of two. One of the most useful plants of the kind indicated may be said to be the Indian broad bean, the *shim* (Dolichos Lablab), often spoken of as *lobiya* —the king of beans. So again the *petha* or *kumra* (Benincasa cerifera), the white-gourd-melon, so frequently rambles from the hedge or arbour on to the roof of the hut, that it may be said the large greenish-white mealy gourds, lying all over the huts, become a characteristic feature of Bengal.

THE FRUITS.—Assuming that an examination is being made of one of the largest and most fully equipped peasant gardens, one owned, or at least supervised by the village mali, some or all of the following plants are likely to be discovered. In one corner there may be seen a clump of the banana (or plantain as it is called in India), the *kela* (Musa sapientum), of which there are numerous cultivated varieties and races. These may be grouped into two sections (*a*) fruits eaten when ripe; (*b*) fruits eaten when green but only as a vegetable in curries. Of the ripe fruited kinds, in Calcutta, the small *Chini champa* is the most highly prized, and in Bombay the *bajapuri* or the *sonekale* or the *raikale* are all famed, the last being a large fruit with thick red rind.

In the opposite corner, very possibly, may be discovered one or two small trees of the lemon (Citrus medica, Lemonum), or of the sweet lime (C. medica, Limetta). If the owner chances to be enterprising there may also be a *pomelo* (C. decumana), or a *papia* (Carica Papaya). But both these are foreigners, the former came to India from Java and the latter from America. The pineapple (Ananas sativa), also came from America and arrived during Jahangir's time. Although found all over India to-day, it attains its greatest perfection in Northern Bengal, Assam and Burma.

The *am* or mango (Mangifera indica), is, as a rule, grown in the market garden rather, than in the peasant garden. It is purely an indigenous fruit and the better qualities are propagated by inarching. There is an immense range in the size, colour and flavour of the fruit. The finest are the Mazagon in Bombay and the Malda in Bengal, while those of Assam are the poorest. It is a curious circumstance that merit in the fruit would seem to be attained in the localities most remote from the wild habitat.

If space can be afforded, the luxurious cultivator may aim at possessing a Jack-fruit tree, the *kanthal* (Artocarpus integrifolia), grown somewhere near his house, with a platform constructed, very possibly, under its dense shade, where a friendly smoke may be enjoyed and the news of the village discussed. The huge thorny fruits of the jack (often 18ins. long), cling to the stem and the main branches in a very striking manner. The fruit is much appreciated by the Natives, but not by Europeans, who object to its smell.

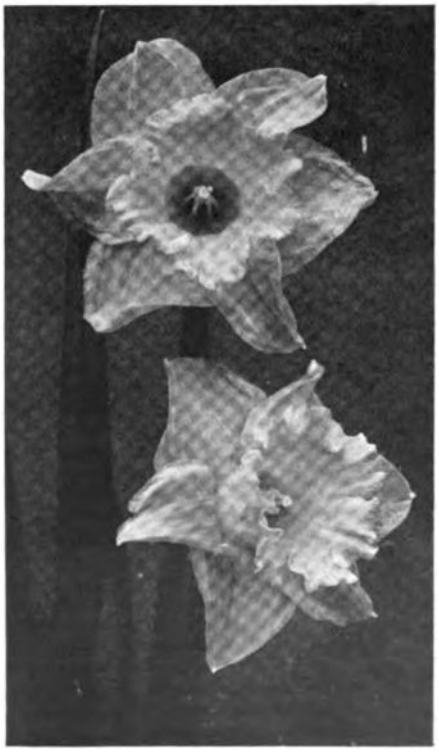
THE VEGETABLES AND SPICES.—The potato, though extensively grown in the market garden has not as yet found a place in the peasant garden. Beans and gourds are plentiful and very often a place is found for the indigenous tuber *kachu*, the *taro* or Egyptian Arum (Colocasia Antiquorum), and sometimes also for the *mita-âlu*, the sweet potato (Ipomœa Batatas), a valuable esculent for which India is indebted to America. But among and between the trees mentioned, will almost certainly be found a few of the egg-plant, *brinjal* or *began* (Solanum Melongena), a highly valued vegetable, but again a foreigner, which, in all probability, reached India from Arabia. No modern garden would be considered complete without a few chillis (Capsicum annuum or C. frutescens), most often the small, pointed and pendent kind, used mainly while still green. Once more India is debtor to America and so important has this spice become that one is surprised to learn that it only reached India in the sixteenth century.

In India the number of plants (wild and cultivated) that are systematically collected and eaten as salads (without being cooked), or as spinach (after being cooked), or which are employed as flavouring ingredients in soups or curries, are both extensive and varied. They are collectively known as *sags*. A classification of Indian gardens might be based on the *sags*. For example, the people of Northern Bengal use a very much smaller quantity of pulses than in other parts of that province, but they make up for that by the consumption of a more extensive and more varied assortment of *sags*.

(To be continued.)

THE LONDON DAFFODIL SHOW

AROUND London outdoor daffodils are few and far between, so that the several large collections at the Royal Horticultural Society's Hall, Westminster, on April 15th and 16th, when the Society held its annual Narcissus Show, came somewhat as a pleasant surprise. Even so the show fell short of earlier expectations. The vagaries and disappointments of the season are common knowledge and, unless the conditions improve materially, there will be no real display yet awhile.



A MAGNIFICENT VARIETY, NARCISSUS GOG.

Although narcissi occupied only about a third of the hall, and as is only too often the fate of organisers of special flower shows, the Royal Horticultural Society had to enlist exhibitors of other flowers to fill the hall. To the occasional visitor this considerably added to the pleasure of the visit, for, in addition to daffodils and tulips, gorgeous roses, fresh and fragrant carnations, old-world auriculas, collections of hardy flowers and enviable forced strawberries were to be seen and admired.

Nearly all the narcissi at the Show came from Ireland and Cornwall, and although a number of blooms had somewhat crimped, corrugated perianths, which all too plainly tell of a cold and backward season, there were many really magnificent examples to be seen, while in many ways the startlingly white—were it not ungallant we should have termed it face-powder white—Venetia, shown by Messrs. Barr and Sons, was the most wonderful bloom in the Show, the two exhibits by Mr. P. D. Williams in the competitive classes were certainly the most magnificent and probably the finest ever seen at any show.

In the circumstances a large number of novelties "up for award" could not be expected. In addition to the three daffodils which received awards of merit there were two vases of fascinating tulip species on the table reserved for New and Rare Plants. These tulips were both Central Asian species. Tulipa

THE BEAUTIFUL NARCISSUS VENETIA.

Fosteriana, shown by Mr. J. L. Richardson, is the giant of the species. Measured from the inside of the flower the "petals" are over 4ins. long. At first they were huge crimson-scarlet buds; then, under the influence of the warmer, brighter weather of the afternoon, the segments opened widely, till the blooms were as

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large as pudding basins—most magnificent flowers. While the flowers of Tulipa Kaufmanniana paled when contrasted with those of the Persian species, they were beautiful and interesting. Of the half a dozen or so on view no two were alike, and they displayed a fascinating variation, though all were of the characteristic long pointed shape, of creamy texture, and had a distinct yellow base, giving a warm golden glow in the centre. The variable colouring included shades of scarlet, water-lily yellow and purple flushed creamy yellow. These were exhibited by Mr. W. R. Dykes.

Competition in the various classes was not usually strong, though the general quality was good. Mr. J. L. Richardson was the chief first prize winner in the larger classes. His twelve varieties of large trumpets included Mustapha, Luxor of the self-coloured sorts, with the bicolor Lady Primrose and the sulphur yellow White Emperor. Of his Incomparabilis varieties Brightling, Orange Glow and Seville were very charming. His dozen Barrii included Dosoris, Red Chief and Firetail with brilliant coronas and the chaste Queen of Hearts. His six large trumpets were especially noteworthy for the rich colouring of several seedlings and of Michael and Loyalist, and in the next class he also won chief place, showing excellent blooms of Helen O'Hara, Atalanta and White Knight. Brilliant colour was also present on his six Incomparabilis. Crœsus, Brightling and Golden Pedestal were splendid examples. Among Mr. Richardson's first prize winning six Leedsii blooms there was a vase of Pax which has a fascinating apricot-tinted corona. There was no first prize awarded for twelve Poeticus varieties—the season is much too late for these—but Mr. Richardson was awarded the second prize. The first prize twelve Leedsii were of such good sorts as those of Bridal Morn and Empire, which has a pretty frilled cup, shown by the Donard Nursery Company.

As we have already remarked, Mr. P. D. Williams staged some remarkably fine blooms. His twelve "not yet in commerce," were shown mostly under seedling numbers, as also were his twelve "raised by the exhibitor." In each class the same high quality was present. The best six varieties raised by the exhibitor were those of Captain H. G. Hawker, whose large trumpets were of outstanding value. In the class for three varieties the Rev. H. R. Meyer was awarded the first prize, and he was also the winner of the novice's class.

In the various small classes for the different sections of narcissi, first prizes were won by Mr. J. L. Richardson, Mr. F. H. Chapman, Mr. F. W. M. Copeland, Mr. W. B. Cranfield and Captain Hawker.

Gold medals were awarded to Messrs. Barr and Sons and to the Donard Nursery Company for their collections. Though the latter was somewhat the larger, the former was better arranged and of rather higher quality, though in each case the premier award was well deserved. Chief among Messrs. Barr's collection was the chaste and beautiful Venetia. It is not a large flower, but of exquisite proportions and of powdery white colour. The corona is quite small and there is a touch of pale green at the base. To all intents and purposes it is a small Leedsii variety, though we believe it has "Triandrus blood." Lavender, a larger Leedsii variety which has a pale orange rim to the tube; Andromache, a lovely Incomparabilis; Fiery Monarch, of brilliant corona; Iolanthe, a larger bicolor trumpet with a deeper rim to the tube; Brilliancy; Peter Barr, white trumpet; Mustapha, Siegfried and Royal Gold, three magnificent rich yellow trumpet varieties, are the names of only a few of the wonderful sorts on show. In addition to these Messrs. Barr & Sons staged many seedings of great charm.

Many visitors remarked with envy on the magnificence of the vases of King Alfred in the exhibit of the Donard Nursery Company, who have no apparent difficulty with this fickle giant daffodil. Gog, a gorgeous variety with a short, widely expanded trumpet of deeper colour than the yellow perianth, was also greatly admired. Among the bicolors were Felspar, Comely and Moira O'Neill. Tongario has a short wide corona with an orange rim and a starry perianth. Among the better-known sorts there were fine vases of Athos, Bernardino, Great Warley, Whitewell and Marshlight.

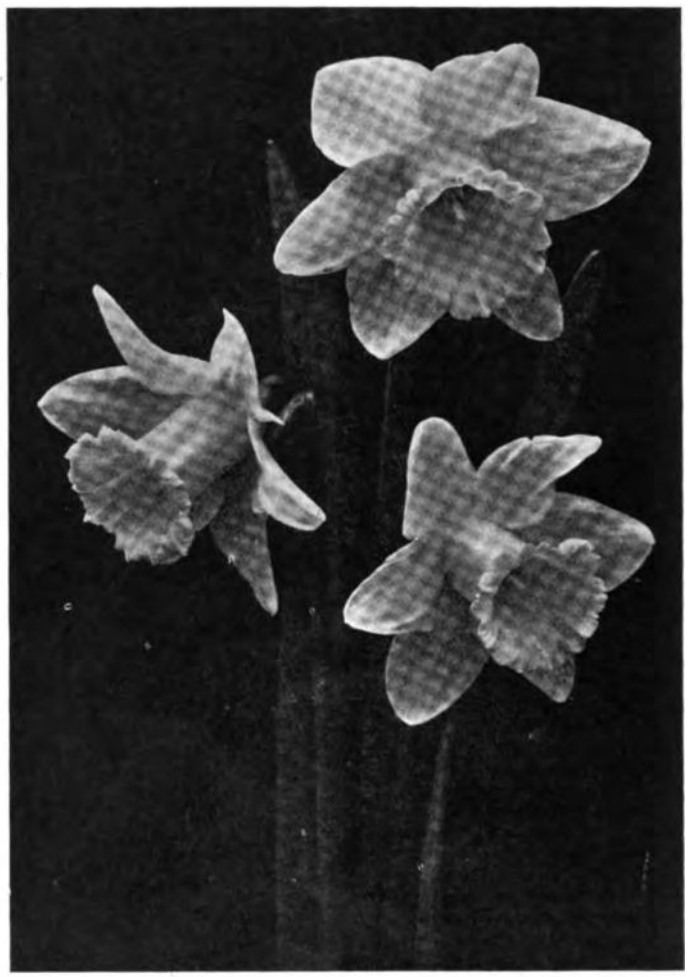
Seedling large trumpets of more than average merit were shown by Mr. J. L. Richardson, whose named varieties of this type included splendid examples of Van Waveren's Giant, Luxor and Sievenamon. Queen of the North, a small Leedsii variety which has a paper-white perianth of deceiving frail appearance, and a little corona of uncommon crimped shape and primrose yellow colour, was very fascinating. There were also several vases of Glorious, a brilliant Tazetta variety; while among the bright cupped Barri were Dosoris, Macebearer, Joan of Arc and Firetail.

The Welsh Bulb Fields Co. set up a decorative exhibit of such sorts as Brightling, Glorious and Sunrise. Messrs. R. H. Bath, Limited, included Golden East, Dominion, Golden Glory, Golden Sunrise and Golden Sunset large trumpet varieties of rich colouring. Mr. W. F. M. Copeland contributed a small collection of narcissi.

The only exhibit of tulips—which the R.H.S. combined with narcissi—was by Messrs. R. and G. Cuthbert, who had goodly pots of Rose Luisante, La Rêve, Potter, Prince of Austria, De Wet and Enchantress.

NEW DAFFODILS.

EVEREST.—A pure white large trumpet daffodil of great charm. The perianth segments are a trifle pointed and the shapely trumpet is prettily rolled and serrated at the mouth. Award of merit. Shown by the Donard Nursery Co.



THE SHAPELY WHITE PERIANTHS OF NEVIS, A PERFECT BICOLOR DAFFODIL.

NEVIS.—A perfect example of the large bicolor daffodil. The white perianth is shapely and of good substance. The sulphur yellow tube is a perfect cylinder, nicely rolled and serrated at the mouth. There is a fascinating yellow glow at the base of the tube. Award of merit. Shown by Mr. F. Herbert Chapman.

TENEDOS.—A large bicolor daffodil which has a round, substantial, milky white perianth and an exceptionally long, slightly fluted, pale yellow tube which is slightly enlarged towards the mouth and serrated with almost saw-like precision. A fascinating bloom of apparently good lasting properties. Award of merit. Shown by Mr. J. L. Richardson.

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NOTES FROM CONTRIBUTORS

SOME WHITEWELL FREESIAS.

I HAVE received a delightful collection of hybrid freesias from my friend Mr. Jacob which are seedlings of his own raising. Two days travelling in the post caused them to arrive very limp, but after an hour in tepid water they revived and looked as fresh as if they had been gathered the same day. Freesias as cut flowers are very difficult to pack in order to avoid bruising. They should be tied to the bottom of the box and kept firm, but no packing put on top touching the flowers. This is easily done if only a small lot are to be sent. I wonder whether they would travel better, especially for short journeys, if allowed to become limp before packing and revived immediately they arrive at their destination. Gladioli, I believe, are packed in this way successfully.

A letter from Mr. Jacob tells me that his new variety Flame, which received an award of merit on February 26th, was not so much admired as Goldmine. I have blooms of both, and I think Flame is more attractive in its shape and its intense orange lip, and it is very sweetly scented. Stowe, a very nice open type of flower, of fine shape, not unlike Eldorado, but not so deep in colour, is of a rich canary yellow with a deep orange lip and dark brown lines on two lower segments. A good tall grower and essentially a "cut flower" variety. Canary Green, I think, is the best of Mr. Jacob's yellows, a rich canary yellow, deeper on the lower segments, three of which are slightly frilled at the edges. A very nice shape and a good scent. Lemon Green is slightly paler than Canary Green, but of entirely distinct shape, the petals being quite pointed, which makes it an attractive variety. Rose Green is a smaller type of flower, of open shape and rather pointed petals. A good variety for cutting, of a dull rose pink with a yellow lip, and I prefer it to Elegante, which has plenty of colour, but is not quite such a nice shape or type. Crocus was rather the worse for its journey, so I cannot judge it properly, but appears a good-sized open flower of an aniline blue with a white throat. It seems to be a very good colour. Mauve Queen, a large open flower not unlike La France, pale bluish violet with faint lines of the same colour in the throat and a yellow lip. This may be the best of Mr. Jacob's mauve shades. Chic, a mauve form of Mr. Jacob's Rosebud. A good solid flower of rounded shape and a white throat with a broad edge of mauve. Veteran is a yellow variety inferior to the others. Mr. Jacob remarks that it is early, very sweet, a good standby of great freedom and very reliable, hence its name. Primrose Day is a very large open flower and what I call a cream rather than a primrose shade. It has a curious shading of brown on the outer side of the petals.

These are the best of the varieties he has sent me. He seems to be strong in yellow varieties. These do not appear to break like the majority of mauve and pink shades, so he tells me. When these mauve or pink varieties break it is very rare to find one worth keeping. The best pink is Conquest, which was raised by Mjnr. van Tubergen. This I have never found to break so far, nor have I noticed any breaking in seedlings when flowering for the first time. This is the most interesting time, watching the seedlings open and hoping to find a real winner. I find so many flowers have more colour outside than inside, and just before the buds open they appear to be very rich in colour but when expanded the colour on the inside is not nearly so deep as the buds led one to expect. One has to harden one's heart when it comes to selecting the seedlings. It is useless keeping inferior sorts, and it gets more and more difficult to raise improved varieties. Ten years ago seedlings that are now discarded would have been very highly thought of, but with so many good varieties in commerce it is useless keeping anything inferior to them. I feel sure chance seedlings may give as good results as any well thought out crosses so that a beginner has a good chance of bringing out a winner, provided, of course, that he starts with good varieties that are in commerce. A certain percentage of seedlings may flower seven or eight months after sowing, but the flowers cannot be really judged then. August is the best month to sow seed, which germinates much better than if sown later. Seed sown now will take much longer to germinate, and to my mind it is only wasting over six months, as the flowers cannot be truly judged until the corms not the seedlings—have flowered. Seed sown in August will mean that you can judge the flowers eighteen months later, whereas seed sown in March will not be fit to judge until two years after sowing.—FREESIA.

A FINE COLLECTION OF WHITEWELL FREESIAS.

ANEMONE SEEMANNII

FROM what I can learn this is the proper name of a pretty hybrid anemone which I received under the name of A. intermedia and which has sometimes been offered in catalogues under the latter title. I understand its parents are A. nemorosa and A. ranunculoides, which statement is borne out by the appearance of the plant. The true A. intermedia is said to be a hybrid between A. patens and A. vernalis, but this I have no recollection of ever having seen and I do not think it is in commerce, or even still in cultivation. If it is I should be glad to know something of its whereabouts. But to return to A. Seemannii. It comes half way in practically all its features between its parents. It is rather dwarfer than A. nemorosa, but slightly bigger than A. ranunculoides, the flowers are a little smaller than those of A. nemorosa in its best forms, but larger than those of A. ranunculoides. In colour, also, the blooms are intermediate between the parents. They are of a pale yet pretty sulphur-yellow, lighter even than the charming A. ranunculoides pallida, or sulphurea as it is sometimes called. Altogether, this hybrid is a most interesting and pleasing plant, deserving to be cultivated by the many interested in windflowers of the section represented by our own wood anemone. Its requirements are similar to those of the common A. nemorosa, and it delights in a woodland soil in a partially shaded situation. It is increased by division of the roots, but I have never succeeded in obtaining seeds from it, and it is possible that seeding, if it should do so, might result in some interesting plants.—S. ARNOTT.

NOTES ON A FEW NATIVE ALPINES IN 1923.

TOWARDS the end of April last year a visit was made to the Ingleborough district, where a few British alpines of interest were seen. The locality is full of interest to lovers of Nature, as well as being the home of the late Reginald Farrer, whose enthusiastic writing has done so much to add to the enjoyment of our gardens.

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The district is a rich one for botanists and geologists especially, with its various interesting outcrops and plants pertaining to them.

On the slopes of Ingleborough, about 2,000ft. up, Saxifraga oppositifolia was locally abundant in the limestone crevices, but, excepting the north and north-west aspects, the flowers were past their best. However, on the shadier side there were some fine flowering plants, including some of the darker bright-coloured forms that are more desirable for garden purposes. For a time, up at this level, the conditions were quite alpine, we being enveloped in cloud and cold driving snow, which eventually blew off and was followed by bright sun on one of our typical cold "spring" days. It was interesting to have this saxifrage shown to one in a locality only 1,000ft. up on the limestone of Moughton Fell, an unusually low altitude for this species, even in Britain. In this locality one of our rarer ferns, Lastrea rigida, is an interesting occupant, and the common heath, Erica vulgaris, was uncommonly luxurious right on the limestone. On the higher parts of the mountain was the fir club moss, Lycopodium Selago, with its interesting means of propagation by little pedicellate leafy bulbs, which can be shaken out from between the leaves. According to Hooker, this plant is "used in the Highlands instead of alum to fix colour in dyeing, also as an emetic or cathartic, but it operates violently. The Swedes employ it to destroy lice on swine and other animals." Arenaria verna, a very pretty native, but requiring very good drainage to succeed in the garden, it being very liable to damp off in the winter. Another notable member of this family, Arenaria gothica, was locally abundant; it is a somewhat doubtful native of these parts, although now well established. It seems to have spread outwards from a local railway station, and was possibly introduced in ballast from abroad. It is not included in Arnold Lee's comparatively recent and very comprehensive West Yorks flora.

In one of the "mosses" Andromeda polifolia was abundant along with the cranberry, and in damp pastures Primula farinosa, not yet in flower, abounded. Ribes alpinum was noticed in a village at the foot of Ingleborough. Daphne Mezereum, although not seen, occurs in some of the local woods well away from habitations, but there is always a doubt with a denizen such as this, which so readily grows from bird-spread seeds. It comes up in many parts of my garden, often well away from the shrubs. The white-flowered and magenta pink and darker red forms have all flowered very well this year, and, while so many flowers and shrubs have been much later than usual, it flowered well up to time and is now (April 7th) quite over. It is one of the most desirable shrubs for winter flowering, especially as it stands our usual conditions exceptionally well.

During the week-end, in walking from Settle to Leyburn, Thlaspi alpestre was seen in flower on the top of the pass over to Malham, and Draba muralis was noticed on a garden wall at Malham. Draba verna was common all over the district on walls and dry stony places, and Draba incana sparingly about Ingleborough. The blue mountain grass, Sesleria cœrulea, was frequent on the high limestone pastures. Saxifraga tridactyles, an annual, was very pretty on the walls of these upland regions, and the mossy S. hypnoides was fairly common at about 1,800ft. up. Bartsia alpina and Dryas octopetala minor are among the species native to the Malham district, but it was too early for them to be showing. Tramping across the moors to Suncliffe brought to mind that this lovely mountain valley was one of the last habitats in this region of the beautiful Cypripedium Calceolus (slipper orchid).

At Whitsuntide I had the pleasure of seeing Gentiana verna in its North of England locality at its best, finer than ever before, studding a steep grassy bank side with scores of its glorious blue flowers, for the most part fully opened out, although the day was miserably cold and drizzly. Looking over them for varieties, only one was noticed, a "slaty" blue that is the usually vivid blue kind of "flatted" down. Most of the flowers that were fully open had the white eye very perceptible. Does this show up after the flower is fertilised, as, from observations in the garden, the flowers only seem to open when the sun shines before the white eye appears? After the white eye appears they seem to keep open, sun or no sun. — T. ASHTON LOFTHOUSE, *Linthorpe, Middlesbrough.*

SAXIFRAGA OPPOSITIFOLIA LATINA.

OF the varieties of Saxifraga oppositifolia I think the variety called latina is the best. Although the colour of the flowers is not so bright as in some, they are fine and large, and then when not in bloom the foliage is attractive with its limy incrustation. Here in Northumberland it is a very reliable bloomer, the foliage being almost hidden most years with the mass of flowers. The enclosed photograph shows part of a plant on the rockery in rather heavy loam mixed with grit. Though fully exposed to the sun it is on a north-east slope so does not get too dry in summer. —R. B. C.

A FINE MASS OF SAXIFRAGA OPPOSITIFOLIA LATINA

AN INTERESTING FREAK.

TWIN PLUM TREES.

THIS interesting freak was noted in a stone of Prunus insititia. Although the stone was but little above normal size, it has given rise to two perfect seedlings.

The first photograph (which is about natural size), shows the stone as it was forced above the soil by the two radicles, and the second, just after the shell had fallen away. It will be seen that each pair of cotyledons has its own testa, and the third shows the two individuals, one of which is slightly the stronger, but both perfectly healthy.

The two plants are just as far advanced as other normal seedlings of the same sowing.

Although double kernels are fairly common in many such stones, nuts, etc., usually only one of the pair has the power of germination. —L. Buss.

THE TRIUMPH OF MOSS FIBRE OVER SOIL FOR BULB GROWING.

TO all those interested in the growing of bulbs in moss fibre the Royal Horticultural Society's fortnightly show of April 8th and 9th should have been one of the most interesting held this spring. The most striking group in the exhibition was, without doubt, the beautiful display of Darwin and May-flowering tulips and Dutch iris grown in bowls of moss fibre and exhibited by Messrs. R. H. Bath of Wisbech, who received the gold medal of the Society for this group. One might almost call it "The Triumph of Fibre over Soil," as the bowls of tulips were examples of the most skilful cultivation, for, as we all know, it is not easy to get Darwin tulips to flower under glass and to retain the glorious strength of stems, foliage and bloom, as did those that Messrs. R. H. Bath exhibited. The height of many of these tulips measured 36ins. These blooms immediately attracted one's attention on entering the hall by their intense colouring and gracefulness, and the mass of forty-three different colours which all seemed to blend were given depth by quantities of cut brilliant blue chionodoxas placed in masses low down among the tulip bowls. For indoor decoration it would be hard to find any more attractive flower than the Darwin tulip, and when grown in masses of twenty or thirty in a bowl of fibre, they are seen at their best and will easily last from a fortnight to three weeks in any well ventilated room. It was impossible not to make comparisons between these graceful Darwins grown in fibre and the early double tulips shown by Messrs. Dobbie, where five bulbs were grown in a 5in. pot and had a most prim and proper Victorian air about them, or the early singles grown by Messrs. Cuthbert, also fives in 5in. pots, the sedateness of which, compared to the Darwin collection, was most marked, and one at once realised that for forcing purposes and decorativeness, the day of the single and double tulip grown in pots has departed. Among the lilacs, yellows, flame, chocolates and pinks of the Darwins there is a vast choice of colour, enough to suit every taste and colour scheme required for rooms. Among the soft subdued tones a group of Blue Bird (a pale lilac) mixed with Marconi (damson) and W. A. Verbrugge (a deep claret), is very striking, while for vividness, Bartigon, a cherry coloured bloom with white centre, Mrs. Farncombe Sanders and Van Poortvleit run each other very close. Donders (a brick red,

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with blue-black centre), and Eclipse (crimson), were also attractive. The slim pointed yellow May-flowering bloom of Avis Kennicoth is a wonderful foil to the Tulipe Noire, while Bronze Queen (an old gold colouring) and Golden Bronze combined with the dusky Dom Pedro, are delightful. All these tulips mentioned range from 1s. 6d. to 3s. per doz., barring W. A. Verbrugge, which is still 12s. per doz., and all can be grown in fibre with splendid success by amateurs. Likewise the Dutch iris, ixias, montbretias, the Gladiolus primulinus hybrids and other sorts, and it is not yet too late to start these. The difficulty is to get deep enough bowls to grow gladioli in. Personally, I use deep old copper saucepans with their handles removed and the colouring of the gladiolus bloom reflected in the polished copper in charming.

The great secret in growing bulbs in this compost is to get it the right dampness. When mixing small quantities, half fill a bucket with fibre and shell (bought mixed together), then fill the bucket with water and leave for a day. The next day you will find that the water is all absorbed and that you can rub out the lumps in the fibre without getting all the dust up your nose. The right dampness required is when if you take up a handful and squeeze it, only a few drops of water fall out, and also soak your charcoal before placing on the bottom of the bowl and covering with fibre. Place 2ins. or 3ins. of fibre in the bowl, do not press down hard, as if pressed tight the roots cannot work freely in the fibre, place as many bulbs as possible in the bowl, cover to within half an inch of the rim, seeing that the fibre is well tucked down between the bulbs. When the bowls are filled place in an airy room or on shelves in potting shed and leave for three or four weeks to form roots. During this time they will require very little attention.

After they start to grow they should be looked at every three or four days and great care must be taken that the fibre is kept moist, but never sodden or so wet that if the bowl is turned on its side water runs out. On the other hand, if once they become dry, even for half an hour, the pores of the roots close up and the bulbs will often become "blind," this is especially the case with tulips. It will be quickly noticed if all the moisture has been absorbed, as the fibre will become dry on top and of a light brown colour. When the bulbs have grown 1in. above the fibre they should be brought into strong light and until they flower, be given as much light and sun as possible, otherwise the foliage becomes long and weak and the flowers are poor in colour. It is important to turn the bowls often, as if standing on a windowsill in a room the flowers are drawn towards the light and grow all crooked. Those who have not glasshouses should not despair as, with care, I have been able to produce as good, if not better, blooms than many gardeners with glass; and my only forcing house has been a moderately heated linen cupboard, by the help of which I have hyacinths in bloom early in December. They are placed in the cupboard at night and removed to the light by day. All bulbs forced in such slight heat will flower splendidly the next spring if planted out in the garden.—EVELYN VENNING.

CORRESPONDENCE

THE SPURGE LAUREL.

I AM obliged to "R. J. S." for calling in question my statement that the flowers of this daphne are scentless (page 248). If I have erred, it has been in good company, because they are described as "green and scentless" in Sir Joseph Hooker's edition (the fifth) of Bentham's "British Flora," and as "yellowish green, with no odour" in Mr. Bean's "Trees and Shrubs."

However, I determined to test the question once more, and one evening between 6 p.m. and 7 p.m. I cut a flowering branch of spurge laurel. I could perceive no scent in the blossoms in the open air, so I brought the spray into a warm room and placed it in water. Two hours later I asked two ladies to smell the flowers. They both declared that they could smell nothing. Next day I submitted the same flowers to be tested by six persons. Two of them, a man and a young girl, pronounced them to be fragrant; if the other four and myself had been put on oath we could not have affirmed that we perceived anything more definite than the scent of fresh foliage. Of course, I accept "R. J. S.'s" assurance that the flowers of his daphne were strongly sweet. It is possible that there are fragrant and scentless varieties?

The olfactory apparatus of many of the lower animals is infinitely more sensitive than that of human beings. A dog will follow unerringly the trail of his thickly-shod master, and insects may be attracted by the odour of flowers which our grosser faculties cause us to consider scentless. The late J. H. Fabre has described the remarkable result of a female peacock moth (Attacus pavonina, Linn) emerging from a cocoon in his laboratory. It was placed under a wire gauze bell, and presently his house was beset by a crowd of males, attracted, as he suggests, by a subtle effluvium from the imprisoned female.

"The aggregate of visitors during eight evenings amounted to 150, an astounding number when I consider how hard I had to seek during the following two years to collect material for continuing these observations. Though not impossible to find in my near neighbourhood, the cocoons of the great peacock moth are at least very rare, for old almond trees on which the caterpillar feeds, are scarce in these parts. . . . My 150 moths came from afar—from very far, within a radius of perhaps a mile and a half or more. How did they know about what was happening in my study?" (Fabre's "Life of the Caterpillar" pages 245-280.)

Fabre was always thorough in observation and experiment. He found that when he shut up a female peacock moth within two or three airtight boxes, no males were attracted to his open window, the sure inference being that no odour or other "wireless" had been transmitted.—HERBERT MAXWELL, *Monreith*.

WHITE CYCLAMENS.

IN your issue dated March 22nd there is an illustration of "The Giant White Wonder Strain of Cyclamen," and a paragraph about it saying "There is a distinct need for a really good white strain, etc." I enclose two photographs of a white cyclamen, the smaller plant is a seedling of the large one, which is eleven years old and was found a tiny stray seedling (we had no cyclamen then in our greenhouse), on the rubbish heap by my head gardener, Mr. Ford. It is pure glistening white, the petals on the younger plant being 2¾ins. long, very floriferous and very sweetly scented. I intend to exhibit the plant at the Royal Horticultural Society's Hall next year.—AUGUSTA WRIGHT, *Lapworth, Warwickshire*.

A SEEDLING OF A FINE WHITE CYCLAMEN.

[Unfortunately the other picture would not reproduce satisfactorily.—ED.]

HERBACEOUS BORDERS.

CAREFUL planting is certainly called for in order to preserve continuity of bloom in the herbaceous border throughout the season; and to avoid more or less unsightly gaps for long periods it is wise to dispense with many plants that are in themselves interesting, but whose flowering period is of all too short duration. I do not, however, agree with Mr. Thackeray Turner with regard to the inclusion of the lupin in his examples of undesirable plants for herbaceous border purposes. I find the perennial lupin one of the best plants to grow in such a border owing to its comparatively long period of flowering. With me, it begins to show colour, in normal seasons, at the end of April, and continues in bloom throughout the summer. From time to time the old flowering stems are cut down as they become spent and vigorous young spikes are produced to carry on the flowering period. Such a fine range of colours can be obtained with the varieties now in commerce, that the perennial lupin has become one of the most useful plants in the border. The more recently raised varieties and hybrids are distinct acquisitions. The colours range from dark blue and purple to delicate tints of rose and fawn. My soil is a strong, heavy loam and probably one of the reasons the lupin does so well with me is due to this fact. The yellow hybrid Sunshine is a particularly fine bright yellow, did excellently well in my garden last season and was much admired. It commenced flowering quite early and continued in bloom right throughout the season, being in flower, in fact, during the autumn.

With regard to the use of annuals for the purpose of keeping the border full of bright colour, a restricted use of them to such an end may be useful. It is very necessary, however, that if full advantage is to be taken of them in the manner indicated, they should

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be grown, as Mr. Turner suggests, in a little nursery, and transplanted in due course. Otherwise the very object for which they are to be placed in the border is defeated. Unfortunately, most annuals get very untidy-looking as the season advances, and it is debatable whether their use to any considerable extent is really worth while.—HOWARD H. CRANE, *Eastcote, Middlesex.*

A FIFTEENTH CENTURY GARDEN.

THE following extract from "Ane singular lernit proloug of the description of May," by Bishop Gavin Douglas of Dunkeld is perhaps worth quoting, for the picture that it gives of a flower garden at the beginning of the fifteenth century is not altogether conventional, and though it is not very great poetry, yet there is a certain richness and vigour in the description that makes it pleasant reading in these days of protracted winter and tardy spring.

"Ive leavis rank ourspread the barmkin wall,
The bloomit hawthorne clad his pikis all;
Forth of freshe burgeonis the wine grapes ying
Endlang the trelleis did on twistis hing
Soft balmy verdure after balmy showers
On curland stalks smiling to their flowers.
Beholdand then sae mony divers hew,
Some perse, some pale, some burnet and some blew,
Some grese, some gules, some purpure, some sanguane.
Blanchit or brown, fauch-yellow many ane,
And some depart in frecklis red and quhite,
Some bricht as gold with aureate leaves light.
The daisy did unbraid her crownal small
And every flower unlappit in the dale,
In battil grass burgeons the banewort wild,
The claver, catcluke and the cammamild;
Seyr downis small on dent de lion sprang
The young green bloomit strawberry leaves amang.
Gimp geraflours their royne leaves upshet,
Freshe primrose and the purpour violet.
The rose knoppis, tetend forth their head
Gan chype and kythe their vermel lippis red;
Crisp leaves some sheddand, baith at anes
Cast fragrant smell amid fra golden grains.
Heavenly lillies, with lockerend toppis white
Opened and shew their crestis redemite."

The dandelion heads that the poet, rather unexpectedly, includes in his list were evidently growing among wild strawberries or he would hardly have noticed them with such serenity, though they are really rather beautiful if you can look at them with detachment and forget their diabolical efficiency as weed disseminators.

Bishop Douglas was very prolific in names of colours, and it is perhaps a pity, as Miss Jekyll has regretted in one of her books, that so many of the old colour names have become obsolete, seeing that our present-day vocabulary of colours is barely adequate to the demands made upon it, especially in describing flowers. Unfortunately, it is notoriously difficult to discover exactly what colour many of the old words described. *Royne* is hopelessly obscure, for it seems only to occur in this poem. It is perhaps connected with the English *roan* and may mean a pale, rather brickish red. *Perse* in Bishop Douglas' list was some kind of blue, most probably a deep purple blue, and together with *burnet* (reddish brown), which is extinct except as the name of a plant and a moth, might have been usefully retained. So, too, might "sanguine," which meant a slightly brownish red, rather than the shade of crimson which we now call "blood-red." "Black and blue" is a good description of the dark varieties of Aquilegia vulgaris, but white and blue columbines may have been meant, for one text gives "blank and blue" (though this is an unusual use of *blank*) and the two words blaec (black) and blac (white) were already confused in Anglo-Saxon, both being probably connected by the idea of lack of colour.

Other colour words used by Bishop Douglas were *granit* and *punic*. Granit or garnet is the colour of the pomegranate seed and usefully expresses the idea of clearness and translucency as well as the shade of red, punic was probably crimson-scarlet, for the French *poinceau*, the field poppy, is derived from the same source.

It might be convenient to have back some of the old colour words, but there is an uncomfortable, Wardour Street feeling about such reintroductions and probably a more extended use of the "repertoire des couleurs" would be a safer and more feasible alternative. F. A. HAMPTON.

Pikis, thorns; *perse*, blue, probably dark purplish blue; *grese*, grey; *sanguane*, brownish red; *fauch-yellow*, fawn-yellow; *battil grass*, lush grass; *catcluke* ("cat's claw"), bird's foot trefoil; *Seyr downis small*, much small down; *Gimp geraflours*, neat carnations; *royne leaves*, (?) pale red leaves; *chype and kythe*, open and show; *lockerend*, curling like locks of hair; *redemite*, crowned.

HYACINTHS IN SPAIN.

I WAS interested in the note and illustration of a prolific hyacinth in your issue of March 29th (page 213).

The heavy rainfall we have had this winter in the south of Spain has evidently suited hyacinths. Two years ago I planted 100 bulbs, fair sized, which were left in the ground during the summer and received no attention beyond a light top-dressing this autumn. This spring these 100 bulbs produced 273 blooms, of which about half were full size. Hyacinths planted last autumn were exceptionally free flowering, and I counted 106 and 103 bells on single stalks of the variety Queen of the Blues: all the bells were perfectly developed, except about a dozen at the top of each spike, which had a slightly green tinge. Hyacinths begin to bloom here about the middle of February and last about five weeks if we have hot dry weather, and seven weeks if cloudy with a moderate amount of rain.—CHRISTOPHER SANDEMAN, *Jerez de la Frontera, Spain.*

PERENNIAL CONVOLVULUS.

I VERY much enjoyed "J's" account (page 233) of his struggle with Convolvulus althæoides, as I have had a fight with it too—in fact one of the reasons I had for wanting to leave a certain garden was because it knocked me out so completely, and had no generosity about its triumph. In case "J." is also feeling humiliated in its presence (in spite of his noble resistance), I beg of him to plant a root—a single thread will do—of Scutellaria baicalensis next door to the convolvulus. He will, of course, have no garden left to put anything else in, but the battle between these two devouring brutes would be of such overpowering interest as to eclipse any disadvantages. The scutellaria is the most innocent looking little thing, about 6ins. high, with blue flowers, but in two years it swallowed about 8ft. by 10ft. of rockery, making a tight, dense mass of hard, wiry, ineradicable roots, and dealing death to everything in or under its way.—M. L. W., *Bath.*

ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Naturalising Anemones (FELSTED).—Anemone apennina (the Blue Appenine Windflower) thrives among deciduous shrubs, and grows as freely naturalised in the wild garden and woodland as does our native A. nemorosa.

THE GREENHOUSE.

Pelargoniums Attacked (C. M. W.).—The foliage sent has been attacked by plant bugs and probably also by aphis, traces of which are still present on the leaves. Fumigation should be resorted to as soon as these pests make their appearance.

TREES AND SHRUBS.

Shrub to Form a Screen (L. H. C.).—The hybrid barberry, Berberis stenophylla would be an ideal plant for such a position. it is evergreen and gives a wealth of rich yellow blossoms in April and May.

FRUIT GARDEN.

Cherry Trees Unsatisfactory (E. F. W.)—The condition of the trees which our correspondent describes, is a very common one; in the case of old specimens growing in an uncongenial rooting medium, such as an irony gravel sub-soil. It would require a very lengthy reply to describe the effect and just how it comes, in detail. But briefly, a swelling is caused in the bark and, when the alburnum is dead, the bark splits, and decays, causing, in appearance, ulcerated canker. In younger trees the washing of the bark with soapsuds will lessen the trouble, coupled with careful treatments at the roots—top-dressing with fibrous loam, but not over feeding. In the case of old specimens it is best to discard them and plant young ones. Tar and clay, mixed, should be pasted on all parts of bark cut away where there is exudation.

Netting Fruit Trees and Planting Iris stylosa (D. W., Surrey).—After the blossom and resultant fruits are duly protected from frosts and birds, the trees should be fully exposed so that the air and birds can have access to them. It is quite wrong so to enclose the trees all the year round. The iris should be transplanted in late spring or early autumn.

VEGETABLES UNDER GLASS.

Tomato Plants Attacked (E. M. N.).—The tomato plants are attacked by the fungus Phytophthora cryptogœa, the spores of which are in the soil. This form of damping off may be kept in check by sterilising the soil and by giving all the light and air possible, at the same time avoiding at all costs having the soil too wet.

MISCELLANEOUS.

Birds Destructive (T. I. W., Eastcote).—There are two ways of preventing the birds pecking out and destroying the moss between the stones where the alpines are growing. Our correspondent should procure some white thread—not black—and, with the aid of tiny pegs fasten down the thread in short lengths close to the moss and rather less than 1in. from strand to strand. The birds will peck at the thread and, if they cannot carry it off they will become scared. If they do take it away it will probably become wrapped around their beaks and this will scare them. Only a few places need be thus treated. The other preventive is to scatter a small quantity of Sanitas powder on the moss. Whether it be wet or dry it will be distasteful to the birds. They are hunting for grubs.

Names of Plants.—W. T.—Saxifraga apiculata.—C. K.—Polygala Chamæbuxus, "Bastard Box."

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Dwarf Beans.—A few lines of these should be sown on a sheltered border, unless some means of protection is at hand whereby the plants can be made secure from frosts. It should be borne in mind that very little protecting material will be required by the time the plants appear, and let us hope it will not be needed, because last year dwarf beans were more or less a failure. A fortnight hence a liberal sowing may be made. The distance between the rows should be about 18ins., and a foot of space allowed in the lines. Canadian Wonder is still a good variety, and if allowed ample room to develop will produce a fine crop.

Perpetual or Spinach Beet.—This is an excellent substitute for ordinary spinach and, moreover, it is usually a success when other sorts are a failure. Sow thinly in rows 1ft. apart and thin out the seedlings to 8ins.

Lettuce.—Seeds that were sown in a cold frame have produced strong, healthy plants, and some of them may be transplanted in the open border. Continue to sow a little seed at fortnightly intervals of both the cabbage and cos varieties.

General Work.—Complete the planting of potatoes, plant out cauliflowers. Sow seed of scorzonera, chicory, cardoon and sorrel, while herbs of all kinds may still be sown. Carrots growing in frames should be slightly thinned, and air admitted freely when the weather is favourable.

THE HARDY FRUIT GARDEN.

Young Trees planted at the base of walls will need close attention and careful disbudding if the foundation for a well formed specimen is to be obtained. Sufficient basal shoots should be retained to prevent bare spaces in the centre of the tree, and growths selected for extension purposes well placed so that there will be no difficulty in tying them to the wires. If one or two shoots in the centre become too vigorous, they should be removed, whereby the energy of the tree will be more equally distributed. Keep a watch for insect pests, especially green and black fly, and directly any are seen spray the trees at once with an approved insecticide at slightly under the strength prescribed by the makers.

FRUITS UNDER GLASS.

Peaches and Nectarines.—The trees will now require constant attention, such work as disbudding, thinning the fruit and tying in the shoots being carried out gradually so as not to upset the flow of sap. In the earlier houses the fruit is near the stoning stage, and here the night temperature should be about 60° with a rise of a few degrees during the day, but if the weather is bright the thermometer may go higher and no harm will accrue. Never allow the roots to become dry, and when it is decided to afford water to the border, give a slight sprinkling of Thomson's Manure or Le Fruitier. For trees producing a good crop a little manure applied often should be the rule. Keep the atmosphere moist by damping the paths occasionally, and early in the afternoon close the ventilators and give the trees a thorough wetting with the syringe or garden engine. This is important in keeping down red spider, because once this pest appears it is most difficult to keep it in check and well-nigh impossible to eradicate it till the end of the season. Whenever the weather is favourable ventilate the house, but always avoid cold currents of air passing over the trees.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Cabbages.—Plants raised from seed sown early in the year and brought on under glass should now be sufficiently advanced and hardened off to be planted out. Lines should be drawn out 18ins. apart with the corner of an ordinary draw hoe—a triangle-shaped hoe is better for the work if such is available. These early plants should be thoroughly watered first, then lifted in such a way that a good ball of soil is obtained with each. The plants should be set 15ins. distant from each other in the lines and planted with a trowel. The object in taking a little extra care with the planting of early vegetables is to give the young plants as slight a check as possible. This rule holds good in the growing of all young vegetable plants in their early stages.

Potatoes.—The season is advancing, and the work of planting should be forwarded without delay. The distances for planting vary somewhat according to the varieties, but oft-times one has to regulate the distance according to the area available. A good average distance between the lines is from 2½ft. to 3ft. and from 8ins. to 12ins. between the sets. Robust growers and those in positions where they are likely to be drawn should be allowed more space.

THE FLOWER GARDEN.

Antirrhinums raised from seed sown in autumn and wintered in boxes under glass or growing in cold frames should be set out now in beds or borders. Plants treated thus bloom in June, and so prolong the display of a very effective and accommodating perennial. It may be interesting to state that antirrhinums when fairly established do not suffer should a dry, hot spell of weather come.

Poppies.—Many spaces may be filled and fine displays obtained on hardy plant borders by the judicious use of hardy annuals. The Giant Double Chamois Rose Poppy is suitable for the middle or back places in large borders. It has massive individual flowers which are finely coloured. Papaver umbrosum and the tulip poppy are two very attractive kinds when seen *en masse*, and somewhat resemble one another in colour and height. The Shirley poppy, too, should certainly be included.

THE HARDY FRUIT GARDEN.

Black Currants.—It is of the utmost importance that everyone should be most assiduous in the eradication of the big bud. If bushes cannot be kept free by hand picking, they should be cut down and every portion of the wood burned. The variety Seabrook's Black is said to be immune from this disease.

Raspberry plantations should be kept clear of weeds by the judicious use of the hoe and rake.

FRUITS UNDER GLASS.

Peaches.—Houses should receive attention by thinning the fruits and shoots in succession, and each individual will require to take into consideration whether his trees have flowered freely and set well, and also whether the growth is vigorous or weak, and thin accordingly. The fruits left after the final thinning should be situated something like 12ins. apart. The trees should be syringed daily, first in the early morning and again in the afternoon to keep the foliage free from insect pests.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Aotus gracilima.—This beautiful Australian shrubby plant is now in flower, and it can be easily propagated at this time by means of small, half-ripened twiggy shoots. These root readily in pots containing sandy soil if stood under bell glasses in a cool greenhouse. This plant is best grown in the form of a small standard, as the long slender drooping shoots are then displayed to the best advantage. The young plants should be pinched once, and two or three of the resulting shoots should be kept tied up to a stake. All lateral shoots should be rubbed out until the plant has attained a height of 2½ft. to 3ft., when the leading shoots should be stopped, and laterals allowed to develop to form the future head of the standard. This plant only requires cool greenhouse treatment during all stages of its cultivation.

Streptocarpuses raised from seed sown early in the New Year, should be kept moving by keeping them pricked off in pans or boxes containing fresh compost, which, in their younger stages, should be of a light character. When large enough they should be transferred singly to small pots and potted on as required. They should, by the end of summer, make nice plants in 48-sized pots, and will prove very useful for the greenhouse at that time. Young plants treated in this manner last year and kept on the dry side during winter are now making fine specimens in 6in. pots and will prove very useful towards the end of May. Seed may still be sown, and if the young plants are grown on steadily they will make good plants for next year. Streptocarpuses in their younger stages should be grown in a temperature of about 60° and as they approach the flowering period should be accustomed to cooler conditions. They are very subject to attacks by mealy bug and begonia mite. The plants are difficult to sponge, so a brush must be used to get rid of mealy bug. Begonia mite can be prevented by the use of the sulphur vaporiser.

Gloxinias raised from seed early in the year should have the same treatment as advised for streptocarpuses. Plants grown from dry corms started early in the year should now be ready for transferring to their flowering pots, which, for well grown examples, should be 6ins. in size. Gloxinias enjoy a rich light compost, to which should be added some old mushroom bed manure, or dry cow manure. As in the case of streptocarpuses, begonia mite should be guarded against.

Tuberous-rooted begonias raised from seed, should be kept moving by frequent shifts into seed boxes. During May they should be ready to plant out on a bed of rich soil in cold frames; from which, later on, a portion of them should be potted up for the conservatory. The plants should flower towards the end of summer when they make a good succession to the plants grown from dry tubers.

Achimenes that were started in boxes and have made several inches of growth should now be placed in their flowering pots or pans. Some of the more slender-growing varieties are excellent for filling hanging baskets. The plants require very careful watering for some time until they have made a quantity of new roots.

Lindenbergia grandiflora is a useful plant for flowering during the autumn and winter. It can be propagated at this time by means of ordinary cuttings or root cuttings. Being nearly hardy it requires perfectly cool treatment during all stages of its cultivation.

J. COUTTS
Royal Botanic Gardens, Kew.

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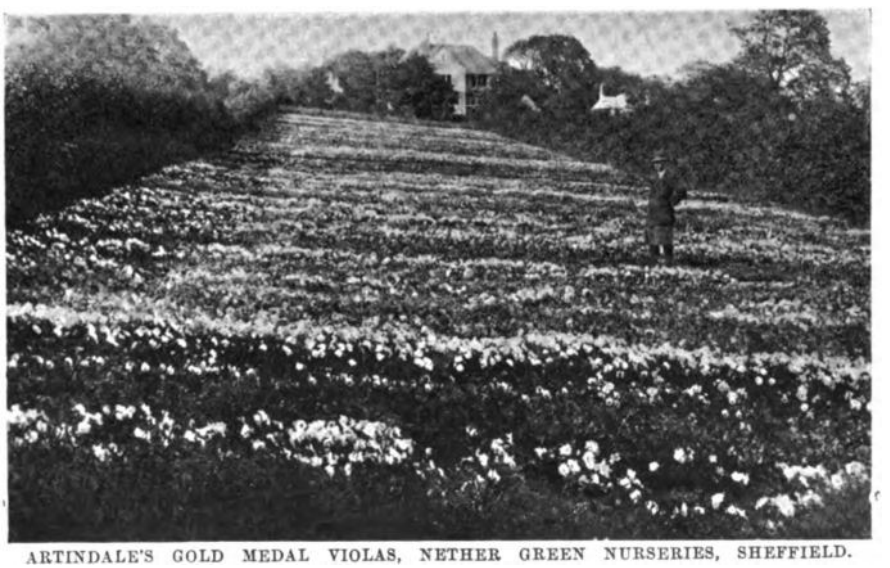

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CATALOGUE ON APPLICATION.

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BOOK REVIEW

MANUAL OF CULTIVATED PLANTS.

STILL another work from the pen of L. H. Bailey has come to hand, to outshine, if possible, his last on "The Cultivated Evergreens." This present volume is a manual of Cultivated Plants (Macmillan Company, 31s. 6d. net), which deals exclusively with the domestic flora of America. He is a most prolific writer, and one wonders how in one short span he is able to collect his data, so accurate in all its details, and to present it in such a condensed form to the horticultural world at large. American botanists, and also those interested in the study and the general practice of horticulture elsewhere, owe much to the skill, knowledge, enterprise and untiring energy of Dr. Bailey, who has probably done more to promote and further the interests of horticulture in America than anyone. The present manual is the result of forty years' collection of data, and the information contained therein is not merely a compilation of material but is the direct outcome of the study and the growing of many actual specimens dealt with. One hundred and seventy natural families, including 1,246 genera and 3,665 species, are treated, embracing the whole vegetable kingdom. The author has followed the usual systematic rules commencing with the Thallophyta of which he only mentions one genus (agaricus) then on through the Bryophyta to the Vascular Cryptogams and the Gymnospermæ, with the Angiospermæ or Flowering Plants following on as a natural sequence, and being divided into the Monocotyledons and Dicotyledons. The Dicotyledonæ are subdivided into the Choripetalæ, including the Polypetalæ and Apetalæ, and the Gamopetalæ (those flowers with fused petals). Everyone will not agree with his system, but on a broad general basis it is an extremely good one, as his treatment and arrangement of the families enables the various points of affinity, resemblance and linkage to be established. One obtains the broader idea of the phyletic relationships which exist between the groups, serving to present in a more natural manner what is, after all, simply a convenient mechanical system of classification. The manual contains a mass of facts which it is not suggested should be a burden on the memory, but which, if treated and used in a proper way, will gradually lead one to form one's own ideas of the many features and characteristics by which the numerous natural families are defined. The more familiar the reader becomes with the flora, the more proficient will he become out in the field in "spotting" his plants. At the commencement of the flora a key is to be found to the innumerable families, along with a few well-chosen words to the student on the use of a key. Once the family is made certain of, it can be turned up in the flora, where a paragraph will be devoted to it, enumerating its distinctive features, such as distribution, habit, fruit and flower structure. A generic key is also provided under each family, and the genus is dealt with in a few words, after the same fashion as the family. Finally, to determine the species, a specific key is to be employed. Such is the usual mode of procedure in any systematic book. Bailey, however, is exceptionally concise and to the point in his remarks, scientific terms being employed throughout, resulting in a thoroughly accurate description of each plant under discussion.

To a botanist, and one trained in systematic descriptive terms, the book will present no difficulties. To the horticulturist, also, the manual should prove worthy of regard, since it can be used with ease and rapidity by him, as a comprehensive list of terms or names with explanatory notes to each is provided in the first few pages. In this way, then, the horticulturist will be assisted in his scientific training, in that he will gradually acquire an accurate method of working which is so useful in discrimination. A useful glossary of authorities for binomials is also provided. A few notes on the making of a herbarium should prove exceedingly helpful to those who wish to pursue the study a little farther than the ordinary person. The hints given are all the result or outcome of personal experience, and as such are to be relied on. The index to be found at the end of the manual is copious, and is, of course, of great assistance.

As Dr. Bailey himself remarks, "The book is somewhat limited in its scope, but blemishes occurring in this edition will probably be corrected in subsequent ones." The manual should open a new vision and field to the botanist, insomuch as the domestic flora of the country is treated, which should prove a fruitful field of biological research. The horticulturist should benefit by acquiring accurate methods and a keen scientific knowledge of the plants which he deals with daily. It is a book which the student would do well to have if his pocket can run to it, as it presents a new branch of the subject. The idea of a domestic flora of cultivated plants is an excellent one and one which should be fostered in all other lands.

A few pages of illustrations in the form of line drawings are well done, depicting various structures and points of interest pertaining to the natural families and genera. The publishers are to be congratulated on the standard of accuracy and excellence of the work.—G. C. T.

The Iris Society—It has been decided to admit to the Society (founded 1922), all who are interested in irises and who wish to join it. Ladies will be eligible and the subscription is 10s. 6d. annually. Particulars may be obtained from the Hon. Secretary, Mr. George N. Bunyard, The Royal Nurseries, Maidstone. The object of the Iris Society is: "To spread more widely the knowledge and love of irises, to make their cultivation easier and more successful and to encourage the introduction of new species and the raising of new and improved varieties." As the Society is still in its infancy, it cannot at first offer the advantages which we hope it will eventually bestow. The Committee expects to issue very shortly the first number of an Iris Journal to which many of the best known iris growers are contributing short papers on "How to Grow Bearded Irises." Such experience should be very valuable to those taking up the cultivation of irises, as the writers live in different parts of the country, so that some of them have had to struggle with indifferent soils and unfriendly climates. The Journal will be issued free of charge to members and to members only.

The Fête des Narcisses.—On the last day of May and the first of June, the beautiful Fête des Narcisses, a Swiss floral festival which has always commanded the interest and admiration of Englishmen, will take place at Montreux. Last year, when the Fête was held a day or two later, a Russian Ballet figured among the attractions, and there were exquisitely decorated cars depicting peacocks, butterflies and the like. Lovers of the artistic and beautiful will, it would seem, be far from disappointed on the coming occasion since prospects generally are more than pleasing. In fact 1924 is almost a parallel to 1922 when Sir Richard Temple, on May 27th, wrote to the Times from his much-loved Montreux on Lac Leman: "And now as I write, though there has been an inclement winter here as elsewhere, I am looking out from my window on to a cloudless sky under which the snows are dazzling white and the sheen on the hills perfect; the lake is glassy still with just a suspicion of cool breeze; every spring flower is in bloom under the trees and in the hillside grass; the narcissus is already carpeting the hills with patches of white and the roses, so varied and profuse here, are waking into blossom literally everywhere. In a week the whole place will be a wonderful blaze of colour ready for the Fête des Narcisses." Thus, while the actual Fête itself is so beautiful as to beggar description, the words of Sir Richard, who talks of Montreux, with its old picturesque architecture, as Switzerland in excelsis, will fire the imagination at the close of a winter similar to that experienced in 1922.

The American Iris Society.—At the meeting of the Directors of The American Iris Society on March 21st, 1924, discussion centred upon the importance of regulating the introduction of novelties and the even greater importance of giving almost immediate official recognition to such varieties as prove worthy. At present a symposium is published five years after the introduction of a variety, but with the registration of almost 200 varieties in 1923, a more immediate report seems most desirable and a committee has been appointed to consult with Prof. A. P. Saunders, Secretary of the American Peony Society concerning a policy which may prove practical to both societies.

Dr. Gleason, of the New York Botanical Garden, reported plans for the rearrangement of the 900 varieties in the present iris test garden that will lead to the development of two plantings, one in alphabetical arrangement for purposes of identification, the other according to color in order to show the value of irises for display. Fertiliser tests have been initiated at Cornell and it is hoped that similar experiments may be carried on at New York and elsewhere.

The publication of four bulletins each year is strongly advocated and Bulletin 10, "Irises for the Beginner," is to be re-issued for general sale.

In 1923, our fourth year as an organisation, there were some seven hundred members in this country and abroad, and our policy of co-operating in many local exhibitions each year and of restricting our expenditure largely to the publication of bulletins, has made for a gradual but steady growth. The dues are $3.00 a year and anyone interested in irises, or even just a garden, is eligible to membership.—R. S. STURTEVANT, *Secretary, Wellesley Farms, Mass.*

Warning Against Spraying Fruit Trees While in Flower.—The Council of the Royal Horticultural Society desires to call the attention of fruit growers to the important part played in the production of our fruit crops by bees and other winged insects which visit the flowers. Experiments have proved conclusively that in most kinds of hardy fruits heavier crops are produced when the pollen of one variety is carried to the flowers of another variety of the same kind. Unless this is done, many varieties will produce no fruit and almost all varieties bear better crops if pollen of some other variety is brought to them. The pollen is carried by the wild and hive bees and by other winged visitors to the flowers, and by these alone. Sprays applied for the destruction of pests of fruit trees at times when these essential insects visit the trees will, naturally, cause the death of friends and foes alike, and the Council feels sure that it is only necessary to draw the attention of owners of fruit trees to the risk of killing these friends to avoid this source of loss. Spraying with various washes with the object of destroying green and black flies, caterpillars and the like can be safely and effectively carried out up to the time the blossoms begin to open, and again after the petals have fallen, without risk of danger to the pollen-carriers, and spraying should, therefore, be restricted to these times. Nothing is to be gained by spraying while the trees are in flower.

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THE GARDEN

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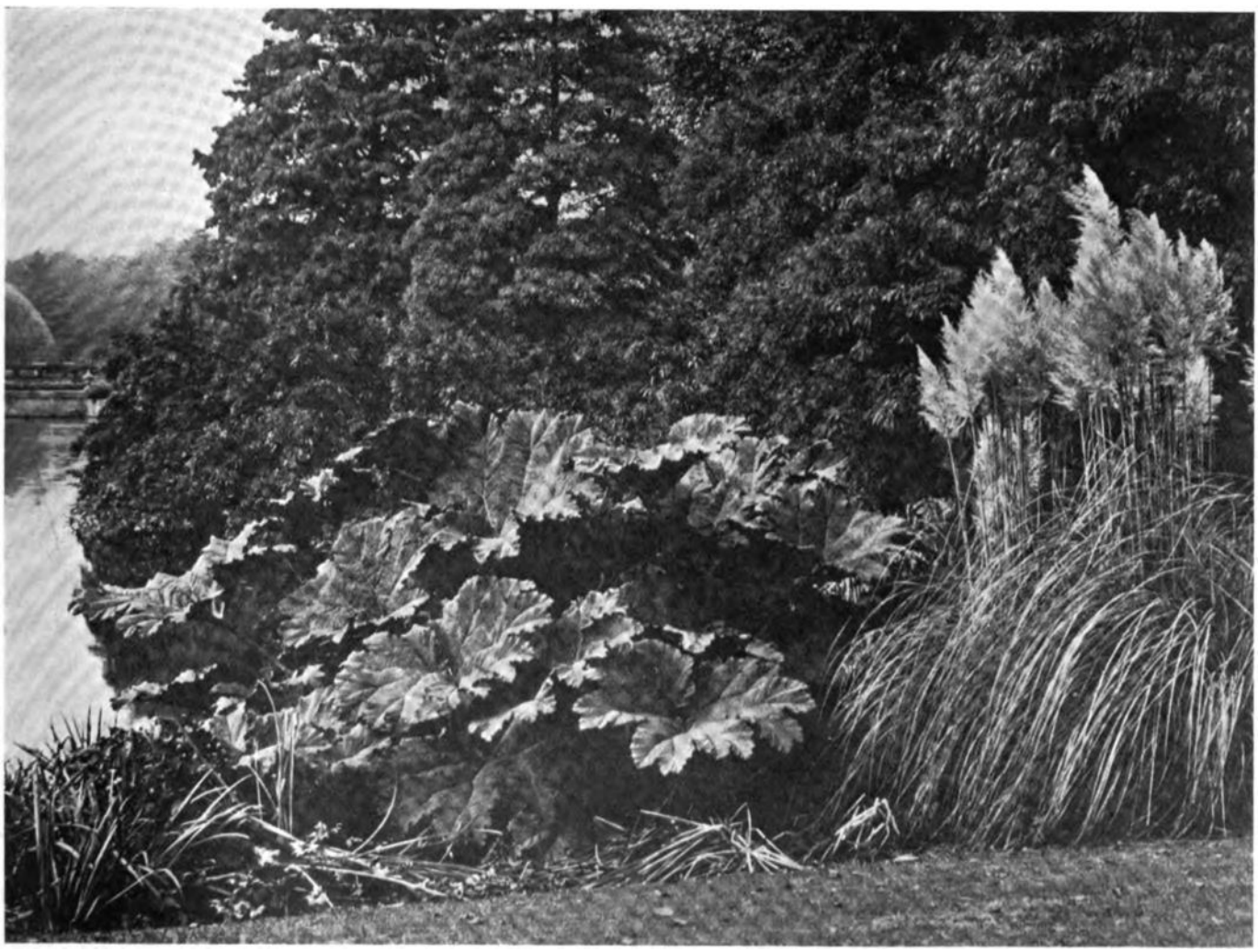

GUNNERA MANICATA IS IDEAL FOR WATERSIDE PLANTING WHERE THE EXPANSE IS LARGE ENOUGH TO SHOW OFF ITS MAGNIFICENT LEAVES. THIS ILLUSTRATION SHOWS HOW IT CAN BE GROWN TO PERFECTION ALONG WITH PAMPAS GRASS.

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THE GARDEN

MAY 3, 1924

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WORK IN THE GARDEN

BY this title is meant manual labour, which I find extremely difficult to theorise about when referring to owners of gardens. If I was asked for statistics, I should say that they were impossible to obtain, and would then immediately hazard a guess that 80 per cent. of garden owners who can afford labour loathe digging, 9.9 per cent. dig when they imagine that their bodies would be the better of the exercise, and .1 per cent. like it; but this one man in a thousand makes up for the other 99 and a bit per cent. in enthusiasm. There must be something in the actual process of digging which is thrilling because the real enthusiast will discuss the subject as other enthusiasts discuss golf or fishing. I frankly confess that I do not like digging for digging's sake. When it has to be done I do it, but then I stop. Not so the keen digger, who is always on the search for fresh ground to operate upon. Perhaps digging is a disease akin to that of chopping down trees. There is little doubt that some people are only happy with an axe in their hands.

I have a friend who is enthusiastic about manual labour in the garden. Naturally, he is a welcome visitor at my garden, and all kinds of difficult jobs are held over until his arrival. But he is not particular as to the kind of labour he undertakes. He is equally handy with a trowel, a spade or an axe, while his wife is the best raker of my acquaintance. My friend has a brother, whom it has not been my good fortune to meet, who appears to be happiest when digging a drain. He disappears after breakfast and pops up several fields away towards dinner-time. I am told that he is a banker, but his talents are obviously wasted in such surroundings, for diggers are born and not made.

It is peculiar how every gardener has some particular operation which he prefers above all others. There are dozens of them: the cult of the waterer, or the nettle cutter; the man who is happiest when cutting ivy off a tree; persons, male or female, who are nimble with their fingers and prefer pricking off seedlings; the weeder—this seems to be particularly popular among women—and, most peculiar of all, the individual who spends many happy hours picking green fly off roses.

I sincerely hope that such devotion is not materialistic, and that it is accomplished with the ultimate hope of seeing the garden in better condition for their labours, but I have serious doubts on the subject, for I believe that the individual would be miserable if there were no green fly to pick off his roses. There is a psychological effect of some actions which have little or nothing to do with the result of such actions.

No garden is so perfect that no labour has to be expended on it, and there is no glut of labour so complete that something does not remain to be done. It may not be digging, which, after all, is only a small but important section of garden labour; there is planting, pruning, sowing, pricking off, watering, sheltering and a thousand other tasks in the garden. Even by spending a few minutes on the least important of these tasks a garden owner comes more into contact with a subject which he may own but can never control, and it is by such actions that a better knowledge of a garden is acquired. Books and papers are excellent in their way, but they are of little use unless backed by a groundwork of experience, and a great deal of experience is to be gained by means of actual tasks in the garden, whether it be digging a drain or removing a greenfly, they all count as experience although varying in the amount of labour attached.

The man who can really judge correctly of the soil in his garden must have worked in it himself, for a fair-weather gardener is of little help to horticulture. Admiration and envy are pleasant in moderation, but true admiration is always backed by experience.

E. H. M. C.

FORTHCOMING EVENTS.

May 3.—Blackburn Horticultural Society's Meeting.
May 6.—Croydon Horticultural Society's Meeting.
Royal Caledonian Horticultural Society's Meeting.
May 9.—North of England Orchid Society's Meeting

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THE WILLOWS

AMONG hardy trees the willows occupy a very distinct and important position in the landscape. For the waterside and planting in damp situations where many trees would be unsatisfactory, the numerous species, varieties and hybrids are most valuable. They vary in height from tiny treasures of the rock garden, represented by the close-tufted growth of Salix serpyllifolia, a native of the Alps of Europe, and the smallest of the British willows, S. herbacea, a creeping shrub for a damp spot, to the tall and wide-spreading timber trees, SS. alba and cœrulea, 60ft. to 80ft. or even more in height.

Of the several valuable characteristics of willows, the most useful for waterside planting are those with pendulous or weeping branches and the bushes with showy catkins in spring. Distinct and pleasing throughout the year, it is, perhaps, in spring when the leaves are unfolding, that we see the willows on the flood tide of their beauty. Looking each day across the lake at Kew, watching the gradual clothing of the graceful branchlets with tender green leaves, provides a picture of beauty unsurpassed at any other season of the year. The best specimens represented are SS. alba, fragilis, cœrulea, viminalis, Salamoni and babylonica.

The best known and most popular of all cultivated willows for ornamental planting is S. babylonica, the Babylonian weeping willow. Growing as a specimen tree, it is wide-spreading up to 40ft. or 50ft. high, with a short trunk, numerous open-headed main branches, and long, slender, pendent branchlets. The Babylonian willow is an ideal waterside tree, with its weeping habit and love of moisture. The name S. babylonica is misleading, for this willow is a native of China, though it has for centuries been cultivated in North Africa, West Asia and Eastern Europe. Additional interest attached to this willow during the first half of the nineteenth century, from the fact that pilgrims to Napoleon's grave on St. Helena brought back twigs of a tree of this species, under which he was buried; hence the name of Napoleon's weeping willow, which is still in use.

THE GOLDEN WEEPING WILLOW BY THE POOL SIDE. THE BREAKING OF THIS TREE IS ONE OF THE FIRST SIGNS OF SPRING.

The white willow, Salix alba, as generally seen, is rather taller and more upstanding in habit, though with pendent twigs. It is the best known of our native willows, and has been freely planted in the Thames Valley and on the banks of its numerous tributaries. There are several forms of S. alba, the best known being S. cœrulea, the cricket-bat or blue willow, S. vitellina and S. regalis, by some authorities given as a variety of the white willow, the name var. argentea being used, which alludes to the silvery hue of the leaves, a particularly attractive feature with the branchlets swaying in a breeze.

S. cœrulea, the cricket-bat willow, is more upright in habit and forms a better trunk than most willows. The vigour of the tree is attributed to a hybrid origin, the reputed parents being S. alba and S. fragilis. S. cœrulea, in addition to the upright growth, is distinguished from the white willow in that the mature leaves are glabrous with a blue sheen beneath. The demand for the wood of this tree and the high prices paid for the best grade with which to make cricket bats has resulted in thousands of "sets" or young trees being planted, largely in the eastern counties, where willows do so well.

S. vitellina rivals S. babylonica in its elegant weeping branchlets for waterside planting, the golden yellow of the slender pendulous twigs being an additional attraction in winter. S. Salamoni is of hybrid origin, the parents being S. alba and S. babylonica. There are two beautiful specimens of this willow by the lakeside at Kew. In habit it is intermediate between the two parents, the main branches upright, the branchlets gracefully pendulous with the very distinct weeping character of S. babylonica.

S. elegantissima is another beautiful tree of hybrid origin, the parents in this case being S. fragilis and S. babylonica. Several species have a distinct value in the pleasure grounds apart from their actual association with water and boggy ground. Given deep, loamy ground with a leaning to the heavy rather than a sandy character, willows are useful either as lawn specimens or in the shrubbery border. S. magnifica was introduced by Mr. Wilson from western China in 1909. He describes it as a straggling bush or shrub up to 20ft. high. At first sight few would suggest that it was a willow bush, for it has large oval or obovate leaves 6ins. to 10ins. long and half as wide. S. gracilistyla is a native of Japan and Manchuria. It forms a bush of spreading habit, distinct in foliage and pleasing when in flower, with a red tint before the pollen ripens. S. incana is a close-growing bush up to 8ft. or 10ft. high and eventually as much in diameter. The narrow linear leaves, dark green above and white beneath, resemble those of the rosemary, hence it is not surprising to find this willow cultivated as S. rosmarinifolia, a name which properly belongs to a hybrid between SS. repens and viminalis.

S. Bockii, introduced from China by Mr. Wilson in 1908–9, is another very distinct plant, quite unlike any other cultivated species. It has small dark green leaves less than 1in. long, borne on low bushy plants 1ft. to 2ft. high. The catkins are very showy (especially those of the male), produced in autumn. It is of particular value for the bog garden.

Willows are so freely increased by leafless cuttings in late autumn and early winter, that any other method is seldom considered. To form a standard or half-standard, the Kilmarnock willow, S. Caprea pendula, is grafted on stems of a tree willow. S. magnifica does not grow freely with us at Kew, for which the light dry soil may be responsible. As an experiment we are trying budding and grafting on one or two of the free-growing kinds. S. Bockii is readily increased by layering. When seeds are collected, sow them without delay under moist conditions, as they soon lose their vitality.

Considering how readily they root from cuttings, it seems somewhat strange to find how necessary it is to give special attention to transplanting. Whenever possible, plant one or

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two year old trees. As an alternative, insert the cuttings in the permanent positions. This saves any risk of transplanting, and under moist conditions practically every cutting will root. Cuttings several feet in length and made of wood three or four years old are frequently used to obtain quick results. These "sets," as they are termed, should be placed in their permanent positions. I have in mind a piece of swampy ground planted with sets of the cricket-bat willow 10ft. long, which two years after planting looked as if they had stood for at least five years.

Of the several families of catkin-bearing trees and shrubs, the alders, the birches, the poplars, the hazel nuts and the willows, none surpasses the last-named. In point of variety and numbers they are unequalled. We are all familiar with the showy male catkins of the "palm" or goat willow, Salix Caprea. Though a common occupant of many hedgerows, this species is deserving of much more attention from planters.

In most species of salix the male and female catkins are borne on separate trees. While both are attractive in flower, the male is the more ornamental because of its golden-tipped anthers. There is, however, much to admire and interest the lover of nature in a bush or tree freely clothed with the silvery hue of the female catkins.

Looking into the life history of willows, when we consider that the male and female organs are generally produced on different plants, is it surprising that hybrids rival the species in numbers? They are generally wind-pollinated. During the glorious Easter weather, walking through the Kew collection several times I was surprised to see how busy the humble and hive bees were on the catkins. The amount of cross-pollination that was taking place can very well be imagined. Perhaps it is fortunate that frosts injure so many of the catkins, as, in view of the large number of female catkins, few mature good seeds.

The collection of salix at Kew contains something like two hundred species, varieties and hybrids. From such a wealth of material it is not easy to recommend a limited selection for planting. While admitting that many are of no particular merit outside botanic gardens and arboretum collections, it would be quite easy to name fifty of outstanding merit and of value to planters.

Ten willows to plant as specimen trees by the waterside and in damp positions are: SS. alba, babylonica, cœrulea, daphnoides, pendulina (elegantissima), fragilis and var. Basfordiana, Salamoni, viridis and vitellina.

A BEAUTIFUL WEEPING WILLOW OVERHANGING A LILY POOL.

Selection of willows with attractive catkins: SS. aurita × phylicifolia, Bockii, Caprea, Caprea × lanata, cinerea, cinerea var. tricolor, daphnoides var. acutifolia, gracilistyla, cordata var. glaucophylla (female), livida × repens, Medemii, Nicholsonii var. purpurea (female), Smithiana and virgata.

In wet places and by the waterside several willows are extensively planted for the winter effect of the coloured bark. The best are the golden-barked willow, S. vitellina, the cardinal willow, var. britzensis (red) and daphnoides, the violet willow.

A number of dwarf willows are useful and interesting plants for the edges of rock pools and damp spots in the rock garden. When planting on slopes it is an advantage to use stones freely, for, in addition to holding the soil, the roots revel in the moisture conserved by the rock stones. Of the dwarf species those usually favoured for the alpine or rock garden include S. Arbuscula, a shrub of spreading habit, useful to trail over boulders and ledges, a native of Europe and Siberia; S. herbacea, a British species, an interesting little shrub of tufted habit 2ins. or 3ins. high, catkins up to ½in. long; S. Lapponum, the Lapland willow, of spreading habit, under cultivation sometimes up to 3ft. or more in height, but can be readily kept within limits by annual pruning. When space permits in large rock gardens it is worth while placing a few large stones on the spreading branches. S. Myrsinites is one of the prettiest alpine willows in flower.

Apart from Public Gardens, there are picturesque willows to be seen in the gardens at Aldenham and Gravetye.

A. OSBORN.

A PICTURESQUE WILLOW BY THE LAKESIDE. TORCH LILIES IN THE FOREGROUND.

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EARLY-FLOWERING CHRYSANTHEMUMS

ONE of the chief reasons why many amateurs do not obtain the best results from these easily grown flowers is inadequate soil preparation. The very fact that the early-flowering chrysanthemum is an easy plant to deal with leads many to believe that a good crop of bloom can be expected with little or no special culture. The folly of this assumption can easily be proved by watching the progress of plants put out in soil that rapidly loses its moisture during the summer season and those planted on a well prepared site. During the drought the latter suffer no check.

The ground should be dug to a depth of about 2ft. and a liberal supply of well rotted animal manure forked into the lower spit to provide the necessary humus and a cool root run. If the soil is of a light nature, use cow manure, if obtainable; but where this is scarce Wakeley's hop manure is an effective substitute. On heavy land strawy manure, wood ashes or leaf-mould will be found beneficial.

As soon as the risk of frosts is over—usually in May—planting out may be commenced. The chrysanthemum needs a long season of growth, so that if planting is delayed until June the plants have not a fair chance to mature. If cuttings have already been struck from stock in hand, see that these are well hardened off before planting out. Frame lights may be left off during the day at first, afterwards being dispensed with altogether as the nights become warmer. Usually, plants that are purchased from a reliable firm are properly hardened off when received; but if they are to be planted in a bleak situation it is a good plan to pot them up for a short time till the weather becomes favourable, or, if this is not possible, at least protect them from the cold winds by twiggy growths.

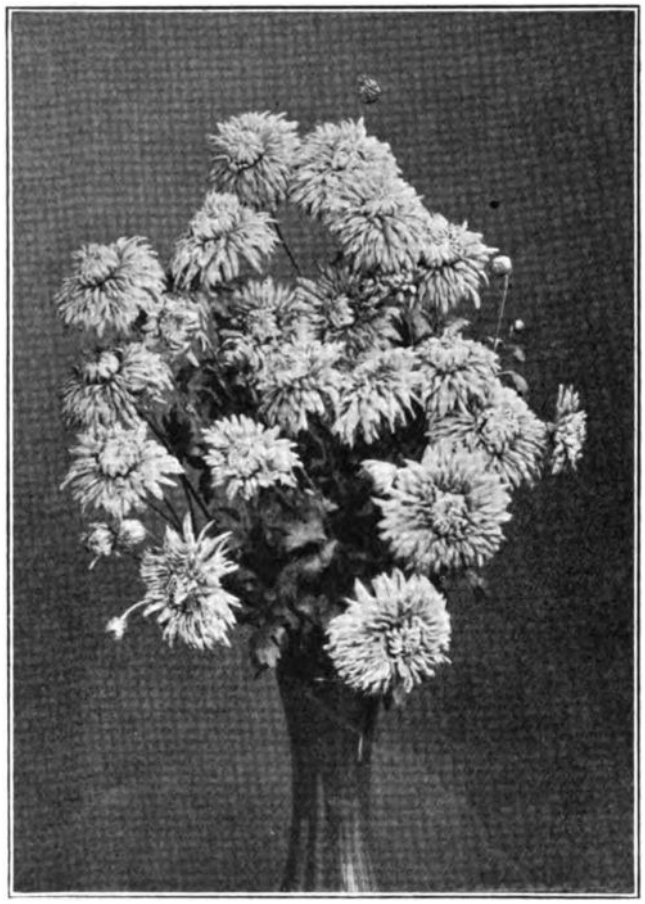
When planting, tread them in firmly so that the roots have a good grip of the soil, when new root action is promoted. A stake should be placed against each, and one or two initial ties made so that the young plant has no chance of being damaged by wind. Allow from 2½ft. to 3ft. between each plant. Some of the free-flowering varieties have a bushy habit, and overcrowding spoils their effectiveness and hinders development.

The hot, dry period of June and July is the most critical time. Water should be given when necessary, and a good soaking once a week in the evening is better than light sprinklings that only tend to make the surface soil become "baked" and never reach the roots. If growth is retarded, a quick-acting fertiliser scattered around the plants in showery weather or watered in will provide a stimulus; but care should be taken not to give an over-dose, or the growth will become coarse and leaf production will take place at the expense of flowers. In a continued spell of drought a surface mulch is beneficial in conserving moisture. Short animal manure can be buried just beneath the surface soil around the plants, or lawn clippings can be substituted for this purpose, if desired.

The leaf-mining maggot may make its appearance about this time. A good remedy is to water the foliage with soot water, which makes it bitter, while the plant at the same time receives extra nutriment.

Earwigs and aphis are often very prevalent during July. The former can be picked off and destroyed, or they may be easily caught by suspending a half-open match-box filled with tissue paper among the foliage. This provides a retreat for the pests. The match-boxes should be examined at regular intervals, and if this is done systematically the pests can be kept in check.

Aphis is more readily destroyed. A few regular applications of an insecticide, or a mixture of soft soap and quassia such as is used for spraying roses, will be found effective. The persistent use of the insecticide, say for four or five successive days, is the chief point to remember when destroying aphis on any outdoor plant. If intermittent applications are given the pest is never properly kept in check.



A NEW EARLY-FLOWERING VARIETY, ALEX. A. McALPINE.
The colour is rich golden orange, shaded pale bronze.

Besides the all-important decision regarding the choice of pleasing colours, the type of flower should be taken into consideration. There are very early types that open in August, late August and early September varieties, and those that do not bloom until late in the season and sometimes require protection from the mists and frosts of autumn. Many of the latter kind are admirable for lifting if a greenhouse is available. By this means the trouble of growing them in pots during the summer, when much attention is required in watering, can be avoided. The blooms which open from lifted plants are usually of better quality and more refined in colouring than the earlier sorts.

Single varieties are now very popular, and these are useful and pretty for decoration when grown in sprays.

Although many of the newer varieties have proved that much progress has been made by the hybridist during recent years, there is still a large number of the older kinds that are indispensable. Most of the old favourites are very free-flowering, commencing in late August and continuing throughout September and October if the weather is favourable, and a large proportion of them will survive the winter in almost any locality. In the spring they may be either undisturbed for the second season, or the plants may be divided.

I will deal with some well known groups of the earliest-flowering kinds. All these can be relied upon to bloom before the first frosts appear, so that they may be termed true border varieties.

The "Polly" type includes the original parent of that name, which gives deep orange flowers with amber shadings,

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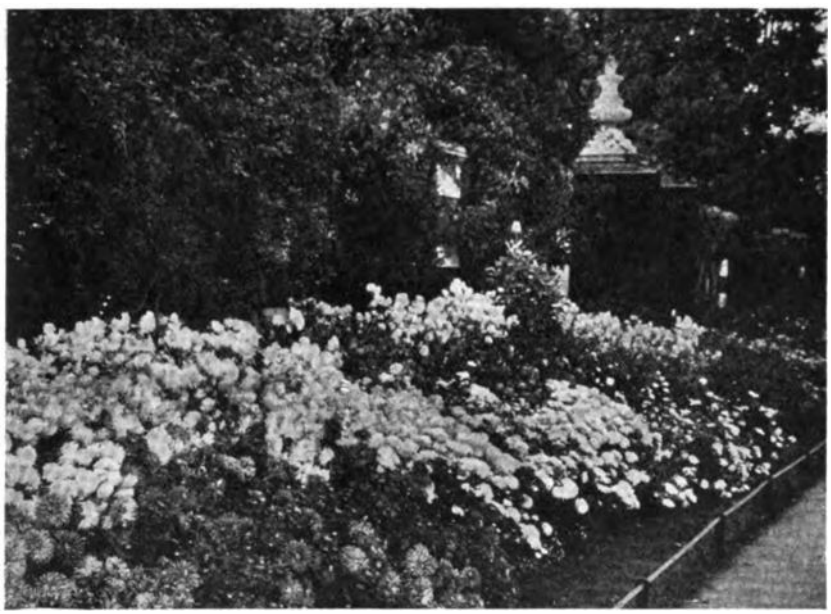
and its sports, Abercorn Beauty, Crimson Polly, Golden Polly and Florrie Wilkinson. Abercorn Beauty is a rich bronze with reflexing florets, and Florrie Wilkinson is a golden yellow. All these commence flowering very early, so that they should be planted as soon as possible to enable them to get a good start and they require liberal treatment and, if possible, frequent mulchings during the hot weather.

The " Masse " family is probably the most widely grown type, and its ubiquity is explained by the fact that it will thrive in any district and in any kind of soil. The chief characteristic of this type is the enormous quantity of bloom produced. When compared individually with the later-flowering " earlies," the flowers are somewhat *négligé*, and some of the colours are not so pleasing; but to the town gardener, who often finds the better class varieties difficult to grow, the " Masse " family are a great boon, and it is small wonder that almost every front garden or allotment is bright with them in early autumn. Improved M. Masse is a large rosy lilac; Horace Martin and Elstob Yellow are two good deep yellows, especially the latter; George Bowness is crushed strawberry; Mrs. J. Mason, deep salmon rose with a buff reverse; Robbie Burns, cerise; and White Masse is a creamy white. John McAlpine is a newer



BORDER CHRYSANTHEMUMS AT HAMPTON COURT.

variety of merit that seems to be related to the " Masse " family. It gives blooms of better quality than the older sorts, and the colour is a pleasing blend of rose pink and apricot. I find that this variety winters quite as well as the other kinds mentioned, and it provides a large number of cuttings.

The " Perrier " group is another floriferous type. It is also very easy to grow. Mme. Casimer Perrier, cream and pink; Cream Perrier; and Mrs. A. Willis, yellow shaded red, are three varieties that will appeal to town and suburban gardeners.

Goacher's Crimson and its " sports " provide another small class that is noted for a better built bloom and broader petal than we find in the " Masse " family. The rich colouring of Goacher's Crimson gives a kind of autumn touch to a room. Bronze Goacher's is a reddish bronze, and Golden Goacher's is aptly described in the name. Mrs. J. Fielding also belongs to this group, and its colours, chestnut red and gold, are very pleasing.

Among white varieties, Roi des Blancs and its companion, Reine des Blancs, are two good early sorts that attain a moderate height and which are useful for cutting in sprays. Pluie d'Argent is a good dwarf variety that is always a mass of bloom.

I have found nothing better for decorative work than September White, which I have grown since its introduction a few years ago. In an early season with fine weather in September it can be cut quite clean out of doors even in the North, but last year it had to be lifted. It is an early " sport " from the old variety, M. Julian Valat, and the blooms have broad incurving petals of fine substance.

Framfield White is a different type. It has rather a stiff habit and if grown naturally the crown bud develops a large bloom which opens earlier than the others, which are produced on short sprays up the main stem. This variety is largely used for wreath work, where length of stem is not an important factor. If grown for decorative work it should be disbudded.

Sanctity has some admirers, but I do not think it is as fine as September White. Lichfield Early White is a promising new variety, the flowers of which are carried on long wiry stems. It will bloom in September in a favourable season, and the plant grows about 3ft. high.

Among favourite standard varieties, Carrie is a good canary yellow of very bushy habit, and Leslie is a well known and popular buttercup yellow that is very free flowering. Nina Blick is a reddish bronze that still remains a great favourite in spite of the fact that it is an old variety. Dick Barnes is newer and is a deep, rich Burgundy crimson. I find that this variety resists the damp and dews better than the looser-built flowers. It is a vigorous grower and very free. Normandie is a pretty flesh pink that gives lovely sprays; and Silver Lining, a white frosted pink from the well known variety, Miss G. K. Thorpe, is very delicate in its dainty colouring. Lichfield Purple and Lichfield Pink are two reliable varieties in their respective colours. Those who like mauve pink cannot find a better early than Hector. Harry Thorpe is a flower of similar type, but the habit is better. Its colour is deep yellow with a suffusion of fawn. Ena Thorpe has flesh-pink blooms of incurving form and waxy petals with a silvery reverse. Nellie Thorpe is a beautiful shade of salmon with peach suffusion on a yellow ground. It recently gave a red sport that is known as Crimson Nellie Thorpe. Mrs. A. W. Thorpe is a September variety of a pretty coral shade with salmon suffusion. All these are high-class varieties.

This season sees the advent of many fine new introductions, of which Alex. A. McAlpine, Charlotte Harley, Jessie McAlpine, Innocence, Jessie T. Yuill, Cranfordia Supreme, Australian Gold, Fireflare, Purple Flag, Royal Salute, Saracen, Shirley Blush, Shirley Rose, Shirley Sunset, Robert Garrett and Salmon Profusion are among the choicest.

Alex. A. McAlpine is a seedling from Goldfinch and White Masse. The colour is a rich golden orange shaded with pale bronze. It has a stiffer stem than the Masse family and is not so straggly as Goldfinch. It is a very prolific bloomer and the flowers do not give the bad centre of the parent.

Charlotte Harley is a brilliant scarlet-crimson with gold reverse, probably the brightest coloured of all early varieties. It has long reflexing petals which build up massive flowers when disbudded, while it is also good in sprays.

Jessie McAlpine will, perhaps, prove to be the best of this trio from Tollcross. Outdoors it is a refined shade of pale shell pink, under glass pure white. It gives a very large bloom even if not disbudded, and the stems are usually

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2ft. long. It is a flower of the same type as Hector, but with the strong growth of Countess.

Royal Salute is a bright terra-cotta with scarlet suffusion. The blooms are carried on strong stems and in fine sprays, making it a desirable decorative variety. Shirley Sunset combines many of the sunset hues in its almost indescribable colourings. This is also a fine decorative variety and blooms early in the season.

NORMAN LAMBERT.

SMALL GARDENS IN LONDON

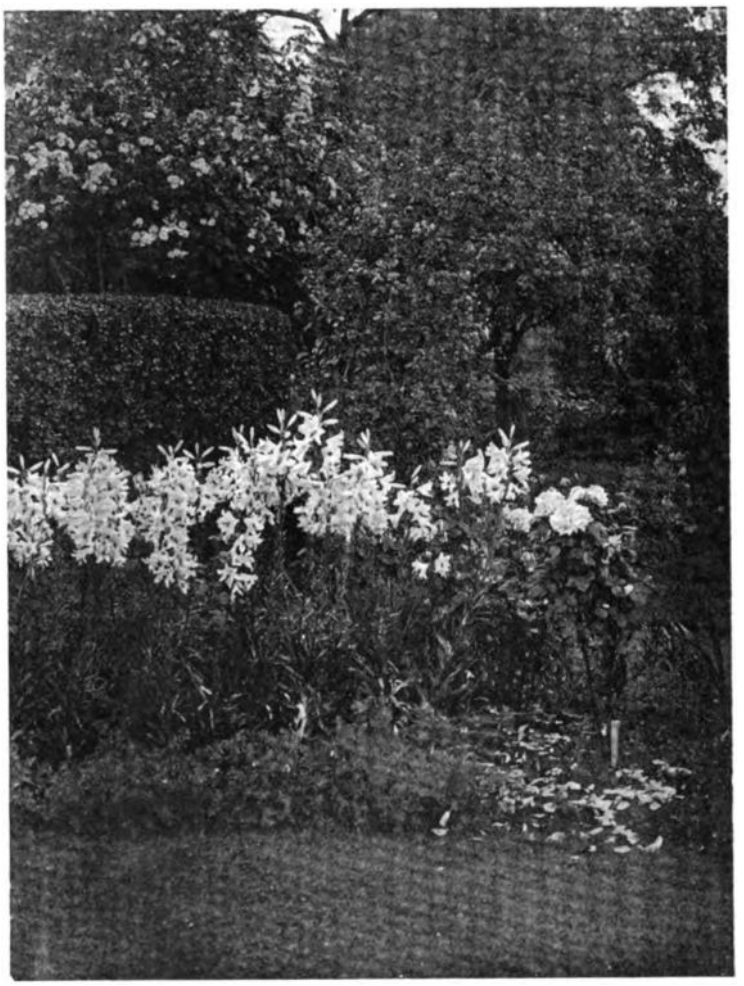
BY MELESINA SETON CHRISTOPHER.

IT is only of late years that town-dwellers apparently have awakened to the fact that, given a very limited amount of Mother Earth, miracles may yet ensue. The small spaces at the back of many London houses are now being turned to good account, and it is becoming more and more usual to find, not merely formal beds of geraniums and marguerites, and other productions of the florist, but little borders of herbaceous plants and flowering shrubs, and walls clothed with clematis, jasmine and vine. Altogether pleasant little oases among the surrounding bricks and mortar.

On becoming possessed of a small garden, should it have been neglected, it is well to call in an experienced gardener and to provide good soil wherever flowers are desired. Probably it will be necessary to dig to a depth of 2ft., or possibly to trench the whole of the ground where planting is to be done. This may seem laborious, but results repay the work. What is added to the soil depends on its condition. Slaked lime at the rate of 2 oz. to a square yard is wholesome where the soil has become vitiated, and it acts as a liberator to the good things that it is prudent to add before beginning the more ornamental part of the garden.

Grass is somewhat hopeless to grow in confined spaces in London, and either flat paving stones or gravel are to be preferred. The former can be made most attractive with small flowers planted in between the flags, while gravel adds a warm tone. If a rock garden is contemplated, it should be built with care, not in the shade nor under trees, but given a sunny spot. Some of the stones should be placed horizontally to prevent too rapid drainage, and others perpendicularly, allowing for pockets of good soil between. Many little plants, such as alyssum and aubrietia, thrift, dwarf veronica, stonecrop and Saxifraga umbrosa, together with creeping Jenny and small campanulas, will be happy there. In the spring, crocuses, snowdrops and primroses will all help to keep the rockery bright.

Autumn is the best time for planting flowering shrubs and creepers to cover walls, and spring will bring into blossom the starry yellow forsythia and the pink almond blossom; later on ribes will do well. Weigelas make sturdy growth in London, and their rosy flowers are more interesting than the greens of privet and laurel, which are rather ground devourers. In the summer, clematis (Jackmanni and montana) generally do well, and polygonum can be trusted to cover an ugly wall quickly. Then there are, of course, the larger creepers, Ampelopsis Veitchii and Virginian, which practically never fail. Jasmines, lilacs, rhododendrons and laburnums are all worth trying, though there will always be great competition for the sunniest spot in the back garden, for few things enjoy the shade that falls all too early on most built-in spaces. For this reason it is sometimes advisable to raise the flower-beds, edging them with a little wall of stone tiles, as they then make more show and can by this means detain the great life-giver, the sun, a little longer. Even lilies of the valley, which will thrive in London, like as much sunshine there as can be given them.



THE FRAGRANT MADONNA LILIES SHOULD BE GROWN IN EVERY GARDEN.

All bulbs planted out of doors in September and October will, as a rule, give good value, and they can be put freely even under trees, as the blooming time will be over before the leaves come to overshadow them. Madonna lilies can easily be a great success, and are one of the few flowers capable of filling even a London garden with delicious scent. They are best planted in August in groups of three or four, 1ft. apart and about 4ins. deep. Orange lilies (Lilium croceum) are also effective and easily cultivated. From the early gold and purple of the crocus to the gorgeous late-flowering tulips no town garden need lack colour from March onwards, and even the hyacinths and tulips grown in the house can be replanted out of doors, and will give good account of themselves the next spring.

For permanent plants, irises of all sorts, Japanese anemones and Michaelmas daisies are all good stayers, and carnations make no objection to London, the little Allwoodii being especially well disposed. Seeds, with the exception of Virginian stock (which can be obtained in several shades) seem to come to an untimely end in most town gardens, neither do small plants, such as wallflowers, survive happily through the winter. It is, therefore, best in early spring to buy little sturdy plants of wallflower and later on verbena, ageratum, delphiniums, sweet williams and antirrhinums when all the perils of infancy are over. Fuchsias and pelargoniums also do well, while geraniums and marguerites are not altogether to be despised. The tobacco plant, both crimson and white, can often be relied on to grow and flower, even in shady places, but nasturtiums and sweet peas are rather fickle and uncertain in the confines of a back garden.

Cats, sparrows and slugs are among some of the worst enemies of London gardens. The inroads of adjacent cats

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can, however, be circumvented by protecting the places of ingress with fisherman's netting. It is more efficacious than wire barriers, as the cats are afraid to put the weight of their bodies on it and also of entangling their feet.

Sparrows are always with us, but their misdeeds may be minimised if a deep saucer of fresh water is provided for them. They often attack the young buds of trees and crocus flower blossoms, for the succulent moisture they find there, and water satisfies in part this need, as well as keeping them occupied bathing. Slugs are the meanest of foes, for they do their work stealthily after dark. Luckily, they do not usually appear until late in the season. They can generally only be dealt with by taking a lantern in the evening and hand-picking them off the leaves. If later in the year they are allowed to do their evil work of stripping the plants, they can be finally destroyed *en masse* by a liberal liming of the garden in the autumn.

Plants do not as a rule spread much in town gardens, so they can be put fairly close together and extra sustenance be given them by means of one of the many patent fertilisers. These should, however, be dealt out sparingly with an old teaspoon in the dry form and watered into the roots, but only when the flower-buds are showing, as otherwise the treatment tends to make leaf. It is fatal to hope to revive a sickly plant by means of artificial stimulants.

Gardening in towns may have many drawbacks and disappointments, but its triumphs are all the greater in proportion. In a large or small space plants are like children and need constant loving care and attention, but this is one of their charms. One day it may be a good douse of water at the roots and another a small support against a high wind. Then there is the perpetual demand that their leaves and stems should be kept as free as possible from dust and dirt. They are even grateful for the application occasionally of a nailbrush and a little soft soap and warm water. Most important of all is that the ground at their feet be constantly and carefully forked, and opened to such light and air as is available.

In return for all this attention even the efforts put forth by London plants and flowers will bring joy and satisfaction at what can, by co-operation with Nature, be brought out in beauty and blossom from the brown earth.

PROTECTING FRUIT BLOSSOM AGAINST FROST AND BIRDS

THE weather conditions this year, so far, are not quite normal. Frosts have been severe and frequent; a few days are mild and the weather, generally, promising, then frost comes again suddenly, and this condition obtains about one month later than is usual. With regard to fruit buds their development is also three weeks or a month later, but the milder intervals have the effect of causing the buds to soften and swell and in this state they are very tempting to the birds.

The cultivator should be quite clear as to which of the two evils he is preparing to protect his buds and blossom against—frosts or birds, chiefly. If against the former a partial covering of the branches will be sufficient as frosts strike downwards and, therefore, the screen against them should be above the trees and deeper on the north to south-east sides, more open on the north-west and south-west.

If against birds, then the whole of the branches should be enclosed, but with a sufficiently open screen to admit bees to the blossom while excluding the birds.

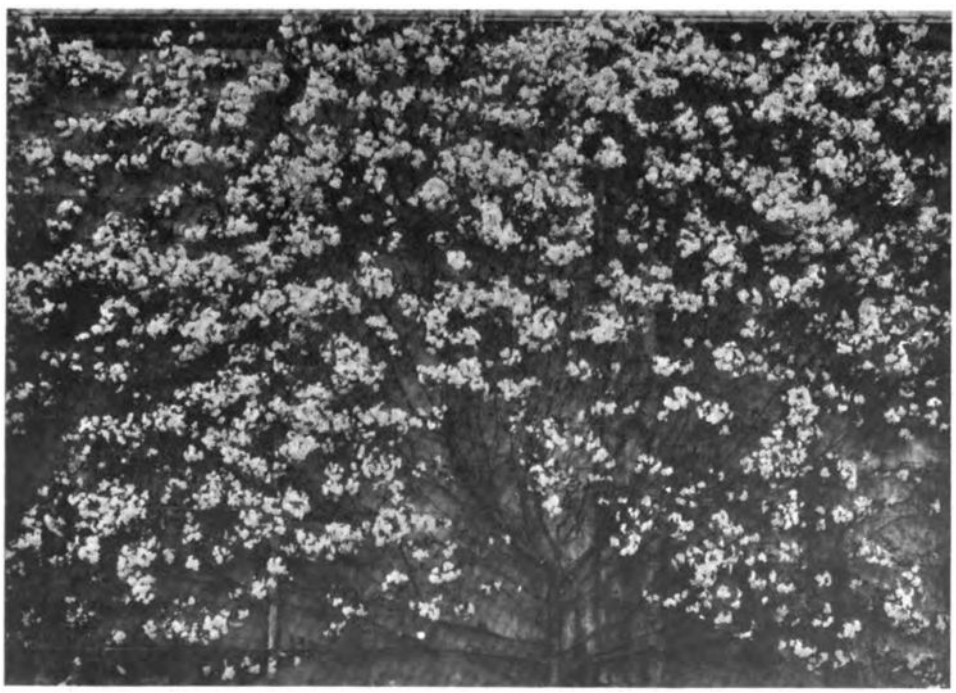
Moisture renders a plant or a mass of flowers susceptible to cold and the damper the surface is, the more severely will the frosts affect them. Although a branch may be cold, if it is dry, the damage from frost will not be as severe.

Not only should the flowers be kept dry, but the protecting material also. Where there is air movement there is less frost; where the air is confined and moist there is more frost.

Standard, half-standard, bush and pyramidal trees in the open quarters are not liable to be frozen to the same extent as espalier-trained trees with their branches fastened rigidly to wires or stakes.

MATERIALS TO USE.—There are certain forms of trees that require special protecting material, so, whether they are trained on walls or fences or growing in the open quarters, the most suitable material should be provided. Scrim is excellent for the purpose, herring nets can be used where scrim or tiffany cannot; fir branches, obtainable in some districts, are very effectual; 9in. boards are useful where there are low walls; mats are, too; and even black thread can be used with good results against birds.

HOW TO FIX THE FROST SCREENS.—I will presume that the cultivator has a wall of trees—peaches, pears, plums or cherries—or even a single specimen on a wall to guard against frosts. The tiffany or herring net is the best to use in such case. Walls with wide copings, the edges protecting on both sides several inches, are the best to which a length of scrim can be fixed, as the latter can be rolled up and kept dry under the edge of the coping stones or tiles. The readiest way is firmly to fasten a strong galvanised wire to staples in the wall about 4ins. below the coping. The width of scrim for a wall 10ft. high should be half its height. On one side, at intervals of 2ft., strong twine should be tied, with two loose ends left 6ins. long, by this means the scrim can be made secure to the wire under the coping. For a wall 6ft. high, scrim 2ft. 6ins. wide will do nicely. In the case of a high wall strong pegs, about 18ins. long should be driven, in a slanting position, with points to the wall, into the ground 4ft. distant from the wall and 6ft. apart. In the case of lower walls the pegs should be driven into the ground 3ft. distant from the foot of the wall. Strong wire should be fastened to the



MORELLO CHERRIES ON A WALL SHOULD BE PROTECTED BY HERRING NETS OR TIFFANY.

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wire under the coping stones and also to the pegs in the ground. The angle of these wires will be very sharp, but just suitable for bearing the scrim when the latter is unrolled and let down. On the lower side of the length of scrim, and just opposite to each ground peg, strong twine should be fastened and made secure to each peg, respectively. Herring nets, single, doubled or trebled, may be fixed over wall trees in a similar way. One should remember that it is necessary to make all such coverings quite secure against strong winds so that there will not be any danger of loose parts being blown against the blossom and doing it a lot of harm.

FIR BRANCHES.—These form a very simple but effective screen against frost and, to a certain extent, against birds, as where buds are not directly visible to their eyes birds will not seek for them. The same principle applies in the case of fir branches as with scrim, but the manner of fixing is different. Fan-shaped branches should be selected, one measuring 3ft. by 2ft., or 2ft. 6ins. would be sufficient to protect 9 sq. ft. of wall space. The stem end of the fir branch is nailed, or otherwise made fast, to the wall near the top, the stem being uppermost the fan spreads downwards and should be kept out from the wall and the blossom by means of forked sticks cut to the right length. Strands of wire or string passed over the branches, the ends made fast to the wall, will keep the branches in position. No branches need be fastened to the wall lower than 4ft. from the ground.

In the case of cordon fruit trees in the open border, espaliers or other specimens, fir branches may be nailed on the top of the supporting stakes or to special stakes driven into the ground at convenient intervals. I have tied fir branches to the stems of branches of bush fruit trees in different positions with very good effect. Of course, the fir branches are fixtures for the time being and they should not be used to form a too dense screen.

ESPALIER-TRAINED PEAR TREES MAY EASILY BE PROTECTED AGAINST BIRDS AND FROST.

SMALL PLANTATIONS OF FRUIT TREES.—To protect a small, or medium-sized bush fruit tree from damage by frosts and birds, the best way is to fix stakes into the ground, with two top cross laths fastened to the upright stakes. Several strands of string or twine or wire passed round and tied to the sides of the stakes will form a suitable framework, effective and cheap, to bear the herring nets thrown over and tied to the stakes near the ground. This principle applies in the case of plantations of small specimens of fruit trees. It is not wise to use tiffany or any similar close-woven material entirely to cover fruit trees in the open quarters. It may be fixed as a top covering, temporarily, with nets round the sides in the case of single specimens of fruit trees, but for plantations the most economical plan is to place the upright stakes conveniently and high enough to bear cross wires over the trees so that the nets, placed on these cross wires, will not sag down on to the branches of the trees. Fine-meshed wire netting should be placed at the base all round the enclosure and against the outside rows of upright stakes. The herring nets, single or doubled, should be fastened to the wire netting and not brought into contact with the soil; then they will not rot readily and will be available for use for several years.

BLACK THREAD, judiciously applied in the case of small bush fruits and where there are espalier trees, is a wonderfully effective protection against birds. I have fixed the strands of thread, carefully passing them along the branches and zig-zagging them over bunches of buds, making the thread fast to the most prominent or projecting parts and found that all trees and bushes so treated were left severely alone by the birds.

GEORGE GARNER.

EAST LOTHIAN STOCKS

THE border, where these are planted, is rich with promise, and spikes of bud are plentiful. But while we are congratulating ourselves upon these, do not let us overlook the preparations that must be made now to ensure a repetition of the fragrant show next year. Before last season's plants have expanded their first buds, our young plants ought to be through the soil and that means that sowing must be done now. A long period of slow, steady growth is the real secret of success and when one remembers that this means a display of the huge spikes all through June, July and August, it must be admitted that it is certainly a thing to strive for.

A partially shaded corner is the best place in which to sow the seeds. Sow thinly and, at the earliest possible moment the plants can be handled thin out so that they stand a couple of inches apart. Care should be taken all through the summer to see that they never suffer from lack of water and, as soon as strong enough, it pays to transfer each plant to a single pot. Use a light, moderately rich soil for this and take care to make it thoroughly firm, so that the growth will be of the short and stocky order rather than long jointed and sappy. otherwise they will not pass through the winter well.

Potting completed, the best place for the plants is an open, sunny position outdoors, where they can be sunk to the rims in an ash bed. Here they will demand but little attention, save an occasional watering in dry spells, until November, but then the protection of a cold frame should be given. Stand the plants close together and water sparingly, so that, when frosts occur, they will be dry at night. Under prolonged spells of severe frost an extra mat covering should be placed on the frame, although one should be careful never to coddle the plants. Undue covering up or lack of air merely encourages undesirable growth that is useless for flowering; and, for long periods in any ordinary winter, it should be possible to leave the frames open several notches both day and night, although care should be taken that these are not propped so that rain can drive in and soak the pots near the edge.

Early in the following April the plants should be placed in their permanent quarters and, for these, a sunny sheltered bed or border should be chosen, of which the soil has been well enriched with rotted manure. Well water the pots the day before planting and press each plant into the earth rather firmly and see that, from this date onwards, the soil is always kept thoroughly moist; drought is fatal to a fine display of flower. Where used to fill a bed in a prominent position, a few plants should be kept in reserve and grown on in larger pots in the open air. These come in very useful for filling in, where singles appear among the flower beds.

H. W. CANNING-WRIGHT.

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A PLANT-HUNTING HOLIDAY AT MURREN

AT the risk of lacking originality in writing these notes, I venture to place before readers a short account of the alpine plants to be found around Mürren in the Oberland.

I read with great pleasure the excellent account given by Mr. Lofthouse, in THE GARDEN of December 1923, (pages 641, 648, and 661) of a similar holiday made in the Pass of Mont Cenis, and the enthusiastic reception this received has led me to describe a similar holiday, which was, however, taken in a district which can be reached much more easily and comfortably by anybody who does not care to make long, arduous walks, and in a district, also, which is inclined to be avoided by plant-hunters, from the fact that it is dubbed a typical tourist resort to which it is no use going if one wishes to obtain the choicer alpine plants.

To begin, it is very convenient that the hey-day of alpine plant life is at its height *between* the tourist seasons. My holiday extended from June 26th to July 16th, and during that time the hotels were all practically empty, and the holiday rush crowds on the railways had hardly commenced.

Mürren is situated at 5,415ft. above the sea level. It is reached by railway, and, consequently, one starts walks in search of plants without the fatiguing climbs in the grilling heat of the sub-alpine regions. The walks are many and various, and the views of the mountains, Jungfrau, etc., are wonderful. Around the hotel at this time all the tall-growing flowers were converting the hay-fields into a glorious mosaic of colour. The chief of these were: Campanula rhomboidalis, Polygonum Bistorta, Centaurea alpina, Phyteuma betonicæfolium, P. spicatum, Astrantia major, Geranium sylvaticum, Chrysanthemum Leucanthemum, etc.

A short climb brings one above the hay-fields to regions where the dwarfer flowers are having their day before the hay grows up and protects them from the scorching sun. Here one finds Oxytropis montana, Geum montanum, Myosotis alpestris, Gentiana acaulis in several varieties, Campanula barbata, Chrysanthemum alpinum, Helianthemum alpestre, Viola calcarata in all manner of shapes and in colours from purple to yellow. On the huge boulders which dot the slopes and on very stony parts are masses of Linaria alpina, Potentilla alpestris, Globularia cordifolia and G. nudicaulis, all flowering so amazingly when compared with the reluctance they show in our English gardens; also Erinus alpinus, Sedum alpestre, Gypsophila repens, Saxifraga Aizoon and dwarf sempervivums.

In the moister parts are masses of Ranunculus aconitifolius and Trollius europæus, while the big heads of Veratrum nigrum are poking up.

To take the most interesting walks in a little more detail, those to Blumenthal and Schilt-thal are, perhaps, the most delightful. The former, as one rose above the hay meadows, presented a seething mass of Anemone alpina and A. sulphurea equally mixed, which rather counteracts the theory that A. alpina lives on limestone and A. sulphurea on granite. Among these were the purple heads of Orchis globosa, Nigritella angustifolia and Hedysarum obscurum. At the foot of the slope were large areas of Gentiana verna growing happily intermingled with Androsace Chamæjasme. Here and there were hummocks clothed with Lonicera alpigena, forming a home for Thalictrum aquilegifolium and Campanula barbata. In the moister parts, notably in the banks and rocks of the foaming streams, were Primula farinosa, Pinguicula vulgaris, Dryas octopetala, Viola biflora, Bellidastrum Michelii,

A MOUNTAIN STREAM, THE HOME OF SAXIFRAGA AIZOIDES.

and Saxifragas aizoides, stellaris, rotundifolia and cuneifolia.

The district of Schilt-thal presents quite a different variety of flowers. While approaching it through damp rocky scrub, the stems of Gentiana asclepiadea were seen poking through the carpet of pinguiculas, Primula farinosa and Orchis globosa. On reaching the entrance of the valley the grass in the distance appeared one mass of pink, which turned out to be millions of Primula farinosa in every conceivable shade, intermingled with pedicularis and Gentiana verna. The effect was wonderful and the site very remarkable. The hillside was one huge swamp, into which many channels had been cut for drainage. These channels were only 1ft. deep and were floored with solid rock; the section of the soil showed it to be nothing but an oozing spongy mass of peat. Hence these flowers were revelling in blazing sun and copious running water, but—and here is the lesson—the soil was not composed of stone chips, of which we are so often advised to make our special beds for alpines, with water flowing beneath, but pure peat with grass roots everywhere to drain the surface. Having seen this, I have constructed part of my rock garden on the same principle—rocks 1ft. deep covered with sandy peat, on which I have sown a dwarf grass and in which P. farinosa, G. verna and soldanellas I brought home are flourishing and are now showing more flower heads than they ever do in more arid situations. Of course, it is most essential that such a bed—or *tourbière*, as M. Correvon calls this structure—should be kept bone dry by means of a pane of glass in our damp winter days. On passing this delightful spot one came upon huge clumps of Gentiana bavarica growing in soaking grit by the stream-sides, and a little farther on Anemone narcissiflora and Primula elatior. On the huge boulders, and nearly always on their shady side, were large colonies of Primula hirsuta, glowing like rubies in the distance, among the white stars of Ranunculus alpestris. Many hummocks afforded homes for the prostrate willows—Salix reticulata and S. retusa—out of which dotted the shoots of Daphne Mezereum and the white D. alpina, both with a delicious fragrance. On going a little farther and higher, to where the snows were just receding and the grass not yet grown, one found the ground covered with Soldanella alpina and Crocus vernus, the flowers of which were even coming into bloom after piercing the edges of the snow patches. A photograph taken on this occasion was reproduced in THE GARDEN of February 2nd last (page 62).

Another delightful walk was down through the village of Gimmenwald. Here the path branches, one going through the woody valley of Sefinenthal, rather uninteresting from a flower-hunter's point of view, except for a few plants of Anthericum Liliastrum. The other path—which was built up with rocky walls in the crevices of which were the dainty fronds of Polypodium calcareum, in the blazing sunshine with no visible means of obtaining moisture—takes one down through rocky woods to the Lauterbrunnen valley near Stechelberg. This was a glorious walk. In the steep rocky woods were masses of Lilium Martagon and Pyrola rotundifolia, both extremely difficult to get up whole. On the edges of the wood were Digitalis lutea and 3ft. spires of Gentiana lutea. When down in the Lauterbrunnen valley a visit was made to the Trummelbach Falls, where the waters from the Jungfrau glaciers hurl themselves down through deep chasms in the cliff. Near here were found Saxifraga cæsia, growing in the cracks of the barren cliffs, and Anthericum ramosum growing in the gritty debris. Below Lauterbrunnen the undergrowth of the fir trees was thick with the rosy heads of Cephalanthera

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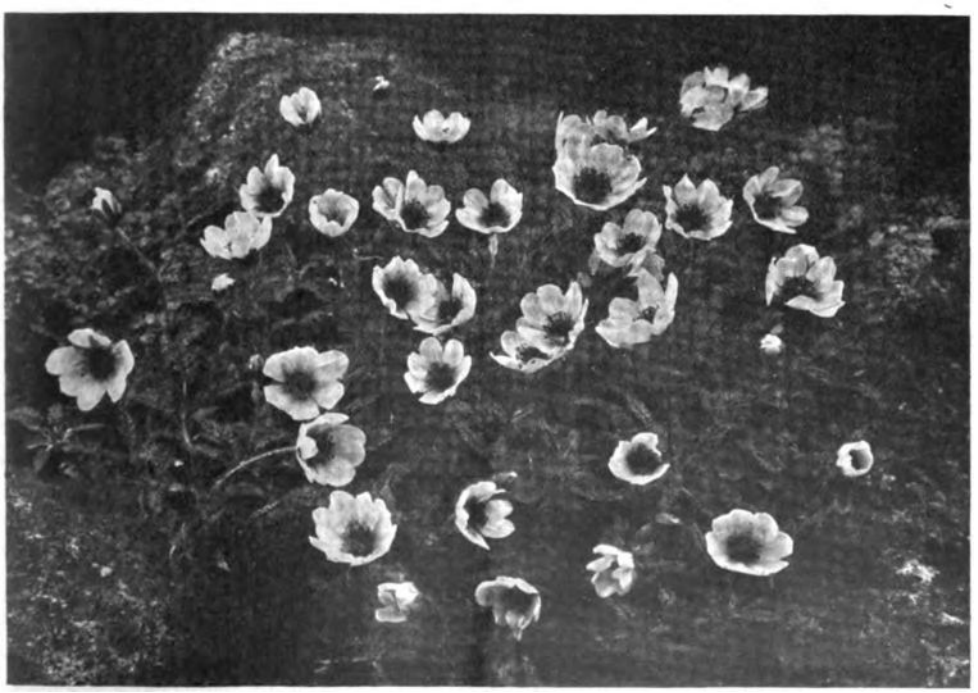
rubra, and in the deeper shade were large clumps of Polypodium Phegopteris among other ferns. The grilling walk up to Mürren only produced Pyrola secundiflora by way of new finds, growing in the coarse, shady grass.

From Lauterbrunnen one can take the railway up to Scheidegg and the Jungfraujoch. On the downward journey a walk was taken from the station at Eiger Glacier to that at Wengen Alp. On leaving the first a large patch of ground was completely covered with the silky nodding heads of Anemone vernalis, and on nearing Wengen Alp the flowers of Gentiana acaulis and Viola calcarata were far more attractive than those on the hillsides around Mürren.

To return to Mürren, which was always the starting point, it remains to describe the walks in an easterly direction. The first and nearest is through the fir woods to Winteregg. Beneath the trees the whole ground was covered with the leaves of Anemone Hepatica, now, however, out of flower. Several plants were brought home at random, which are now in flower and showing colours varying from deep blue to mauve. On passing the Winteregg cowsheds the ground became soft friable peat, and here on every side the flowers of Arnica montana and Trifolium alpinum were just opening, peering up around the scrub of prostrate Juniperus communis alpina, arctostaphylos and Polygala Chamæbuxus. Over the buried rocks were rambling Antennaria dioica, Homogyne alpina (syn. Petasites alpinus). Near the stream, on a piece of ground which was now baked as hard as bricks but was obviously quite recently a swamp, were the little yellow stars of Gagea lutea; and on following the stream higher up among piled-up heaps of debris one found Hutchinsia brevicaulis and Thlaspi rotundifolia, probably washed down from higher places. Parnassia alpina was poking up its leaves, although not yet in flower, and the little white Pinguicula alpina with sheets of Saxifraga oppositifolia were everywhere mixed with soldanellas, and Gentianas bavarica and verna, the leaves of the latter being amazingly minute when compared with those found at lower elevations. On turning towards the hillside on the left, one came upon a wonderful sight. The slope appeared to be grassland, but on near approach it disclosed itself as large flat slabs of rock almost completely covered with thin turf. Over this, on an area of about 20ft. in width, an inch of water was gently trickling, keeping the grass soaking. In the midst of this were hummocks, some the size of a hedgehog or larger, one mass of flowers of Silene acaulis, in colour ranging from pale rose to bright crimson There were about fifty or so of these hummocks in about 20 sq. yds. On crossing a barren *arrete* one came to huge expanses of Rhododendron ferrugineum just opening its blooms; and on a large boulder, the top of which was on the eye level, and which was covered with a layer of peat 1ft. thick, was a mass of pink, the tiny flowers of which turned out to be Azalea (Loiseluria) procumbens. How this fared in the full sun without any portion of the top of the boulder buried in the hillside to allow for the intake of water, I cannot imagine. On the shady side of the boulder was a large colony of Primula integrifolia growing in loose moss, the roots coming away completely as the moss was picked off. On examining another huge boulder about the size of a small bungalow, masses of Androsace helvetica were in full flower, fixed firmly in minute crevices of the rock, together with many dead tufts, a fact which tends to prove that this difficult plant is shortlived even in its own home. No living tuft was larger that 4ins. in diameter. This plant was also found in masses, intermingled with Lloydia serotina and Primula Auricula, growing in the crevices of the cliff on the Mutthorn, on the way up to the summit of the Schilthorn.

A DAINTY ALPINE, SOLDANELLA ALPINA. THE FLOWERS ARE LAVENDER LILAC.



THE BEAUTIFUL WHITE-FLOWERED DRYAS OCTOPETALA.

Another walk was through the woods to Isenfluh. The stuffy heat in these fir woods was most oppressive, and plant life, apart from ferns and the waving spires of Spiræa Aruncus, was almost nil. Growing in the damp moss on a large boulder was that quaint creeping orchid Goodyera repens, its habit here suggesting that it is more an epiphytal than a terrestrial species. In the coarse grass on the edge of these woods were large thickets of Rosa alpina in full bloom, and nestling beneath them that pretty cousin of our lily of the valley, Maianthemum bifolium. On leaving the woods one came upon clumps of Cypripedium Calceolus, growing in the gritty limestone-shale slopes, in company with Aquilegia vulgaris and that pretty "rest-harrow," Ononis rotundifolia. In the fields the hay had been cut, and the

workers were busy picking out and making huge heaps of the leaves of the poisonous colchicums, which must make a picture in the autumn.

The last walk which remains to be described, follows the Egertenbach alongside the Allmendhubel behind Mürren. Here nothing new of further interest was found except Phyteuma hemisphæricum and Astrantia minor growing in the fissures of large boulders on their northern aspect.

In this condensed description it has, of course, not been possible to include every plant which was found. Consequently I have confined myself to those which appealed to me most and, in concluding, suggest that there might be many more disappointing places than Mürren for plant-lovers to spend a holiday. H. STEWART WACHER.

THE MARKETING OF FLOWERS

BY GEORGE MONRO.

OF the forty odd millions of people in Great Britain, most at one time or another are purchasers of flowers, but only a very small number of them realise where the flowers come from, or how they are distributed from grower to buyer. It seems, for example, to be a very general idea that nearly all blooms marketed during the winter come from the South of France, but this is entirely erroneous. While, of course, there are large imports—generally from the middle of November until the middle of April—which come from the Riviera and Italy, it is probable that these imported supplies do not account for more than about 20 per cent. of the total sales.

Home products can be roughly divided into two categories, those grown more or less all over Great Britain and marketed in an area adjacent to where they are grown, and (by far the larger proportion) those which are produced in certain specified areas, in which areas the soil or the local conditions have been found by long experience to be more suitable for the growing of these choice blooms. To take, for example, narcissi. The first district to give us outdoor blooms would be the Scilly Isles, from which some 700 to 1,000 tons are obtained each spring. Closely following, in fact sometimes well up to Scilly, is the rapidly increasing area devoted to narcissi cultivation in Cornwall, the industry there being principally maintained by some of the Scilly growers who have for one reason or another returned to the mainland. Slightly later than the two foregoing come supplies from Guernsey and, to a lesser extent, from Jersey, followed by crops from Devon and the South Coast (mainly from the coast of Sussex and Hants), and finally, the principal supplies of all, viz., from the Fen district of Lincolnshire, where experience has proved that the silt land left by the receding water of bygone ages is peculiarly beneficial to the growth of bulbs, and the marketing of the bloom of those bulbs has naturally followed. The steady demand for narcissi bloom has now resulted in an attempt to lengthen the season still more by the transferring of stock to Scotland, and the ground devoted to this, as far north as Aberdeen, is rapidly increasing.

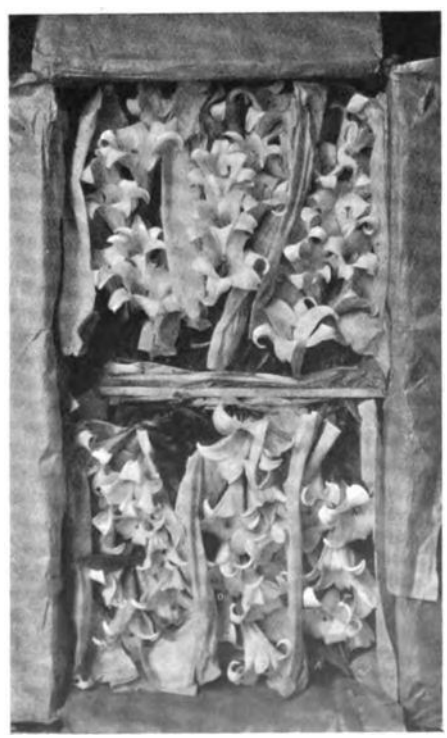
As regards roses, one might think that a rose tree will grow anywhere, and to a certain extent this is so, but immediately one desires to force them, to obtain flowers at the time of year when the tree would not naturally produce them, one will find that except it be happy as to its soil and its environment the tree will not give satisfactory results. The district of Cheshunt in Hertfordshire has been found eminently suitable for the production of roses in the spring and late autumn under glass, and there are many acres of houses in that district solely devoted to this, constituting quite a local industry, employing some hundreds of hands.

In contrast to this peculiarity of the rose we have the perpetual-flowering carnation, which might have been described a few years ago as the "Cinderella" of the flower trade. The first varieties were raised in the United States some thirty-five years ago, and now the carnation ranks only second to the rose in the public favour. Prior to the introduction of these varieties, carnations consisted either of the heavy "Malmaison" type, with its one crop of bloom per season, or of the smaller-flowered, short-stemmed border type, suitable for a buttonhole or for a lady's spray, but not sufficiently long to be used for decorative work. At the present day the perpetual-flowering carnation has the greatest possible range of colour, varying from brilliant scarlet, through all the shades of pink, white and yellow, to violet and mauve. The delicious fragrance of the older varieties is, however, lacking in the present-day flower. A fortune awaits the grower who can combine the beautiful colours and long stems of the perpetual-flowering carnation with the rich scent of the old garden clove.

Chrysanthemums come principally from special districts; Worthing sends enormous quantities to market, especially the early-flowering varieties; Uxbridge (where the largest flower-producing nursery in the world exists), obtains bloom from nearly a million plants every autumn; while at Christmas time the market receives huge quantities from the Lea Valley district, the produce of nurseries extending for some ten miles along the Lea Valley from Edmonton as far as Hoddesdon.

Lilium longiflorum blooms, obtained by the forcing of bulbs imported from Japan, and used so much for church decoration and wreath work, are known to the public as "Harrisii" lilies (sometimes wrongly called the "Madonna" lilies). The principal centre for the production of these blooms is the Hampton district in Middlesex.

One of the largest sections of the floral industry is the forcing of bulbs, mainly narcissi and early and late tulips. These first make their appearance about the week before Christmas, when the public begin to see here and there a bunch of yellow daffodils ("Golden Spur" or "Henry Irving"), and a few white, red or yellow tulips, probably of not too high a quality. To obtain these early flowers only the strongest bulbs are used, and even then the grower is often lucky if he manages to make half the bulbs give marketable blooms; but directly the turn of the year comes, quantities increase enormously and the extent of the trade for the two months of January and February can scarcely be credited by those not handling the tremendous quantities coming in daily. Years ago most of the bulbs for forcing were grown in Holland, and the general public are still under the impression that the position remains the same. The bulk of narcissi bloom, however, as well as a very large proportion of the later tulips, is obtained by the forcing of bulbs grown in England, and we look forward to the time when we shall be able to supply all our requirements entirely from home-grown bulbs. The public will have an opportunity at the Wembley Exhibition of seeing a wonderful show of 200,000 Darwin tulips in full flower, every bulb of which was raised in Lincolnshire.



THE BLOOMS OF LILIUM LONGIFLORUM NEED CAREFUL PACKING BECAUSE THEY READILY BRUISE.

The major part of the distribution of all these supplies is through the various markets, which may be divided into three sections, the first comprising only

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the one clearing house of the trade, Covent Garden; the second—the markets of the larger provincial cities and towns, such as Manchester, Liverpool, Birmingham, Leeds, Glasgow, etc.; and the last, the smaller provincial markets found in most towns of a considerable size. While the second draw their principal supplies direct from the growing districts, every single market in Great Britain depends on Covent Garden for a considerable proportion of its requirements.

For a good many years Covent Garden Flower Market has been one of the sights in London to visit, during market hours, where one can see—in addition to the wonderful and varying colours represented by home produced as well as foreign bloom—the delivery by road transport of bloom produced within a radius of some twenty miles; delivery by railway vans from districts further afield, and (in spring), thousands of packages from the South of France. The method of sending the latter is peculiar to that trade, these packages being the only ones which come to the market through an intermediary in addition to the usual railway company or carrier. The South of France is a good example of those districts where one finds a large number of small owners, many of whom occupy ground of not more than an acre in extent. They pack their produce in very light split cane packages and send them by "Colis postales"—a type of parcel post—to one of four or five transport agents in Boulogne, who consigns it to the London market in bulk. Commencing about Easter time, the visitor will be able to see each day some thousands of long narrow boxes containing roses from English glasshouses. These include all qualities and are graded to perfection, some growers even making as many as five different grades of bloom. Again, the visitor will see thousands of boxes (of a similar size) containing carnations graded to the same extent. Also "Harrisii" lilies from the Hampton district, in larger boxes, invariably six bunches of twelve blooms (or buds), these coming up by road to ensure the good condition of the bloom to the purchaser. Then, in addition, is the narcissi bloom of the Scilly Isles and Guernsey, packed tightly in boxes constructed of light wood to reduce weight and therefore railway charges, which from some of the more remote parts means an additional charge of about one penny per bunch.

(To be continued).

THE CARE OF RHODODENDRONS IN SUMMER

A LITTLE advice may be of some use to lovers of rhododendrons who find that some of their plants are hanging back and are not so healthy as they might be. There is little doubt that although rhododendrons are easy to keep alive, they are difficult plants to keep in the best of health without a certain amount of cultivation, unless one is lucky enough to live in the moist atmosphere of the west coast. This applies to hybrids as much as to species. Of all the gardens that I have seen there are perhaps a dozen in which the rhododendrons were really well grown—and it must be remembered that in nine cases out of ten poor growth is the fault of the cultivator. It may be thought that this statement is too strong, but I can assure you that that is not the case.

There are three main requirements in the well-being of rhododendrons: good drainage, moisture, shade; it is not just to the plant to be satisfied with some straggling, small-leaved hybrids in a bed in the middle of the lawn, where they are exposed to full sun and to every wind that blows. They will probably live and produce flowers, but a rhododendron is a fat, rich-looking plant in good health with foliage almost as handsome as the flower. The worst of it is that few people have ever seen a well grown rhododendron unless they have visited the west coast and so the old proverb about ignorance and wisdom comes into play.

The first requirement is probably the easiest, because most gardens are well drained. Rhododendrons will grow best on a slope and in a porous soil. If the loam is heavy or the soil be clay, a certain amount of peat or leaf-mould and gravel should be added.

The second is more of a problem and one where most gardeners go wrong. It must be remembered that rhododendrons are surface rooters and that it is a great mistake to plant them too deep. This is the real cause of a great deal of poor foliage. The top of the ball of roots should only just be covered by the soil. On the other hand, because rhododendrons grow best on sloping ground, it should be remembered that in a drought such ground is extremely difficult to water. The water merely runs off the ground and even after an hour's soaking may have penetrated but half an inch.

THE CORRECT MULCHING OF RHODODENDRONS.
Note how the saucer is level so that all water reaches the roots.

The best method to simplify watering is to level the ground around a rhododendron or group of plants. It is not a laborious task for it only means scooping out a little soil from the uphill side and banking it up on the downhill. The result should be a saucer depending in diameter on the size of the plant, in the middle of which sits the rhododendron knowing that every drop of water falling into the depression will reach its roots. The depression should be filled with fresh leaves, newly mown grass, or peat moss litter. It will be found that every rhododendron planted in such a depression will respond to a quarter of the watering and that the moisture will be retained longer. Watering should always be done when the sun is off the plant, but it will be found that with good mulching little will be necessary except in times of real drought.

Rhododendrons of all shapes and sizes require more or less shade. As a broad rule the larger the leaf, the more shade is necessary, but no rhododendron is a sun-loving plant. What sun they get should be intermittent, perhaps for an hour in the morning showing between two trees and then again later on as it moves towards the west. The worst tree to grow along with rhododendrons is an elm, for it is a root robber of the worst kind. I have seen a nursery bed under

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the shade of elms whose roots were regularly cut. One escaped the axe and within six months over two pailfuls of fibrous roots were dug out of a bed 4ft. by 12ft. Naturally the seedlings suffered, for every drop of nourishment was stolen from them by the tactics of the elm, which seems to have an uncanny nose for tit-bits.

It might seem that the quest for the perfect rhododendron was full of pitfalls, and so it is, for perfection is never easy to obtain. On the other hand, once a rhododendron gets what it requires, very little attention is needed in future, perhaps an occasional watering, and a weeding over a year of its immediate surroundings, a test every now and then to see that roots from other plants are not robbing it, a refilling of the saucer when leaves or peat begin to wear away, disbudding if it shows too many flower buds, and a careful examination of its roots and soil conditions if the leaves yellow or the growth is unduly retarded. This is not very laborious and the result is well worth the trouble. E. H. M. Cox.

THE WILD GARDEN

THIS term is very loosely used in ordinary conversation. It may mean anything from a most careful and artistic imitation of wild Nature to an untidy spot where odds and ends of surplus plants are cast to fight out, unaided by the gardener's hand, a losing battle with bramble and weed. To call this latter a "wild garden" is an obvious misnomer, for it is neither "wild" nor a "garden."

The former is one of the most difficult tasks to accomplish with any success and requires artistic gifts which, unfortunately, we do not all possess. This, however, is, I consider, the true wild garden, namely, an imitation of Nature on a small scale: the arranging in the space of an acre or two flowers indigenous to the countryside in an attempt to produce the beauty that Nature spreads over large stretches of country; in fact, to aim at a sort of microcosm of her loveliness.

What charms us when we take our walks abroad is the profusion of Nature: the wild riot of the June hedgerow, the wealth of primrose or foxglove in the woods, the sheets of blue and pink in the brake where bluebells and ragged robin intermingle, the starry carpet of wood anemones.

To bring some of these sights together in a comparatively small area and to get even a fraction of the natural effect is by no means easy to accomplish.

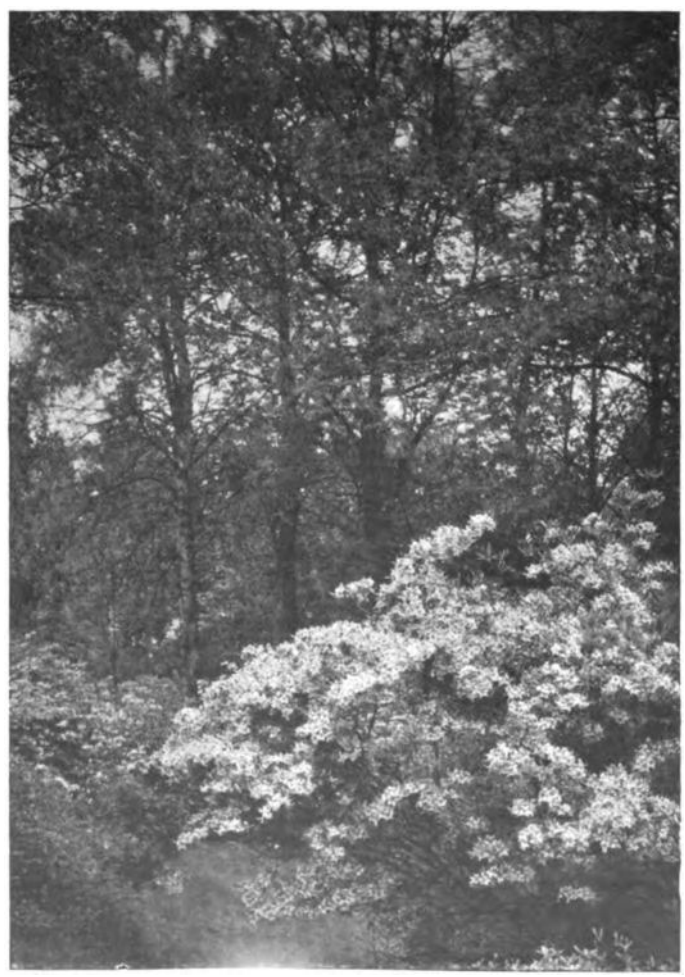
Bacon, in his essay on "Gardens," gives his idea of what a wild garden should be, and, even if there are many points in his list of flowers and their arrangement that seem open to criticism, his description is a fair one, though he introduces some garden flowers, such as "Sweet Williams Red" and also clipped standard bushes.

He is very definite as to its area, and allots 6 acres in a garden of 30 acres. "Trees," he says, "I would have none in it"—this seems rather an unnecessary deprivation—"but some thickets made only of wild briar and honeysuckle and some wild vine amongst and the ground set with violets, strawberries and primroses. I like also," he continues, "little heaps in the nature of mole hills, some with Wild Thyme, some with pinks, some with periwinkles." His list is too long to quote, but it gives one the rather irreverent opinion that the wisest man of his age wrote down pictures that passed before his mental vision and never attempted to carry out his ideas.

Perhaps it may be pedantic to find fault with his use of such a very convenient phrase as "The Wild Garden." It is generally used to describe a part of the garden less formal and cultivated than the rest. I use it (for convenience) to designate an acre or so of land evidently taken in from a field and planted with rhododendrons, large clumps of pampas and tritoma, some good kinds of pine, may trees, shrubby spiræas, buddleias, and, in a deep pit from which, evidently, sand has been dug, the great stems of the giant polygonum form a miniature forest. These last are handsome here and harmless, but in the cultivated ground soon become an ineradicable curse. This, I know, has no claim to be called a "wild garden," but it would be difficult to find a more convenient name for it.

Should you possess a bit of woodland or a stream, a bit of outcropping rock, or even a hedgerow bordering your garden, there is a way of encouraging wild flowers that will give a great deal of pleasure for a small amount of labour and very little outlay.

Many years ago, the plates in that most useful book of Miss Jekyll's, "Colour in the Flower Garden," incited me to attempt to carry out in a large wood some of her ideas. The working out of these schemes proved a great source of pleasure and amusement. I say "amusement" advisedly, for it is rather a relief to turn to this sort of gardening after the digging of borders and pruning of roses and such more business-like occupations. Should you have some wild flowers in your wood or by your streams—and it is seldom that you will not have half a dozen varieties—it is wonderful what results you can get by taking the side of the flowers against their enemies, chief of which is the bramble. The way your wild flowers respond to your help is extraordinary. Your few scattered primroses become large patches, while the foxgloves particularly are inclined to take liberties and smother the other flowers.



AZALEAS IN TI 'DEN AT MUNSTEAD WOOD.

My wild strip now consists of some 250yds. of broad bank from 6yds. to 8yds. wide. With the aid of hook and grubber the flowers have taken heart and spread. Primrose, wood anemone, bluebell and foxglove fairly carpet their respective stations, mingling with and merging into one another. The ditch in the hedgerow shows a variety of ferns, formerly hidden by scrub and bramble.

It is also an interest to introduce white foxgloves and violets, forget-me-nots and daffodils among their wild relations.

Those who have larger scope of action will find, set out in Chapter III of the book I have mentioned, the way in which such work should be done in the best possible manner. Should you have no place for a wild garden but have some imagination, the study of that chapter will give you a very pleasant hour.

M. J. M. VICARS-MILES.

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CORRESPONDENCE

GENTIANA ACAULIS.

"WHIMSICAL in flowering" is the description given by many gardeners regarding this plant; and it has even been suggested that, in order to provide a necessary bacteria, soil should be begged from the spot where it flowers well. The following hints are easier to follow and may be of service. I may add that all our long herbaceous borders we have edged and are edging with these enchanting blue ribbons of triumph.

A friend described the gentian in its own home as "patches of brilliant blue in the meadows." We have tried breaking gentians up every two or three years and replanting in small clumps, guessing that root room is required for successful flowering. Here is a useful wrinkle: observe the growth of the plant radiating in little green spikes from the central piece, and each spike, if down on the ground, throwing out rootlets. Doubtless in the Swiss meadows the spikes are pressed to the soil by the weight of the succeeding summer growth of other plants. Here the poor bits are too often to be seen sticking up futilely and presently to wither off. As soon as the gentians have flowered we strew the crowns and work in carefully sifted soil. Then each growth is provided with stuff to root in. I may add that, having no lime in the soil, we grow ours in lime rubble, sifted leaf-mould and loam.—(Lady) ROSAMOND CHRISTIE.

THE PRUNING OF PRUNUS TRILOBA.

I WISH to thank "A. O." for his letter in THE GARDEN of April 12th, page 248. Both he and I apparently have had our years of responsibility for the same tree, and given the same conditions it is not likely that there can be very material difference of opinion between us. My years of responsibility were about seven, but that was long before hard cutting back amounted to the status of a cult, if I may so term it. "A. O." now refers to pruning annually, against which I have said nothing and quite believe in. I referred exclusively to his instructions for hard cutting back, which I said was lamentably easy as compared with pruning, which requires skill, and I used other terms perhaps, to which I cannot now refer. I made a sharp distinction. My letter, I fear, was somewhat uncompromising, but it was written solely to meet the equally uncompromising instructions given by "A. O." for hard cutting back, and, while referring to conditions vividly in my mind for which I held it to be quite wrong, made no attempt to cover all conditions and circumstances. The illustration that appeared with my letter was not precisely to support my contention, and it is the best that "A. O." could have in support of his own. That, however, I was not sure of until I read his last note, and therefore I do not feel that it calls upon me to withdraw or modify. "A. O." must please forgive an old conceit of mine that skilled and careful pruning will always go one better than hard cutting back. His tree on a south wall making strong wood is as well suited as any could be to submit to it. "A. O." remarks that if these vigorous young shoots are left unpruned for a year or two it is his experience that specimens in a few years grow away from the wall and get out of hand. To that I would say that a few years need not be in question if attention is given annually, and, further, that surely it could only happen for want of the pruning that I advocate. It never does happen in the case of a peach tree, also unnaturally placed against a wall. I question, indeed, whether I advocate anything more for Prunus triloba—making due allowances—than is always considered right for a peach tree. The "bee in my bonnet" I might mention is disturbed only when we are instructed to cut hard back without being permitted to exercise that skill and discretion which is the pride of most of us. By the way, I have not said that annual pruning results in stubby and comparatively weak shoots. It is hard cutting back that I have known to do that. Therein was my argument, and skilled pruning is to avoid that result.—R. IRWIN LYNCH.

A READER'S ROCK GARDEN.

I AM the possessor of a very small rock garden. It has to be small, for no one touches it except myself, and I have only the week-ends and holidays in which to look after it and to keep in order the rest of my flower garden, for my gardener is fully occupied with the fruit and vegetable garden. It is therefore a very small rock garden, and presents a problem which is difficult of solution in proportion as the garden is small. I submit this problem to you and your readers, and shall be glad of any hints that you can give me. How, in so small a garden, can I get the maximum of flower through the longest period? It can only be done by growing *together* plants that flower at different times. What plants and, above all, in what combinations, are suitable for the purpose? This is where I need help. Aubrietias, helianthemums and the like have their place, but choke off anything else planted among them. I have succeeded with some combinations, and to illustrate my meaning may mention one or two. (1) Kabschia saxifrages with Campanulas Raineri or Zoysii; (2) Anemone sulphurea with autumn or spring crocuses of the alpine varieties; (3) AA. apennina, blanda or blanda scythinica with dianthus; (4) Iris reticulata with D. neglectus and so forth. I am trying A. fulgens and the Caen anemones with Aquilegia alpina and Aster alpinus. The anemones are all right and their successors look promising. Not only do you prolong the flower season of the garden in this way, but I am convinced that most alpines do better if other alpines of *the right kind* are planted with them. Their roots need companionship or competition. I send a photograph of a bit of wall garden taken early last year. You may see Saxifraga pyramidalis and other saxifrages on it. Some of the spikes of S. pyramidalis are over 2ft. 6ins. long. They had been undisturbed for four years from time of planting. You had some correspondence on this point last year.—A. C., *East Sussex*.

BORDER CARNATIONS IN POTS.

IT is always interesting to read other peoples methods and opinions, as much good can arise from such an interchange. The method of growing border carnations in pots as advocated by Mr. Coutts (page 219) differs somewhat from the method I have frequently practised, as the following notes will show.

The layering is done in early July. For this purpose plants which have previously been flowered in pots are used and the layering is done for convenience in a frame. The lights are kept on for a few days after layering and then abundance of air is allowed, the lights still being used as a covering protection at nights and during a storm. With this treatment the young plants are ready for their 3in. pots by early September, and put back into a frame they quickly fill the pots with roots and are put into their flowering pots (6in. for a single plant), in October. These plants are wintered on a shelf close to the glass in a vinery where the frost is excluded. Obviously, careful watering must be the rule during winter, but this is no difficulty to the experienced gardener.

In February when the vinery is started the plants are removed to a cool greenhouse, taking the place of Zonal pelargoniums, which have by that time finished flowering. Here they are grown along steadily under cool conditions and usually commence flowering during the latter half of April. I have usually grown two batches as a succession, treating one half as outlined above and the others on lines almost identical with those advocated

SAXIFRAGES ON A WALL GARDEN IN EAST SUSSEX. S. PYRAMIDALIS ON THE RIGHT.

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by Mr. Coutts. Usually the best flowers are procured from the earlier batch, which are put into their flowering pots in autumn. There is, of course, a better opportunity of feeding with liquid manure the autumn potted plants and this may make the difference. Then again there is the distinct advantage of having earlier flowers and the plants after flowering are available for layering.

I have found it a good plan to select the best plants after flowering for growing along a second year. They are potted into 9in. pots in July and grown along under cool conditions. The weaker growths are removed and the others are supported with a thin bamboo cane, and give quite a number of good flowers the second season.—W. F. ROWLES.

WALL GARDENING.

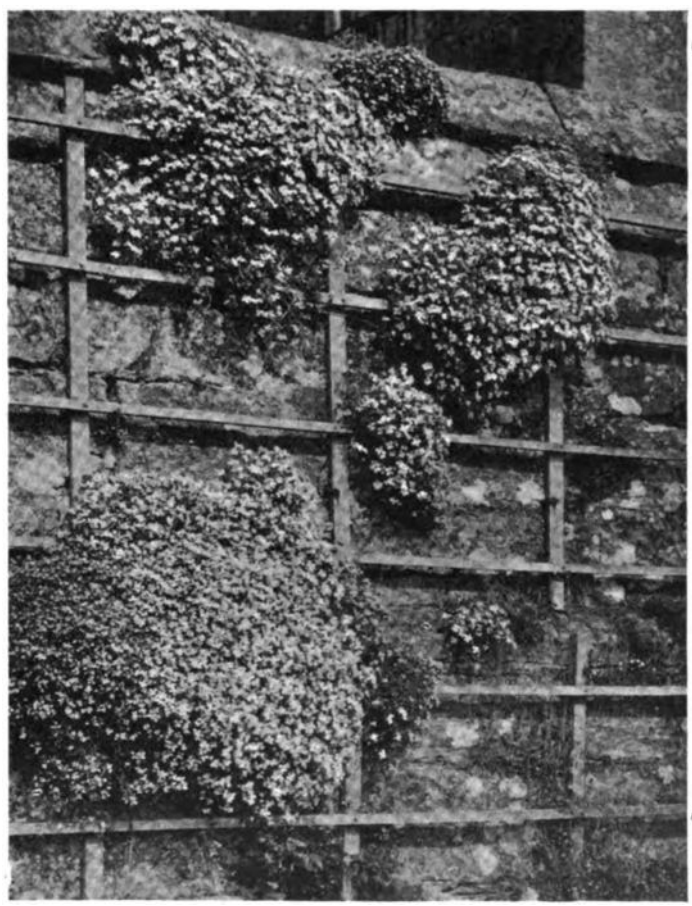
THIS phase of gardening is not so popular as it might be. There are, in many gardens, ugly walls that could be made beautiful by planting aubrietias, alyssum, iberis, snapdragons, etc. However, a certain amount of grouping is desirable, or else spottiness will be the result. I enclose a picture of aubrietias on a wall, in the gardens of Mr. William Robinson, at Gravetye Manor. At the time of my visit, these aubrietias were one of the features of the garden.—H. C.

THE USE OF GARDEN LABELS FOR ALPINES.

I AM afraid I am quite unrepentant on the subject of labelling alpines, even though the weight of the editorial pen is against me (page 249, April 12th). But, after all, it is surely a matter of individual taste, of a personal balancing of advantages and disadvantages. For myself I so object to the disadvantage of conspicuous lettered labels for diminutive alpines that I prefer the admitted disadvantages of numbered labels, *i.e.*, the necessity of carrying a notebook even in wet weather and the necessity of extra scrambling over the rocks to find out the number of a label—a disadvantage shared to some degree by written labels, which are seldom legible from the paths of the bigger rock gardens. That is my personal balancing of advantages and disadvantages: you and Mr. Hillier balance differently. *Quot homines tot sententiæ.*

But in your last criticism of numbered labels you go beyond a question of personal choice and make a statement founded on a misapprehension of fact. You say that the danger of wrong nomenclature would be doubled by reason of two lists, one with numbers, the other with names. But there are not two lists, but one, though there may be duplicate copies of the list. The original list would be complete in itself with numbers on the left-hand sides of the pages and the names filled in opposite the numbers. It is true that the names may vary from time to time, but if you erase the name of a dead plant and replace it with a new name when you use the numbered label again, why should it cause confusion in nomenclature? Surely the fact that a numbered label could be used for another plant would tend to lessen a common cause of confusion in the minds of inexpert visitors when the useless written label of a dead aristocrat is left protruding from an invasive commoner. I have seen this even at Kew.—EDWARD S. LYTTEL.

WHEN I read Mr. Gerald Hillier's very interesting article on this subject in THE GARDEN, March 29th, I said to a friend it was a timely article and one that would prove useful to many lovers of garden plants. Then I read the Rev. E. S. Lyttel's criticism on the article in THE GARDEN, April 12th. I again perused Mr. Hillier's article and liked it better the second time, as I was, perhaps, more critical, and found it to be a practical one. The labels are shown in Fig. 1 grouped to enable the reader to compare and select. Labels in a garden border do not present the same crowded appearance, nor do they in alpine borders where the labels are of the right colour. Personally, I would much prefer a large label than petty economy in a garden. A neat label with name plainly written upon it is rarely noticed because the visitor's attention is at once directed to the plant or plants. But a label bearing a number which is duplicated in a private book is an eyesore and vexing to the visitor. The Rev. Lyttel's system would entail as many labels as Mr. Hillier's with the addition of a book of reference, *very convenient to use on a showery day!* The numbered labels pressed into the soil almost out of sight would draw the visitor on to the borders to find them and, if the plants were robust enough, they would, probably, obscure them altogether in many cases. The Rev. Lyttel's system is a laborious one, and would prove uninteresting to anyone except, it may be, the owner. Therefore, readers who are beginners should not hesitate to adopt Mr. Hillier's stystem, which recommends itself to all, except, it may be, a few who love fads. I have seen some of the largest and most costly rockeries, both private and public, in this country, and the plants on all were labelled plainly, as described by Mr. Hillier. I never have read during the past forty years a weaker argument nor one with less point to it than the one by the Rev. E. S. Lyttel on page 249.—G. G.



AUBRIETIAS ON A WALL AT GRAVETYE.

THE ALPINE LAWN GARDEN.

A CORRESPONDENT of THE GARDEN writes asking me to give a few further details about making an alpine lawn garden in an old stone sink. He asks if I gave the depth—3 to 4ins.—correctly in my recent article on the subject (page 244), and what about drainage, and what soil should be used? Also, should the sink be sunk in the ground in full sun?

Yes, I gave the depth correctly; 3 to 4ins. is about the average depth of the sinks, and I find from experience that this is ample for the plants' needs. The soil can be slightly heaped and undulated, which gives a little extra depth, besides adding interest to the tiny landscape. The stone water-troughs and pig troughs that one can pick up in some districts are, of course, deeper than the sinks, but there is no great advantage, culturally, in this.

Drainage is, of course, absolutely necessary. Sinks have their own sink hole, usually at one end. In putting them in position, and before filling with soil and planting, it is a good plan to test them with water, to make sure that they are set at such a level that all water drains to the hole end and so away. A tilt in the opposite direction is very bad. A big crock over the hole and a handful of smaller ones around are all that are necessary. One hears of "scientific drainage" in these matters, but a tilt to run the water in the right direction and a few crocks to prevent the soil from following it are all the science needed and might be more aptly called common-sense. As to soil, this, too, is a simple matter. A good gritty potting mixture, loam, leaf-mould, sand, grit or broken stone, mixed "to taste." That is all. I have never sunk my sinks in the ground. I like to stand them on something. Low balustrading near the house, and the piers of brick or stone garden steps make good places to put one's sinks and troughs. Failing these—and it is nice to have them near the eye—one may raise them on short lengths of stout logs or build little piers of old bricks for them to stand on; or one may use—if one can get them—old stone stack piers. Always a site should be chosen near the house, for they are, perhaps, the most intimate of all forms of gardening and should be kept near at hand. One should be able—and tempted—at any hour of the day or night to go out and water the sink garden, to enjoy its flowers, or to stab a slug.

Stone sinks and troughs are still quite easy to pick up in any part of the country. Builders' yards are the most fruitful hunting grounds, and sinks are to be had very reasonably. They are constantly being taken out of old houses and replaced by glazed earthen ones. On no account use glazed earthen sinks for gardening in. Not being porous, they are bad for the plants, besides being abominably ugly. And as to concrete, all I can say is, before using it—go and look at the Mappin Terraces.—CLARENCE ELLIOTT.

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NOTES FROM CONTRIBUTORS

THE PROPAGATION OF CHOISYA TERNATA BY CUTTINGS.

I HAVE rather a remarkable experience to relate with regard to some cuttings of green shoots which I took of Choisya ternata in May *two years* ago. They were placed in a pot of sandy soil in the shade in an unheated greenhouse. Six cuttings were taken and two only died. The remainder are still quite healthy, with green leaves and buds showing, but there are no roots. At the end of the first twelve months I turned them out and found only callus formed. Also a month ago I turned them out again and still found only callus. The questions which arise in one's mind are: How long is it possible for green shoots to live without roots, and also if at the end of two years' existence in this state there is any chance of roots being formed. I wonder if any of your readers have ever had similar experience with cuttings. I know this sounds rather like a "tall story," but I can vouch for its accuracy, as also can several gardening friends who have seen them. — H. STEWART WACHER.

GENTIANA VERNA.

POSSIBLY no alpine has had more written about it or more notice taken of it than Gentiana verna, and on that account it ought to feel highly flattered with itself, but, on the other hand, it ought to feel thoroughly ashamed at the miserable response it oft-times yields to all this fuss and coddling. Doubtless the reader will already have assumed that the writer is going to give yet another recipe for its cultivation—no such thing! All my days garden lovers have been writing letters and giving instructions to dig holes ever so deep and fill them with sand, soil, stones, sticks, slates, broken bricks, granite chips, lime, peat, loam and anything else that one can possibly imagine, and that, too, in the most weird proportions, coupled with endless ramming and jumping on the composts. The beds to be placed in sunshine and shade, shelter, dampness and drought, together with endless waterings and, very possibly, glass bell-globe coverings, which latter certainly seem most appropriate, for, in a short time, be it sooner or later, the charming little creature sulks and dies, leaving no trace of its abode save a little tuft of rank grass, if it by chance hailed from the Emerald Isle, and who among us has not bought Miss Verna from there? Then with the funereal tally-pin, of course, as headstone, coupled with the appropriate bell glass, one feels prone to drop a silent tear over the departed, the labour expended, and the two and sixpence past and gone. No! what I would dearly like to know is, if there is any garden in the British Isles where the plant does really grow and look happy and contented. I do not mean linger between life and death, seemingly yearning for the latter, with perchance an odd dozen blooms (that I can aspire to myself), but really growing and flourishing year after year, as would clumps of Anemone angulosa or Adonis vernalis, and with an equal length of happy days. If any of your readers could introduce me to such a garden I will spare no efforts to find myself there, take off my hat and carefully study its requirements. I have seen many gardens, but never yet had the good luck to see one where Gentiana verna grew as I would like, and almost doubt if one really exists.

Notwithstanding all the nasty things I have said above about this charming little alpine, is it not just possible that it is a short-lived plant, and ought to be regularly raised from seed, and that the plants we invariably get are nearing the end of their days before we become their owners, while the seed does not ripen and germinate in our somewhat treacherous climate, but requires brighter sunshine and an Alpine atmosphere. I really wonder if this is not the solution to the many disappointments. In the Alps it appears dotted over the fields as though raised by seed, and not in very large, spreading clumps. Those who have raised the plant from seed will be better able to say whether it thrives better and lives longer than can the writer, who has never done so, but merely bought in plants times without number, and always with the same sad results.—FORMAKIN.

CELSIA CRETICA.

THIS plant is often grown in the cool greenhouse or conservatory for decoration; but there is really no need to treat the Cretan mullein, as it is occasionally termed, to indoor conditions, as it is perfectly hardy and far more at home among other hardy plants in the border or shrubbery, where its stately growth and primrose yellow spikes are seen to perfection. Here it is managed in a mixed shrubbery, small groups in flower looking quite handsome peeping up here and there among the other plants during a good part of the summer. We let plants seed and sow themselves, removing or transplanting the young stuff to where it is wanted. This is a simpler and more natural way than sowing in specially prepared conditions and, incidentally, a surer way too, in my experience, to get strong transplantable seedlings. Another point worth noting is that when this plant is grown among shrubs it rarely wants staking, the more or less all-round protection from the bushes preserving its erect habit. In their early days the leafy tufts of this plant closely resemble foxgloves; indeed, its whole habit and height does. Young plants should still be procurable, and can be planted to bloom this summer—as such would have been raised last autumn—C. TURNER, *Ampthill Park*.

DUTCH CROCUSES.

BAD as the weather has been, I have nevertheless had a great deal of pleasure out of my fifty-nine varieties of Dutch crocuses. They fill two long beds of 4ft. wide and are planted in solid blocks of fifty. With the splendid old yellow the exact number is sixty. The surprise to me is that I have to dethrone Dorothea from its proud position as being *the* Dutch crocus and in its stead put Maximilian. I had two beds of 4ft. by 16ft. with no other variety in them, and no one could wish for a more beautiful sight than the solid masses of pearly blue-mauve surrounded on all sides by decently short grass. This spring, of all springs, it may be that I should not say anything against the sun; but, as many have doubtless noticed, King Sol does not improve the complexions of crocuses. He is no respecter of persons. Dorothea, Maximilian and Philomela are treated just as the old purple Albion and purpurea grandiflora, and when under his rays have what for most of us seems a less becoming red tone in their mauves and purples. I have two questions to ask. First, is Dorothea the same variety as that called Maximilian? They are very close to one another if they are not identical. In my trial blocks I could not see any difference, except I *thought* Dorothea was not quite such a large flower, and it did not do quite so well. This might only be that the bulbs of Dorothea were not quite up to the knocker. Another fact that bothers me is that although I have hitherto regarded the names as synonymous, a great raiser of seedlings in Holland, from whom I got the collection, sent me both varieties and charged different prices for them. My second query is, "Does anyone know when the Dutch began to raise seedlings in quantity?" They have been at the game for a very long time. James Justice, who knew the bulb fields of Holland very well, says in his "British Gardener's Director" (1764) "that Mynheers Voerhelms and van Kampen sold 100 bulbs in 12 sorts for one Guilder" and also that on account of the "abundance of their varieties raised and their prices so low," it was only worth while to let them sow themselves. With such a past no one need expect the improvements in Dutch crocuses to be either many or great. My collection not being limited to varieties of any particular age proved such to be the case. The pale striped Mme. Mina is still one of the best striped, but being one of the early ones to flower suffered severely when the 3ins. of snow came. For convenience of reference I am going to take whites, mauves, purples and stripes in turn. The whites were the easiest to judge. Two friends whose opinions I asked and who had no idea of the ones I had selected each gave in the same numbers as first and second, and one of them gave the same as my third choice. These were Kathleen Parlow, the spotless white with large orange stigmata; May, the compact cup-shaped flower with some purple on its stem; and Honorine Jobert, the somewhat small but extremely free white. There was not much difference over the mauves. Maxmilian or Dorothea (for the difference is very little, if any) was an easy first. Then came Lord Duncan, which was decidedly similar but for its much darker stem. Margot was a great favourite, almost a pale bicolor with the three outer petals shaded and tipped white and the three inner a pale flushed lavender. I do not like tall crocuses, and as Margot was tall, it did not appeal to me as otherwise it would have done. The handsome dark striped Fantasy got a bad mark on this account. Philomela was mauve number four. It is several shades deeper in tone than any already mentioned, but when seen in an evening light or when shaded from an afternoon sun it takes some beating. Probably the shade would not suggest "powdery blue" to anyone, but it did to me, and hence my note says "powdery mauve." It is a very blue-mauve in shade. Purples were the teasers. I always say if one is out to make *selections*, at all costs one must avoid making nothing but lists. It has been difficult to settle on the four, which number I made my limit. Hero I put first because of its taking shape, its rich deep shining colour and its being able to rough it. If anyone plants it for a show, the bulbs should be put in rather closer together than usual. It is not as floriferous as one could wish. Purple Beauty, purpurea grandiflora and Albion (purple self) I couple with Hero in the order in which I have given them. Lastly, I come to the striped varieties. Let me say at once that to me "distance lends enchantment to the view" and robes these in a beauty which is not very obvious at close quarters. The pretty palish mauve of Mme. Mina, or the rather darker Minerva, or old Albion, darker still, look well in a mass when you are not too close, but the nearer you are the more the striping shows itself and the less pleasing do they become. Still, as tastes differ, for those who like stripes I should suggest a trial of these with the addition of Oscar, a sort of semi-striped, as the outer petals are almost selfs. It is one of the darkest of all this type. I must draw attention to Distinction, as it stands

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by itself with regard to its colour among Dutch crocuses. I have seen it described as a red-pink, but to me I can never see that it gets beyond a mauve-pink. It certainly is the pinkest crocus I know, but to make it appear the real thing I would have to put on my rose-tinted spectacles. Another variety that refuses to be catalogued with any other is Bleu Azure, on account of its extreme earliness. It is not the very early Harbinger, as I was unable to secure any corms, and so I have not been able to test the two together. I imagine the last named is the earlier, but Bleu Azure, takes some beating, as the little patch was in full blow some time before any other of the collection. It is a pale edition of purpurea grandiflora and very free. Everyone knows what delicacies crocuses are to mice and how by some mysterious means they are able to tell that 4ins. or 5ins. below this or that spot a crocus lies buried. James Justice, to whom I have already alluded, tells us on page 219 of his "British Gardener's Director" how we may keep them at bay by putting a little dry soot into each hole made for the crocuses "to prevent mice falling upon their roots." I wonder if this is ever tried nowadays in gardens where these destructive little animals are a nuisance.—JOSEPH JACOB.

NOTES FROM FRANCE.

FOR anyone who thinks of Cryptomeria japonica as a giant conifer from Japan, the variety Vilmoriniana must come as a surprise, for instead of growing to a considerable height it only grows at the rate of a few inches a year and has a very bushy and compact habit. The plant was discovered quite by chance last autumn by Mr. Hornibrook, the specialist in dwarf conifers, when paying a visit to the collections of Mme. Ph. de Vilmorin at Verrières-le-Buisson, near Paris, a place, by the way, worth a visit for anyone who has several days to spend in the French capital. There it makes a very striking bush in the rock garden under the name of Juniperus chinensis japonica, a name attached to it when it was introduced from Japan in 1903. Although the nomenclature had been at times questioned, it never occurred to the mind of anybody that it could be a form of cryptomeria so different was the plant from any known form of this genus. It wanted the keen eyes of an expert to determine this, and Mr. Hornibrook is to be congratulated on his discovery. The new sub-species was described in THE GARDEN, January 19th (page 37), and the name of Vilmoriniana given to commemorate the name of the introducer. The illustration given here will give a fair idea of the appearance of this new pigmy conifer. The leaves of Saxifraga (Megasea) ornata (probably a hybrid form of S. ligulata, and very beautiful in the early spring) on the bottom left-hand corner will serve to give the correct proportion. The exact measurements are 75 centimetres in height and as much in width. The habit is upright and stiff. So far this large-sized plant is unique, apart from a few very small plants, one or two of which are in the possession of Mr. Hornibrook. But as cuttings have been made in numbers last season in Verrières it is expected that this interesting new shrub, very ornamental indeed and so different from anything else known in dwarf conifers, will soon be able to find its way into the grounds of all garden lovers.—C. L., *Paris*.

AMERICAN WILD FLOWERS CULTIVATED IN ENGLAND.

LAST year, after visiting in America and seeing how the wild flowers grow which we in England cultivate so carefully in our herbaceous borders, I came to the conclusion that to compete with Nature as a gardener is quite out of the question. It is better to go along with Nature, letting her give you a hint or lift whenever possible instead of so often trying to improve upon her. In the woods and wild spaces of the State of Maine, which is in the north-east corner of the United States of America and known as New England, wild flowers and flowering shrubs abound. They are so numerous that it would be quite impossible to enumerate them all, so that I only mention a few which took my fancy

CRYPTOMERIA JAPONICA VILMORINIANA.

and which flower between May and October. The small scarlet columbine (Aquilegia canadensis) is one of the earliest woodland plants, and is very graceful in form, nodding its brilliant heavy head all ways in the breeze. Its height is from 1ft. to 2ft., and it spreads all over the woods.

In the meadows the orange red hawksweed, which we often sow as an annual, is looked upon as one of the deadliest weeds, but it is most striking grown in masses, and there are few flowers of its colour. So also does Rudbeckia hirta, known to all Americans as Black-eyed Susan. This flower flourishes as profusely in dry grass fields and pastures as does our white ox-eyed daisy, and it would be a great idea to plant many clumps of it in grass to follow bulbs which have been flowering in the spring.

Along the hedgeless roads meadow sweet (Spiræa salicifolia) with its rosy-tinted, spire-like panicle of fleecy flowers is a most fascinating shrub, so is hardhack (Spiræa tomentosa), a beautiful plant, with a flower-spike which is more slender than meadow sweet and of a very much deeper shade of pink. Both these are excellent for picking big branches off, as they last a long time in water.

Mountain laurel (Kalmia latifolia), which grows from 3ft. to 6ft., is very striking, with glossy dark green leaves which are arranged alternately along the branches and often in dense terminal clusters and has quaint pinky white flowers growing in a flat bunch at end of stem. Sheep laurel (Kalmia angustifolia) is a small shrubby species growing from 3ins. to 6ins. high with a beautiful deep pink bloom, and is often known as sheep poison and wicky. All the laurels, unluckily have dangerous properties, the juices of the leaves being very poisonous and, of course, this plant chooses to grow best on land suitable to sheep, where its tempting leaves often prove fatal to these animals.

From June to the end of July Thalictrum polygonum, the tall meadow rue, revels in stretches of swampy land, drifts of its creamy plume-like flowers waving on stems 7ft. and 8ft. high, while its fern-like foliage, resembling large maiden-hair fern, spreads out many feet around it. The scarlet cardinal flower (Lobelia cardinalis) also grows in moist ground, especially along the sides of brooks during August, and is far healthier than any grown in borders in England, although the temperature is well down below zero in the winter. Oswego tea (Monarda didyma), which we generally call bergamot, also grows in much the same places. Of the three lilies of which I saw most one was the wood lily (Lilium philadelphicum), the blooms being deep orange red and spotted with dark brown at the base. Its name rather leads one astray, as it is more often found in sandy or brush-covered land than in woods. The Turk's cap lily (Lilium superbum) is one of the most prolific bloomers, and has brilliant orange flowers, while the Canada lily (Lilium canadense) likes a nice cool meadow to grow in. There it sometimes can be found in hundreds, a beautiful graceful pale yellow bloom. I saw many of these from the train going down to New York from Rockland, while Bouncing Bet (Saponaria officinalis), which was one of the first foreign flowers introduced into America, has become naturalised and grows in masses along the railroad tracks, filling the air with its delicious scent, with here and there big clumps of the evening primrose (Œnothera biennis) standing 6ft. high. Of the glories of the golden rod (Solidago), which is such an enormous family, comprising nearly a hundred species, it is hard to say enough. From July to the end of September it appeared in dry grass fields, some real dwarf kinds, others having had their heads cut off with the hay, flowered in a stunted state, making the meadows look as if powdered with gold dust. In the woods it outgrew everything else, having enormous stiff heads held 6ft. to 8ft. high, but it was much more happy when growing in swamps, and in several places I saw it with several feet of water up its stem swaying and dipping its golden head in the swift current. The silver rod or white golden rod (Solidago bicolor) is very inferior and is not in any way effective. The pearly everlasting (Anaphalis margaritacea), called by the French "Immortelle," which has a grey-white woolly stem and flowers in flat-topped silvery clusters,

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covers dry hillsides or recently cleared ground, and has a ghostly appearance and immediately makes one think of some cemetery where all the graves have been newly decorated with this well known flower so beloved by the florists for wreaths, etc.

The golden rods are only outdone in beauty by the asters (Michaelmas daisies). Here we have another numerous tribe, and even more variable in height, colour and form, the shades of colour ranging from white to mauves, lilacs, pinks and damson.

In August and September the most beautiful, to my mind, in its lightness and delicacy of colouring, was lilac starwort (Aster elegans), the most attractive shade of real lilac which, when growing in or near the water, is a large handsome flower, but when on dry dusty ground or hillside is not above 1ft. or 2ft. It grew in between rocks on the mountain sides, it covered the roadsides so that on half-closing one's eyes one seemed to be motoring over lilac-coloured roads.

Never can we in England succeed in having such acres of marvellous autumn herbaceous borders as are to be found in America growing along the roadsides, or such intense colouring and varieties of yellows, mauves and whites, backed here and there by an early turned scarlet maple tree whose colouring is so intense that it would make our cherry trees look quite dingy beside it. We cannot exactly get this natural effect into our gardens, but very many who have swampy ground and ponds might plant thalictrums, golden rods and Michaelmas daisies where they have plenty of room to spread and see how much more lovely they look growing naturally rather than in tied-up bundles, as they are so often to be seen in English herbaceous borders.—EVELYN P. VENNING.

ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Hyacinths after Flowering (D. J. C.).—The hyacinths should be allowed to mature in the position in which they have flowered, when they may be lifted and dried off in an airy shed or outhouse. It is doubtful, however, if they will flower so well another year, though they may give small spikes of flowers. The single jonquils usually flower in May, and they may be early or late, according to the conditions of the weather. It is getting a little late to sow annuals. Mid-March would have been much more suitable for the majority of such things. Sow the seeds of the perennials at once, preferably in a prepared plot of ground in the open in a rather sheltered place. The resulting seedlings will give good sturdy plants for transplanting in autumn.

ROSE GARDEN.

Paraffin Emulsion for Spraying Roses (C. D. L.).—This can be made as follows; Dissolve one quart of soft soap in two quarts of boiling soft water. Remove from the fire, and while still boiling hot add one pint of paraffin and immediately churn the mixture with a small hand syringe. In five minutes a perfect emulsion will be obtained. For use dilute with ten times its volume of water.

Disease on Scotch Briar (K. L. B.).—The fungus on the briar is the rose rust (spring form), Phragmidium subcorticatum. This spreads by means of the spores on the spring form to the foliage, and produces brown and, later, black spots on the lower side of the leaves. The fungus winters on the leaves, and the more completely they can be destroyed in the autumn the better, for it is from these diseased leaves that the spring infection comes. Spraying with Bordeaux mixture or with a rose red solution of potassium permanganate will help to keep the fungus in check. The disease attacks wild roses, and so makes it difficult to keep in thorough check in the garden.

THE GREENHOUSE.

Injury to Pelargonium Cuttings (S. V. I.).—The pelargonium cutting is attacked by the fungus Botrytis cinerea. This is a very common fungus on all sorts of vegetable matter, and the spores are practically ubiquitous. It attacks living plants as a rule (1) after it has been growing for a time on decaying matter in the soil; (2) When they are very sappy or have some unhealed wounds upon them; and (3) at times when they have been exposed to low temperatures. Some varieties are naturally more liable to attack than others, *e.g.*, the white lily is much more frequently attacked than any other lily by this fungus, which is the cause of the lily disease. Treatment and preventive measures in the present case lie in keeping the plants in as well ventilated a situation as possible, removing and burning all dead and decaying matter, keeping the atmosphere as dry as is consistent with the slow, steady growth of the plants, and occasionally spraying with a solution of 1oz. of potassium sulphide in three gallons of water.

Dividing Clivias (G. C.).—Clivias should be divided as soon as possible after flowering. Turn the plant out of the pot and shake away the soil: this will admit of the roots being separated with as little damage as possible. Break away the offsets and place them singly into pots, using a mixture of two parts fibrous loam to one part of leaf-soil. A liberal proportion of sand should be added to keep the soil porous. It will be an advantage to keep the plants moderately warm and close for a month or two. Give sufficient water to keep the soil moist, and the plants should be sprayed overhead two or three times a day during bright weather. With proper treatment the large plant should flower next year.

TREES AND SHRUBS.

Crataegus prunifolia (K. W.).—This is a small tree up to about 20ft. high forming a rounded head of branches usually wider than high. If not cut off the lower branches reach the ground, forming a beautiful mound of twiggy growths.

Micromeles Folgneri (T. B.).—This is a very ornamental tree allied to the pyruses. It is a native of China, and was introduced to this country about 1901 by Mr. Wilson. Of elegant habit, it has pendent branches which are clothed with silvery leaves and bear flattened heads of white flowers. The small fruits differ from those of pyrus, principally by having no calyx lobes to the apex.

Azaleas not Flowering (P. B. D.).—The Azalea indica shoots sent for examination are too weak to produce flower-buds; moreover, the leaves are very dirty, being infested with thrips. Weak growth may have been caused by the cold, sunless weather of last summer, or the plants may not have been fed sufficiently last year. The reason for the insect attack is probably due to the plants being kept in too dry and too warm an atmosphere. Fumigate the plants with tobacco or one of the commercial nicotine preparations fortnightly for a time, or syringe them with a nicotine solution now and then. Give weak manure-water occasionally while the new growth is being made, providing the plants are not repotted.

MISCELLANEOUS.

How to Catch Mice (J. M.).—Our correspondent should procure a few glass jam jars, those about 7ins. deep and with a narrowing neck or top. Bury the jars in the soil, a few feet apart, and in depth so that the top rim will be level with the soil. Three-parts fill the jars with clean water, and smear some fat—that of mutton for preference—under the narrowing shoulder of the jar, inside and about 2ins. or a little under from the top. The mice are fond of fat and, in trying to reach it inside the jars, overbalance and fall into the water, where they quickly drown. They are voles, or field mice, that do the damage.

Protecting Polyanthuses and Primroses from Sparrows (B. Y. J.).—Our correspondent should make use of a few pieces of glass suspended by a string from small sticks driven into the ground at an angle of 30°, the small pieces of glass being about 6ins. above the plants. Pieces of broken mirror glass are the most effective; these frighten away the birds even when the glass is laid on the soil among the plants. Black thread is usually effective, and Sanitas powder, sparingly used on the flowers, renders the latter distasteful to the birds.

About Ponds, Fish and Mosquitoes (G. H. K.).—All newts found in the pond should be destroyed, if possible. They do worry small gold fish, the latter eventually succumbing to their attacks. Undoubtedly the newts are responsible for the loss of the gold fish. With regard to the mosquitoes the surface of the pond water should be kept as free as possible from scum, weeds or similar foreign matter. If gold fish can be kept they would rid the pond of mosquitoes sooner than any other fish would, or any other means that could be adopted.

Topiary Work (Felsted).—It is not usual to use formal cages in topiary work. Generally beginning with young plants or those of a convenient size, the topiarist by constant clipping gradually obtains the desired shapes. Measuring rods and tapes must be used to secure accurate height and width, but for the most part the operator relies on practice and skill in evolving and maintaining the requisite designs.

Seedlings Unsatisfactory (J. W., Chester).—The very moist soil at the time of sowing would not cause the seeds to fail to germinate in boxes under glass. The best way is to level the soil, water and allow it to drain for a few hours. The seeds should be sown evenly and so covered with fine soil the proper depth for each kind of seed. It is not wise to water the covering soil at the time of sowing. There should be an even temperature and moisture. Recently, the nights have been very cold and, no doubt, that is the reason why our correspondent's seedlings are unsatisfactory. They have been chilled. It was wrong to place the boxes of young vegetables, etc., outside during the daytime, as the change was too great, the air being too cold. Both they and the sweet peas would have fared better in the cold frame, the lights being regulated and mats placed on at night. With the advent of warmer weather the seedlings will make better progress.

Application of Basic Slag (Novice).—Basic slag is a valuable manure, as it supplies lime (which counteracts acidity) and phosphates to the soil in a form which plants can use after a time. But it is slowly soluble only, and must be used only in autumn on that account. We should recommend the sowing of the slag at the rate of, say, 3oz. or 4oz. to the square yard of the surface, just before digging the soil in the autumn. It gives the best results on clay soils, or those containing a good deal of moisture.

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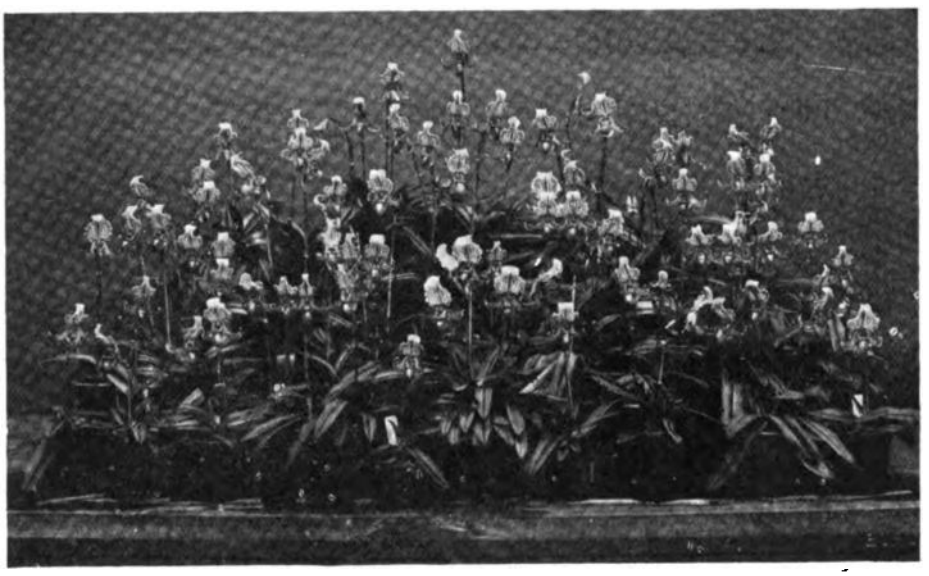
THE CYPRIPEDIUMS

FEW orchids are more easily grown than cypripediums, and for this reason they are admirable plants for an amateur. When visiting different gardens both large and small I have found the popular C. insigne growing under the most diverse conditions, but as a general rule the plants were in good health and annually produced their crop of bloom. The flowers remain in full beauty for several weeks, and as fog resisters they have no equal, a fact that should be noted by all who live in close proximity to large industrial towns.

A beginner could make a pleasing and varied display with varieties of C. insigne alone, if his taste was in that direction, but for preference he should confine himself to the variety known as Sanderæ, the finest of the yellows, and Harefield Hall, the best of the spotted forms. C. Charlesworthi is also good, and the pretty little C. Fairrieanum, also C. Spicerianum and C. villosum. Hybrid cypripediums are almost legion, and here it is difficult to make a selection, but a few stand out above their fellows, and are still held in high esteem by orchid lovers. They embrace Thalia, Leeanum and its varieties Clinkaberryanum, Corona and giganteum, Actæus, Niobe, Priam, Baron Schrœder, and triumphans.

There are a host of others of equal merit, and when an amateur becomes interested he will be anxious to visit a show or nursery and make his own selection.



THE PRETTY LITTLE CYPRIPEDIUM FAIRRIEANUM.

CULTURAL DETAILS.

In many establishments a separate house or division is set apart for cypripediums alone, which, of course, has its advantages, but this is not necessary where only a few plants are grown. Almost any greenhouse will suffice if the temperature during the winter months can be kept at 50° Fahr., with a rise of 5° or 10° by mid-day according to the weather. If sharp frosts exist a slightly lower temperature is better than a lot of fire heat, which renders the atmosphere extremely dry, a condition not conducive to healthy growth, but very favourable for the increase of insect pests. Throughout the greater part of the year a fairly moist atmosphere is necessary, and when the elements are favourable (such as bright, hot days), a light spray overhead once or twice each day will be found beneficial. Blinds will be needed to protect the plants from the direct rays of the sun, and a little ventilation may be given whenever the outside temperature is above 50°, and there is not much wind. Even then the ventilators could be opened an inch or so on the leeward side of the house, the object being to prevent a direct current of air passing over the plants.

REPOTTING THE PLANTS.

When growing cypripediums it should be borne in mind that they enjoy more generous treatment than the majority of orchids, and the better they are treated the finer the flowers. As a general rule a cypripedium will go three years without repotting, providing the soil is right, and it is not over-watered. The compost consists of the best fibrous loam three parts, the remaining portion being made up of Osmunda fibre and partly decayed oak leaves, with just a sprinkling of crushed crocks or sand to keep the whole in a porous condition. With the exception of seedling cypripediums no sphagnum moss need be used. All the fine particles are sifted out, and the plants may be repotted a few weeks after the flowers are cut. Ordinary flower pots are chosen, and these are filled one-fourth of their depth with drainage material. The receptacles should be large enough comfortably to take the roots; the soil is pressed moderately firm and brought up level with the rim of the pot. Small plants may be moved on without any root disturbance, but if necessary large examples may be divided, and each piece given a separate existence, or several may be placed together to form a compact specimen. It should be remembered that only plants of a fair size, and that are well rooted, produce flowers of the best quality. In regard to watering cypripediums an observant cultivator cannot go wrong. Newly potted plants must not be overdone in this direction, but once the roots take possession of the soil they ought never to become really dry at the base. Naturally the greatest quantity is required in the spring and summer months.

T. W. BRISCOE.

THE AUTUMN SNOWFLAKE

FREQUENTLY known as Leucojum autumnale, but also called Acis autumnale, this is one of the most charming of plants.

Surely the Sicilian shepherd, Acis, beloved of Galatea, whose Cyclopean rival, Polyphemus, wreaked vengeance upon him by crushing him under a rock, could have no more fitting memorial than having his name associated with a genus of plants of such exquisite beauty as that to which the subject of this note belongs. It is one of the most exquisite of all bulbous plants which appeal to the lover of miniature flowers, over which he hangs with delight when they are in flower. And this autumn snowflake is undoubtedly one of the most exquisite of these, and is, moreover, the one of its race difficult to obtain in commerce.

If procured in July, too, it will flower the same autumn, and will afford the keenest delight with its delicate chocolate-coloured stems bearing their fascinating drooping flowers of shining white, tinged with pink at the base, about September, and the slender grassy leaves which come after the blooms. I know of no more fairy-like plant in the realm of bulbous flowers, and a group of a dozen or more bulbs on a level part of the rock garden when in bloom affords the keenest delight to all flower-lovers who can appreciate the gems of Flora's treasures in miniature. Unfortunately, there are some cold places where it is hardly safe to plant this autumn snowflake and leave it unprotected in winter until the foliage has ripened naturally, and in some northern gardens the precaution of covering the leaves with glass has had to be adopted. Otherwise it is quite hardy, if planted at a depth of 2ins. or so. A sandy soil and a sheltered sunny place should be chosen for this lovely flower, which came to us from Portugal as far back as 1629.

S. ARNOTT.

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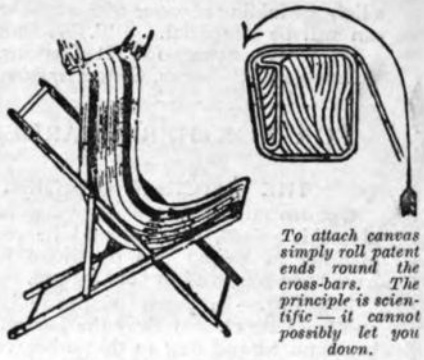

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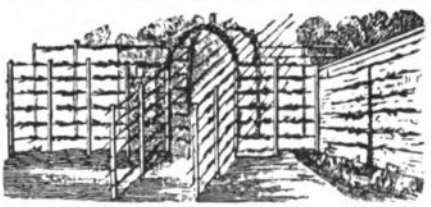

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Runner Beans.—In every garden runner beans are an important crop, and they repay good cultivation. A trench should be prepared similar to that for celery, with plenty of decayed manure at the bottom, but the top of the trench ought only to be a few inches below the ordinary level. The rows should be at least 6ft. apart, and a distance of 6ins. allowed between the plants. The first and second week in May is a good time to sow the seeds, and when they are coming through the soil a watch should be kept for slugs. A liberal dusting of soot or lime will keep these marauders in check. Prizewinner and Hackwood Park are two useful and reliable kinds.

Vegetable Marrows.—Where no facilities exist for raising plants under glass the seeds may now be sown where it is intended for the plants to fruit. A bottomless box with a piece of glass over the top will form the necessary protection and greatly assist the seeds to germinate. Plants raised a few weeks ago may be planted out in cold frames, and later on the frame may be removed. Admit plenty of air during the day and on mild nights.

Crops in Frames.—At this season the lights may be dispensed with unless there is any likelihood of a frost through the night. Supply the roots with plenty of water, and see that the plants are not overcrowded.

FRUITS UNDER GLASS.

Vines.—Where the vines were started early in the season the berries will soon show signs of ripening, and now it is advisable to look over the bunches for the final thinning. Remove any stoneless berries, and others where they are unduly overcrowded. Continue to stop the lateral growths, and admit air during the forenoon when the weather is favourable for opening the ventilators. The floor and border should be damped down when the house is closed in the afternoon, and the roots kept moist by affording tepid water. A night temperature of 65° Fahr. should be maintained, with a rise of several degrees during the day. In the later houses the bunches will require thinning, and when such work is done the variety of the grape must be taken into consideration. Those with large berries need severe thinning compared with others that are smaller. Gradually tie the shoots down to the wires, and keep a buoyant growing atmosphere by judicious ventilation and damping down. Close the house sufficiently early for the temperature to rise to 85° Fahr. with the sun heat. When the bunches are thinned, feed the roots with diluted liquid manure and some reliable fertiliser.

The Orchard House.—Pot trees should be kept well supplied with water, and when the fruit is set liquid manure afforded in moderation will be beneficial. Where possible, trees producing heavy crops may be top-dressed with rich soil, placing some turfy loam around the edge or rim of the pot. Cherries will probably need thinning, and the growths on all trees should be reduced where necessary. If green or black fly appears, fumigate at once, and afterwards well syringe the trees.

THE FLOWER GARDEN.

Violets.—Owing to the lateness of the season the planting out of the runners has been delayed, but now they ought to be planted without further delay. Select a position shaded from the midday sun, and set the runners 1ft. apart. Until they are established a light sprinkling of water with a rose watering can will be beneficial. T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Cucumbers.—Where only one batch of plants is raised, these should be ready for planting in heated pits or where hot-beds have been prepared in cold frames.

Digging.—As crops of broccoli, greens and leeks are cleared away the ground should be manured and dug so that other vegetable plants can be grown thereon.

Kidney Beans.—To have pods ready for picking about the end of July or early in August further sowings should now be made. These plants may be grown on borders or between long lines of green peas. We have found Veitch's Early Favourite a splendid cropping variety.

Onions.—Further plantings of later sown onions should be made on ground that was deeply worked and well manured in the winter and given surface dressings of soot from time to time. The ground should be thoroughly raked, then trodden with the feet or rolled to make firm. The plants raised under glass and brought on in boxes should by now be thoroughly hardened off. They should be set out in lines 12ins. or 15ins. apart according to the space available, and 6ins. or 8ins. allowed between the plants in the lines. If dry weather prevails it may be necessary to water the young plants.

THE FLOWER GARDEN.

Biennials.—Strictly speaking the wallflower is not a biennial, but in gardens it is mostly grown as such. Those who wish to raise young plants should draw out drills 1in. deep and 1ft. apart and sow the seed therein. In seed catalogues there are many fine varieties enumerated. Those who require floriferous plants to carpet beds of spring bulbs should sow seed of forget-me-nots in lines similarly to wallflowers; Perfection Blue is rather a choice variety. Canterbury bell seeds are somewhat small and should be sown in boxes containing medium fine soil and raised under glass.

Chrysanthemums.—Cuttings taken in February and early in March should now be well rooted and sufficiently hardened off to be set out in the borders. Varieties vary in height and those of the Masse type should be grown in the middle or back places of the borders, while the dwarfer kinds such as Craigmillar, Golden Diana and Mytchett White are more suitable to plant near the front, or in small beds.

East Lothian Stocks which have been raised from seed sown last autumn and wintered in cold frames either in boxes or in the soil of the frame, should be set out 6ins. or 8ins. apart in their flowering quarters. The plants should be well watered at the roots a day or two previous to being planted out. Fine double stocks, when well grown, make rather a good show if grouped in masses and each mass all of the same colour.

Lilies of the Valley.—It is often the case that the beds get overgrown and infested with perennial weeds. All that can be done meanwhile is to keep hand weeding until the foliage withers. The whole bed or beds should then be dug up and the roots replanted in a clean sec[illegible] ground.

[illegible] ARMSTRONG
(Gard[illegible] [illegible]lore Nisbett, Esq.),
The [illegible] Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Corydalis thalictrifolia.—This plant is easily raised from seed at this time. It has elegant foliage and yellow flowers, and is a very useful plant for the cool greenhouse or for standing in living-rooms. This corydalis makes a good edging to beds and borders in the conservatory, standing well in semi-shaded places.

Clerodendron ugandense.—This species, with its pretty blue flowers, is easily propagated by means of cuttings, and may be grown as a bush in large pots; but it is seen at its best when planted out and trained up a pillar or rafter in the conservatory. It is also well suited for training on a back wall, and, beyond keeping the shoots thinned out, requires very little pruning.

Jacobinia pauciflora (syn. Gibsonia floribunda).—This is a very old garden plant, which is very useful for flowering during the winter. It is easily propagated by means of cuttings, which root readily in a case with slight bottom heat. It makes a close, well furnished, bushy plant, and grows well in a temperature of about 55° to 60° Fahr. Good plants are produced in one season, but if so desired the old plants can be grown on for several years. If this is done they should be shortened back during early spring and when starting into growth, the plants should be turned out and their balls of soil slightly reduced, so that they can be placed in the same sized pot. When growing freely they should have another shift into suitable sized pots. In the immediate neighbourhood of London this plant suffers very much from fogs, which cause it to drop its leaves and flower buds.

Moschosma riparium.—This beautiful South African plant, with its graceful sprays of small white flowers with black anthers, is very useful for flowering during the winter. If cuttings are inserted at this time, fine large specimens some 3ft. in height can be obtained. The cuttings root readily in a close case with slight bottom heat. The subsequent cultivation presents no difficulty, as it grows well in any good potting compost. During the summer months it grows quite well in an ordinary warm greenhouse. The young plants should be pinched several times, so that well furnished plants are produced. The plants should be potted on as they require it, and really fine specimens can be produced in 8in. pots.

Begonia manicata should be much more generally grown, as it is invaluable for conservatory decoration. Plants raised from cuttings about this time last year, and flowered in 6in. or 7in. pots, should now be transferred to 9in. or 10in. pots. Plants treated in this way should make fine specimens 3ft. or 4ft. in height. The plants, as soon as the flowers show signs of colour, should be removed to an ordinary greenhouse with an average temperature of about 50°. If kept in a warm house the flowers come pale in colour and only last in good condition for a few weeks. Cuttings for a stock of young plants should be inserted at this time, and both the young and old plants grown in a house with an intermediate temperature.

Campanula pyramidalis.—If not already done, seed should now be sown. Young plants in 48-sized pots, and wintered in cold frames, should now have a shift into 6in. or 7in. pots and be stood at the foot of a wall. Plants for flowering this season should now be placed in their flowering pots, which should be 9ins. or 10ins. in size. J. COUTTS.
Royal Botanic Gardens, Kew.

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THE GARDEN

VOL. LXXXVIII.—No. 2738. MAY 10, 1924

MOST ATTRACTIVE LATE SPRING BORDERS CAN BE MADE WITH A MIXTURE OF TULIPS AND FORGET-ME-NOTS. THEY ARE SHOWN OFF TO DISTINCT ADVANTAGE IN THIS ALLEY OF TOPIARY WORK.

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THE GARDEN

MAY 10, 1924.

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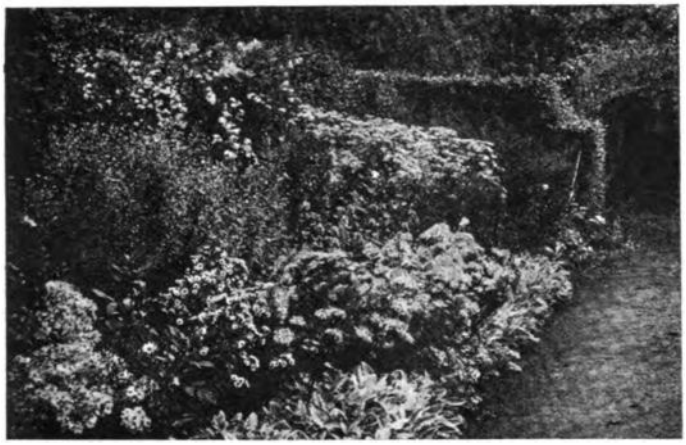

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RHODODENDRONS

AS we are now in the middle of the rhododendron season, it is only fitting that there should be special exhibits of this genus at the fortnightly exhibition of the R.H.S. at Vincent Square. Such being the case, perhaps a few words on this very favourite plant might not be amiss.

I feel rather like the parent who shows off his offspring at the tea-table and then talks to it concisely and thoroughly about bad behaviour once the guests have gone. For rhododendrons have a habit of appearing marvellous when on exhibition, but unless you grow them you never know the heart-burnings and the trials which have to be faced before getting them to grow to perfection. They are inclined to be tricky at the best of times, and in a difficult season like this they are cantankerous to a degree that drives the grower to exasperation. They jib at frost, they jib at drought, they jib at wind, and yet once they have closed in your affection with their hair-like tentacles you are lost. You nurse them like a sick child, and give up golf, home, country and even fishing to their seductions. Even their idiosyncracies have their charm. If they grew like cabbages, half the enthusiasm would go, for there is little amusement to be gained from growing a plant that flourishes like the proverbial bay tree under any treatment you care to give it. The real gardener is only thrilled when there is a battle to be fought and won. He grits his teeth, puts on his thinking cap and wades in. Rhododendrons are fit antagonists.

There is no plant which makes more response to good treatment, particularly in the case of situation and feeding. Half of the failures are due to the former and half to lack of nourishment. As surface-rooting plants they require an unlimited quantity of leaves and rotten wood on which to feed, and this is applied in the form of mulch. The great point to remember, not only with rhododendrons but with all gardening, is to live up to the theory that what is worth growing at all is worth growing well. Rhododendrons are easy plants from which to get some result, but that is not sufficient, they require cultivation, and that takes a little time and a little trouble.

Here are a selection of DON'TS for those who wish to start on the cultivation of this fascinating family:

DON'T grow rhododendrons if you live on a limey soil.

DON'T envy your neighbour if he is successful with a species or hybrid which you cannot grow. The number of species and hybrids in existence is so large that some will be satisfactory for your locality.

DON'T try to grow rhododendrons in situations suitable for annuals or herbaceous plants: they require shade and shelter.

DON'T be disappointed if the flower of a rhododendron which blooms for the first time is not so good as you hoped for. Imagine such a flower multiplied a thousand times.

DON'T grow large-leaved rhododendrons if you live in the north or east: there are many species and hybrids of bush or dwarf form which will satisfy your requirements and are just as lovely as tree rhododendrons.

DON'T imagine that rhododendrons have no personality. They are a widespread race in the northern hemisphere and conditions vary in different countries. It is the duty of a gardener to find out the requirements of a plant. You don't expect a Burman to live all the year round in Yorkshire without special protection or food, then why ignore the requirements of a rhododendron?

DON'T confine yourself to garden hybrids. They are inclined to be too much alike in form and habit. The species and better hybrids vary from dwarfs 2ins. high to giants of 60ft.

DON'T expect a large-growing rhododendron to flower the first year you plant it in your garden.

DON'T expect a rhododendron to grow without care and attention. They require cultivation and food as much as any other plant.

DON'T be alarmed at these don'ts. There are rhododendrons to suit almost every garden. A little care and patience are all that is required.

E. H. M. C.

"THE GARDEN" AT WEMBLEY.

THE GARDEN is represented at "The British Empire Exhibition," and all readers are specially invited to make our Stand a place of call; it is just inside the gate of Harmony of the Palace of Industry, which will be found a very convenient centre. Readers will be afforded an opportunity of looking through, at their leisure, the books produced by *Country Life* on Architecture, Art Furnishing, Gardening, Sport, and many other subjects, such volumes as "Garden Ornament," "Gardens of Italy," as well as smaller practical books, like "The Book of Bungalows" and "Furnishing the House." The Manager in charge of the Stand has instructions to afford THE GARDEN readers every facility and attention, and any information they may require about the Exhibition.

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CAMPANULAS for the ROCK GARDEN

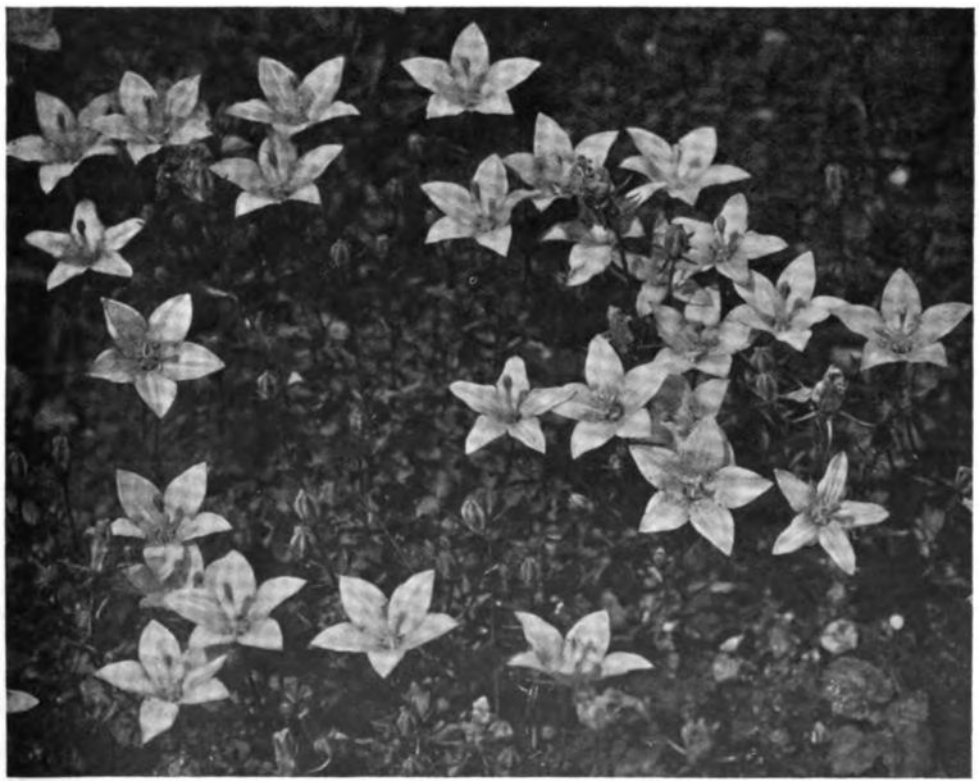
THE campanula family is a very large one, consisting of a number of beautiful plants, many of which are invaluable for the herbaceous border, flower border and wild garden, or for naturalising in the woodland, while a large group are of dwarf habit and compact growth, eminently fitted for use in the rock garden. Many, like CC. garganica, pusilla and Portenschlagiana, are of easy culture, growing in any half-shady positions in moist stony soil; while others, like CC. Allionii, Raineri and Zoysii, require more care and attention. The majority may be accommodated in the ordinary rock garden in pockets and on ledges, provided they are supplied with rich, gritty, well drained soil. The others may be grown under moraine conditions, or in fissures and crevices in the larger rocks, as well as in the joints between them. The campanulas flower generally at a time when the early alpines are over, and thus carry on the succession of bloom for the best part of the summer, large groups of the more easily grown kinds providing a most effective display of colour.

One of the most showy species, and one of the first to come into flower, is C. Allionii (syn. alpestris), which generally blooms at the beginning of May. In the ordinary rock garden soil this plant is not too easy to grow, but in the moraine composed mostly of stone chips with leaf-soil and sand it spreads rapidly by means of its underground runners. In April, from rosettes of somewhat glossy green leaves arise the stalks, about 2ins. high, bearing the buds, which develop into beautiful purple, trumpet-shaped flowers in May, reminding one of a refined Canterbury bell. In colour and in size of the bell it is very variable, there being poor and good forms in cultivation. Many losses in this country are not due to lack of hardiness, but to the depredations of slugs, which are fond of this, as of many other, campanulas. These pests eat out the growing points, and thus cause the death of many promising plants. C. Allionii is easily propagated by division of the underground stems in July, and it can also be raised from seeds, which are produced freely. This plant is found on the Alps of the Dauphiny and Piedmont, growing in heaps of stony debris in full sun. Another choice plant is C. alpina, known as the "Alpine bell-flower." It is nearly allied to C. barbata, but, unlike that plant, C. alpina prefers soil of a calcareous nature. It possesses a fleshy root-stock, and forms a tuft of narrow leaves, from which the stem, only 3ins. or so in height, is produced. The flowers are large and bell-shaped, and vary in colour from pale to deep violet. Each stem bears from six to eight flowers in a raceme in May and June. C. alpina is found at elevations ranging from 6,000ft. to 7,000ft. in the Alps of Austria and Transylvania, among other places, and may be grown in gritty loam. Although perennial in its native habitat, it often behaves like a biennial in this country, dying after flowering. It, however, sets seeds freely and is easily increased in this way.

C. arvatica (syn. C. acutangula) is a charming little species for the moraine. Its habitat is in the Cantabrian Mountains of Northern Spain. Of prostrate habit, the stems are trailing and bear large star-like flowers of a purplish blue colour, while the leaves are small, round and toothed. It flowers in May, and spreads by means of underground stems in the way of C. Allionii. It is quite hardy in well drained, gritty soil in full sun. A favourite in gardens is the well known C. barbata, which is found on most of the mountain chains of Europe, mostly in soil of a non-calcareous nature. The whole plant is hairy, with a tuft of basal leaves, from which arises the stem, about 1ft. high, bearing several large drooping flowers on short stalks. These are pale blue, and bearded inside with long hairs. It is one of the easiest to grow, is a good perennial, and flowers in May and June. There is in cultivation a good white variety, and both are readily raised from seeds. A somewhat difficult plant to grow is C. cenisia, which is found in the glacial moraines and masses of stony debris in the Alps. It is a pretty plant of creeping habit in the way of C. Allionii, with large, wide open flowers of a blue lilac colour produced in May and June. It should be grown in the moraine, in which large stones are embedded, or in a rocky crevice in full sun.

A downy species with silvery grey foliage is C. elatinoides from Lombardy, where it grows in rocky fissures. It does well in the crevices or joints of a sunny wall, sending out simple leafy stems with many dark blue flowers in September. It is very impatient of damp, like the closely allied C. Elatines, which requires identical conditions for successful culture. The latter plant differs in having a branching stem and bears numerous small violet-blue flowers in August and September. Another wall plant is the Italian C. fragilis, of dwarf habit and with branching, pendent shoots. These are clothed with dull green leaves and bear large, wide open, light blue flowers from June onward. One of the most distinct and charming little plants is C. excisa from the Simplon and Alps of Saas, where it grows in heaps of stony debris at an elevation of over 6,000ft. Grown under moraine conditions it spreads freely, running along rocky crevices and between the embedded stones. It has narrow leaves and slender wiry stems which each bear one graceful, drooping, bell-shaped flower of a blue lilac colour. The flower is characterised by having at the base of each lobe of the corolla a hole, as if it had been cut out. This species will not grow in limestone, but a joint or crevice in a rock of non-calcareous nature will suit it admirably. It flowers in June.

An easily grown plant is C. garganica. This species is found in eastern Italy and



A CHARMING LITTLE SPECIES FOR THE MORAINE, CAMPANULA ACUTANGULA.

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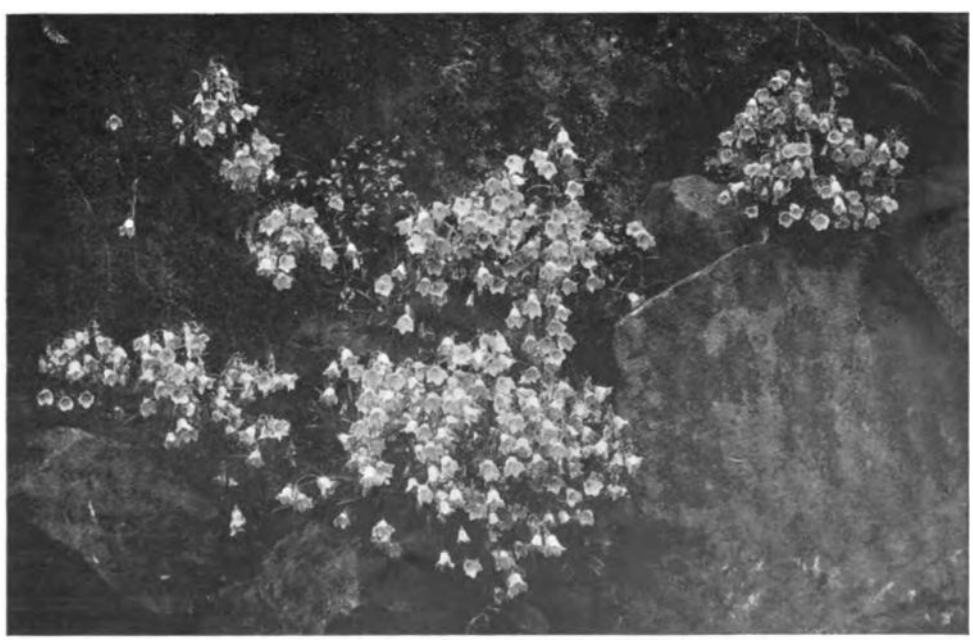
Dalmatia, and is one of the most charming of the dwarf kinds. It forms tufts of light green foliage, with many stems clothed with small, rounded, reniform toothed leaves. The light blue flowers are produced very freely from June to August and are of medium size, wide open and looking upward. It grows freely on a sunny ledge in gritty, well drained loamy soil, and is also well adapted for growing in the crevices of sunny walls. It is a very variable species and there are several varieties grown in gardens. C. g. var. hirsuta is a very hairy form which requires a sunny crevice. There are also white forms, and another good variety with large blue flowers having a white centre is known as "W. H. Paine." All may be readily increased by means of division or by cuttings in summer. A very distinct biennial is C. lanata (syn. C. velutina), from the Balkans, where it grows naturally in the fissures of rocks. It makes ornamental rosettes of large grey, silky-hairy leaves, with stout branching stems which bear numerous white, pale yellow or purplish flowers from July onward. It sets seeds in quantity, and self-sown seedlings come up freely in any suitable crevice near the old plant. From the Caucasus we get a very handsome plant in C. mirabilis, with rosettes of shiny green leaves. It is monocarpic, and flowers in two or three years from seed, with a branching stem bearing numerous large bell-shaped flowers of a pale lilac colour in July. It should be grown in a sunny crevice, and prefers limestone.

THE HYBRID CAMPANULA STANSFIELDII. FLOWERS RICH VIOLET PURPLE.

The charming little Dalmatian C. Portenschlagiana (also known as C. muralis) is one of the most useful of the smaller-growing campanulas. Of free-spreading habit in half-shady or sunny positions, this bell-flower will soon cover a good area with its stoloniferous stems, which love to ramble among moisture-holding rocks. In such positions it will produce masses of rich violet flowers from June onwards through the summer months. It varies a good deal, the Bavarian form bearing the largest flowers, and is also more vigorous in habit. It is known as C. P. major. A dwarf tufted plant forming a turf with numerous stolons is C. pulla. It only grows about 3ins. high, with one-flowered stems and drooping, deep violet-coloured flowers in June. This species likes a porous soil rich in humus, but with plenty of small broken stones of a non-calcareous nature. It is a native of the Alps of Austria and Transylvania.

C. pusilla is also known as C. cæspitosa and C. pumila, and is one of the most easily grown. It spreads freely by means of stolons and self-sown seeds, flowering freely from June to October. The flowers are very variable in colour, ranging from rich blue to pale lilac and pure white. There are many named varieties, as well as hybrids of this species. A choice plant is C. Raineri, from the mountains of north-eastern Italy, growing in damp fissures of rocks. It only grows from 2ins. to 3ins. high, with branching stems bearing wide open, violet-blue flowers in July. It is a plant for the moraine or rocky crevice in full sun, in poor gritty soil. C. speciosa is a rare Pyrenean plant in the way of C. alpina, but larger, which spreads by means of underground stolons. From 6ins. to 1ft. high, the stems are stout, branching from the base upward, with large flowers borne singly on long stalks. The blooms vary from light to dark purple, and are produced in June. It grows naturally in limestone cliffs and rocky places in loose stony soil. C. Stansfieldii may be called a large edition of C. Waldsteiniana, and is supposed to be a hybrid between the latter and C. carpatica. The rich violet-purple flowers are borne on thin wiry stems which are clothed with leaves of a yellowish colour. C. Tommasiniana is a pretty species growing about 8ins. high with wiry stems, narrow leaves and light blue or lilac narrow bell-shaped flowers. It comes from the Dolomites and is easily grown on a sunny ledge. Closely allied to this is C. Waldsteiniana only 2ins. in height, with erect stems, silvery grey leaves and pale blue open flowers in June. It is a native of Dalmatia and easily grown in gritty soil. One of the most charming of the family is C. Zoysii, from the Alps of Styria and Transylvania. It grows in the debris of calcareous rocks and is a small tufted species with glabrous



THE ALPINE BELL-FLOWER, CAMPANULA ALPINA.

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leaves, erect stems 2ins. high, bearing single flowers of rich blue colour. These flowers have a curiously swollen tube and are hairy inside. It may be grown in a moraine, but must be protected from slugs.

There are numerous hybrids in the genus, one of the most interesting being C. kewensis. This came up spontaneously in the rock garden in close proximity to its two parents, C. excisa and C. arvatica. The plant is intermediate in character, having the habit of the former and bearing the open flowers of the latter parent. The wiry branching stems are about 4ins. high, bear narrow sparsely toothed leaves, and produce single flowers on terminal branches. The blooms are rather deeper in colour than those of C. arvatica It is very vigorous in habit and spreads rapidly in stony soil. C. Saxifraga is a fine species from the Caucasus and Armenia. The flowers, which are usually produced in July, are rich violet in colour. It dislikes lime, but thrives in well drained gritty soil.

W. IRVING.

RHODODENDRONS AND AURICULAS AT VINCENT SQUARE

IT is astonishing in this backward season that such a collection of rhododendrons could have been staged at the Royal Horticultural Society's Show of April 29th and 30th at Vincent Square.

RHODODENDRONS.

The chief exhibit of rhododendrons was undoubtedly that of Mr. Lowinsky, who staged a magnificent collection of his famous Don hybrids. These consisted of many vases of cut blooms and about eighteen bushes of flowering plants. It is perhaps unfortunate that not a single plant had a label showing either a name or a number, as it makes description impossible. On the other hand as none of these plants is in commerce this is not such a drawback as it would have been if they were commercially grown. All his blooms showed the fine outstanding trusses of the original Don and what is particularly noticeable is that Mr. Lowinsky is raising flowers of delicate pale mauve of great purity of tone. This is a colour which so far has been uncommon in large-flowered rhododendrons.

Another pale mauve rhododendron with great purity of tone was shown by Messrs. C. B. van Nes under No. 300. We were told that this was a cross between Sir Charles Butler and White Pearl, but the stickiness of the pedicels and the strong sweet scent certainly showed a trace of R. Fortunei. The same firm showed another fine seedling called General Cavendish, large flowers of bright rose and of firm texture. Rhododendrons raised by Messrs. C. B. van Nes are particularly useful in our gardens owing to their extreme hardiness.

Mr. Lionel de Rothschild's exhibit was chiefly noticeable for his lovely form of R. campanulatum, which caused a sensation when shown last year. It is by far the finest form of this species in existence, with flowers of a real mauve. His form of Cornish Cross is also excellent with large flowers opening rich rose fading to a soft pink as they grow older.

Other amateur exhibits were shown by Sir John Ramsden, Mr. Gerald Loder, who showed a very fine spray of R. campylogynum, a fascinating dwarf with mahogany coloured bells, and by the Marquess of Headfort, who showed a series of interesting dwarf rhododendrons in pots.

Messrs. Waterer, Sons and Crisp, besides staging an exhibit of rock plants, had a fine collection of hardy rhododendrons. Their white form of R. punctatum was very charming with its white stamens. Of their hybrids, Alice and Bernard Crisp were the best; they are both fine pinks, but it is a pity that the bad weather was the reason for the poor flowers on the Earl of Athlone, which is one of the very best of the hardy reds. Another hybrid which was unknown to us was Message of Peace, which, as shown, is not up to the usual high standard of this firm; the colour is a poor, washy pink, with a green blotch.

Mr. Reuthe was another exhibitor whose rhododendrons had obviously suffered from the weather. He showed a cross, catawbiense × Thomsoni, a good red with flowers standing well away from the leaves. This should be a useful plant for cold gardens. On his stand were several nice little plants of a good violet dwarf, shown under the name of R. violaceum, although it is doubtful if this rhododendron, of Wilson's collecting, is in cultivation.

Messrs. L. Endtz and Co., staged a fine exhibit of hybrids, among the best being Hugo de Vries, a pink cross, Pink Pearl × Doncaster, Louis Pastem, pink with dark edges and Souvenir de Dr. S. Endtz, which gained an award of merit.

Other exhibits of rhododendrons or azaleas were shown by Messrs. Wallace and Messrs. Rogers. Messrs. Cuthbert showed Azálea mollis seedlings along with lilacs and pyruses.

One of the most charming exhibits was that of Dutch irises and Veronica Hulkeana, shown by the Maytham Gardens. This stand had the real advantage of not being crowded. The irises were shown in white and the veronicas in black bowls, with plenty of space between each plant.

An exhibit that created a great deal of interest and admiration was that from the Hon. Vicary Gibbs of Aldenham. Apart from being a great gardener, Mr. Edwin Beckett knows *how* to arrange his plants. Here were to be seen innumerable alpines, rhododendrons, azaleas, junipers, saxifragas, and primulas. Rocks were employed and such things as Cytisus præcox, Azalea Hinodigiri and maples were interspersed among the other plants. The fragrant Daphne Fioniana (D. neapolitana) and Violas gracilis Black Knight and Clarence Elliott were prominent. We also noted the beautiful Tulipa Clusiana.

DAFFODILS were exceedingly numerous. In the vast collection from Lowdham, Messrs. Pearson and Sons showed Sunset Glow. It is an incomparabilis with a large open red cup with primrose perianth. There were a lot of their well known giant Leedsii's such as Norah Pearson and White Lady.

Messrs. Sutton and Sons had a very tastefully arranged exhibit intermingled with Asparagus Sprengeri.

The Welsh Bulb Fields showed Joker, a giant incomparabilis with a fiery red bowl and yellow perianth. It is somewhat rough but on the whole a fine flower. Here, too, was Jenny Wren, which is a midget Barrii with white perianth.

The Donard Nursery Company's exhibit was good, but too crowded. Here, as in the other exhibits, were many seedlings under number.

On Messrs. Barr's exhibit the beautiful Venetia was again prominent.

Messrs. Bath, Limited, had an exceptionally fine flower in Achievement; it is an incomparabilis. Here too were to be seen Firetail, Red Guard and The Don.

The Rev. G. H. Engleheart sent up a fine lot of Poets. Messrs. H. Chapman, Limited, showed some seedlings, also Silver Salver and one bloom of White Sentinel. Blooms of the latter were shown at Birmingham and there caused a sensation. Mr. W. P. Downes also had a small collection of narcissi.

Mr. R. V. Berkeley sent from Spetchley, Narcissi Spetchley, Sir Francis Drake and Georgina.

Mr. W. F. M. Copeland exhibited some double-flowered narcissi, including Silver Rose. Mr. Baldwin Pinney showed daffodils and violets.

Several exhibits of roses were put up. These were from Messrs. B. R. Cant, Messrs. Frank Cant, Mr. Elisha J. Hicks, Mr. Geo. Prince and the Rev. J. Pemberton.

Alpines and other hardy plants were, of course, in great evidence. Mr. F. G. Wood had a fine pan of Campanula Steveni. Here, too, were the brilliant little Verbena chamædrifolia, Viola gracilis alba, his strain of polyanthuses and Mertensia virginica.

St. Brigid anemones were shown by Messrs. Reamsbottom. Alpines and shrubs were exhibited by Mr. G. R. Downer. Violas, aubrietias and æthionemas were shown by Mr. T. Carlile.

Pink seedlings of Primula pulverulenta formed the exhibit put up by Mr. G. H. Dalrymple.

Azaleas and other shrubs were shown by Mr. R. C. Notcutt.

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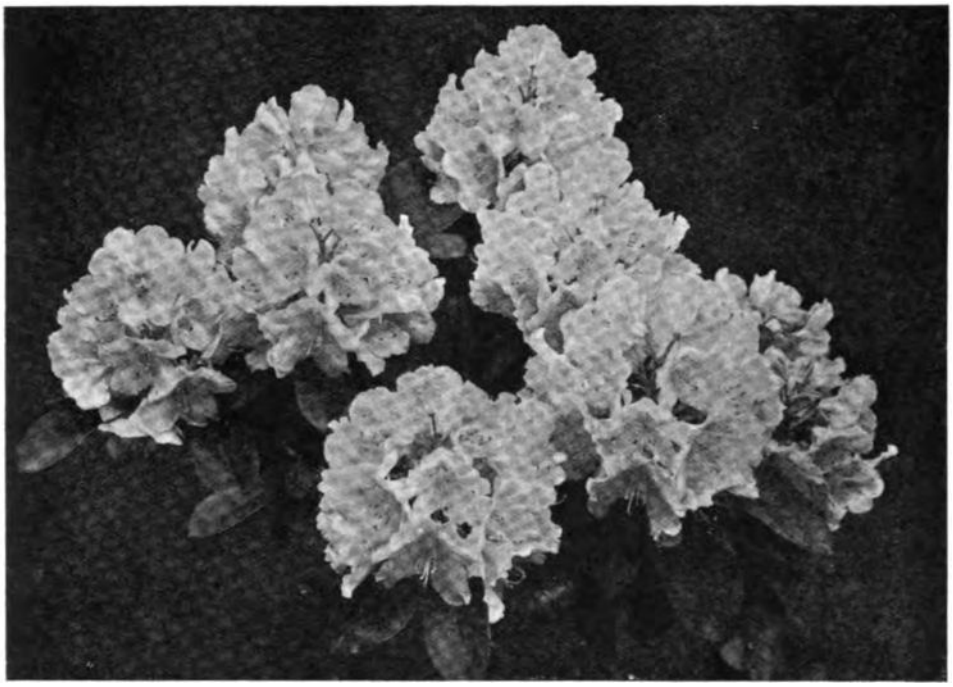

THE PINK HYBRID RHODODENDRON HUGO DE VRIES.

Carnations and acacias were again shown by Messrs. Stuart Low Company.

A good lot of Darwin tulips came from Messrs. James Carter and Co.

Messrs. Carter Page and Co. had a varied assortment of alpines and violas.

Schizanthus grandiflorus was shown by Messrs. Godfrey and Son.

Polyanthuses, alpines and the vivid Muscari Heavenly Blue were exhibited by Mr. G. W. Miller.

Messrs. Ladhams showed violas, alpines and shrubs. Pyruses, magnolias, alpines and dahlias were well shown by Messrs. J. Cheal and Sons. Alpines were also shown by Messrs. Maxwell and Beale. Messrs. Tucker and Sons, Messrs. Skelton and Kirby, Messrs. Rogers, Messrs. Pulhams, The Misses Hopkins and Messrs. Bakers. Messrs. Jarman had a fine show of pelargoniums and violas. Polyanthuses comprised the exhibit put up by Mr. J. A. H. Crook.

A large basket of Ficaria gigantea was shown by the Amateurs' Gardening Society, Limited. A good collection of carnations was shown by Messrs. Allwood Bros.

Messrs. Watsons staged Cytisus Dorothy Walpole. Mr. Englemann had a good collection of perpetual-flowering carnations.

PART OF THE ATTRACTIVE EXHIBIT FROM ALDENHAM.

The annual show of the Auricula Society was held in conjunction with the R.H.S. Meeting. Here Mr. Douglas was the principal prize winner and Mr. J. T. Bennett-Poë secured the James Douglas Cup in the amateur's section. Mr. G. W. Miller was also very successful in the nurserymen's classes. Mr. Douglas staged some exceedingly fine plants.

NEW AND RARE PLANTS.

AUBRIETIA GLORIOSA.—A large flowered form with violet flowers of fair quality. Award of merit. Shown by Mr. Maurice Pritchard.

SILENE ACAULIS ELLIOTT'S VARIETY, with soft pink flowers, a charming little plant. Award of merit. Shown by the Hon. Vicary Gibbs.

VIOLA BLACK KNIGHT.—A very fine dark variety with moderate sized flowers of black-purple. Award of merit. Shown by Mr. Thomas Carlile.

RHODODENDRON BRACHYDUM PRIMUM.—A hybrid with long yellow tubes of soft orange yellow. Award of merit. Shown by Mr. J. C. Williams.

RHODODENDRON SOUVENIR DE DR. S. ENDTZ.—A good pink hybrid. Award of merit. Shown by Messrs. Endtz.

HIBBERTIA VOLUBILIS.—A fine climber from New South Wales, with open flat flowers of a good shade of yellow. Award of merit. Shown by Sir William Lawrence.

NARCISSUS DAPHNE.—After several changes we believe the stock is now held by Messrs. Geo. Monro. Daphne is a sport from ornatus. Some flowers are rough, some smooth. First-class certificate for market purposes. Shown by Mr. Geo. Monro.

NARCISSUS WARSPITE.—A fine large incomparabilis with undulating white perianth, large open cup edged red. Award of merit for garden and for cutting. Shown by the Donard Nursery Co.

NARCISSUS ETTRICK.—A beautiful giant Leedsii with deep primrose coronas gradually passing to almost white. Raised by the Brodie of Brodie. Award of merit. Shown by Mr. Herbert Chapman,

NARCISSUS LEMON SQUASH.—A trumpet of a curious pale lemon colour. Shown by Mr. Guy Wilson.

ROSE CLOVELLY.—This rose was described in the report of the National Rose Society's Spring Show on page 285. Award of merit. Shown by Mr. Elisha Hicks.

SCHIZOCODON MACROPHYLLA.—A pink-flowered species. Award of merit. Shown by Mr. G. Reuthe.

PRUNUS SERRULATA KOJINA.—A beautiful white variety with large flowers. Award of merit. Shown by Mr. C. Ingram.

ORCHIDS

FIRST CLASS CERTIFICATES.

Odontioda Ganesa Gerrish's var. Shown by Mr. R. Gerrish.

Cattleya Prince Shimadzu Titanic. Shown by Messrs. Flory and Black.

AWARDS OF MERIT.

Odontioda Joiceyi var. John Cowan. Shown by Mr. J. J. Bolton.

Miltonia Beau Brummell. Shown by Mr. H. T. Pitt.

Odontoglossum Syrinx Var. Helius. Shown by Messrs. J. & A. McBean.

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EVERLASTING FLOWERS AND THEIR CULTURE

AMONG the many beautiful flowers grown in our gardens, those known as "everlastings"—or "immortelles," to use a still more old-fashioned term—are worthy of a much larger share of appreciation than is generally accorded to them. Not only do they contribute their full share to the summer and autumn garden, but they eke out the supply of fresh blossoms during the winter months and, when well used, are very different in their effect from the stilted arrangements so common in bygone years.

By "well used," I mean carefully dried, so that the heads stand up stiffly and naturally, and then placed in vases with fresh green leaves that provide a natural setting and thus do away with the barren effect of leafless, shrivelled stems that were such an eyesore in the older arrangements. Nor need there be any monotony, for, after one kind has done duty for a short time, the flowers can be changed for another species: the colour, range and variety in form being so wide that there is no difficulty at all in selecting suitable kinds to harmonise with many different colour schemes.

A GROUP OF "EVERLASTINGS," HELICHRYSUM BRACTEATUM.

Plants that bear "everlasting" flowers fall into two classes—those of perennial nature, such as Gypsophila paniculata, statice, etc., and those of a hardy or half-hardy character. Let us take perennials first, and, of course, gypsophila heads the list, for this is unequalled in its capacity to impart lightness and daintiness to the heavier flowers that are used with it. The best kind of all is the splendid double form—paniculata fl. pl.—that will literally grow anywhere where the soil is light and contains plenty of lime and where the plant receives a generous share of sunlight.

The perennial statices produce their tiny flowers in spreading panicles that are scarcely less useful for "backing up," and latifolia, the Great Sea Lavender, and Wilson's Blue are both varieties that can be cordially recommended. In common with gypsophila, they love a light warm soil and possess similarly thick roots; so that, once planted, they should be left severely alone.

Personally, I appreciate especially the Gladwyn Iris, I. fœtidissima fol. var., the charm of this lying in its splendid seed capsules and the beautiful foliage that associates so charmingly with them. The seed capsules should be left on the plants until they crack and begin to expose the orange-scarlet seeds; then cut and suspend head downwards. Large masses of these, grouped with a few of their own freshly gathered leaves, are splendid for large vases in mid-winter.

Turning to annual flowers, all of those mentioned below are excellent and, at this date, may safely be sown in cold frames (for transplanting) or directly into a sunny border where they are to flower. Acroclinium is obtainable in three varieties—roseum (with yellow disc and rose-coloured florets), album (similar, save that the rays are white) and fl. pl. (a fully double rose form. This is an Australian flower, 1ft. to 18ins. high, with a single flower on each stem, each plant branching freely from the base and bearing a large number of flowers. Ammobium alatum, the Winged Everlasting, bears yellow and white flowers on plants between 1ft. and 2ft. These are produced in succession, so that the plants remain decorative in the border for a considerable time, in addition to their winter value.

The most popular species of all among the annuals is undoubtedly helichrysum, and this should be largely grown, both for the large and handsome flowers and their wide colour range, which opens the door to such an immense field of artistic possibilities in the future. This will give you white, ruby red, violet, scarlet, bronze, mahogany brown, gold, rose, and crimson, and several firms offer the colours separately, so that one may grow exactly what is most required. The peculiar glossy texture of the petals adds not a little to the brilliance and intensity of the colour. The largest and finest strain is that known as monstrosum, in which the flowers are of giant size. The plants branch freely, flower profusely and reach a height of 2½ft. to 3ft. A dwarfer strain, more suitable for small gardens, is nanum, in which the colour range is equally wide, though the plants do not exceed 18ins. Sunlight is life to them, and the warmer and sunnier the border the better the results will be. Helichrysums are not such rapid growers as most of these annual everlastings, and the best results are obtained when sowing is done in March, in boxes in a warm greenhouse, although splendid results may still be obtained by sowing under a cold frame that, when the plants are well up, is lifted off bodily, thus leaving the plants standing in the open air.

Rhodanthe maculatum is obtainable in four varieties: carmine with yellow centre, double carmine, white with yellow centre, and double white. All of these are simply exquisite, very distinct and among the most beautiful of all everlasting flowers. The crinkling papery petals rustle with a most attractive sound at the least breath of wind, and it makes a very striking pot plant, in addition to its value in the open border. The growth is very rapid, and the plants flower with extreme freedom. Although they reach a height of 1ft., the growth is so slender that they require but little space, and 3ins. from plant to plant is ample. Everyone is familiar with the masses of Statice Bonduelli and their handsome pale yellow sprays, so common on the trays of the street hawkers in summer. This is another very easy half-hardy species, but needs to be sown early and in heat to ensure success. The mauve and pink Statice sinuata is hardier and may still be sown in the open border for late flowering. Waitzia aurea grows about 18ins. in height and bears masses of golden yellow flowers in late summer and autumn. Xeranthemum—the true Immortelle—is very popular and may be obtained either in mixture or in double white and rose, while there is also a violet form known as imperialis. This may be sown outside now, and should give an excellent account of itself.

With all varieties, successful drying is an important item, and upon this depends much of their utility for winter decoration. The flowers should never be allowed to become fully expanded upon the plants themselves, a remark which applies with special force to the double forms. Just when the outer petals begin to show signs of unfolding is the correct time, and a good length of the stem should be taken.

H. W. CANNING-WRIGHT.

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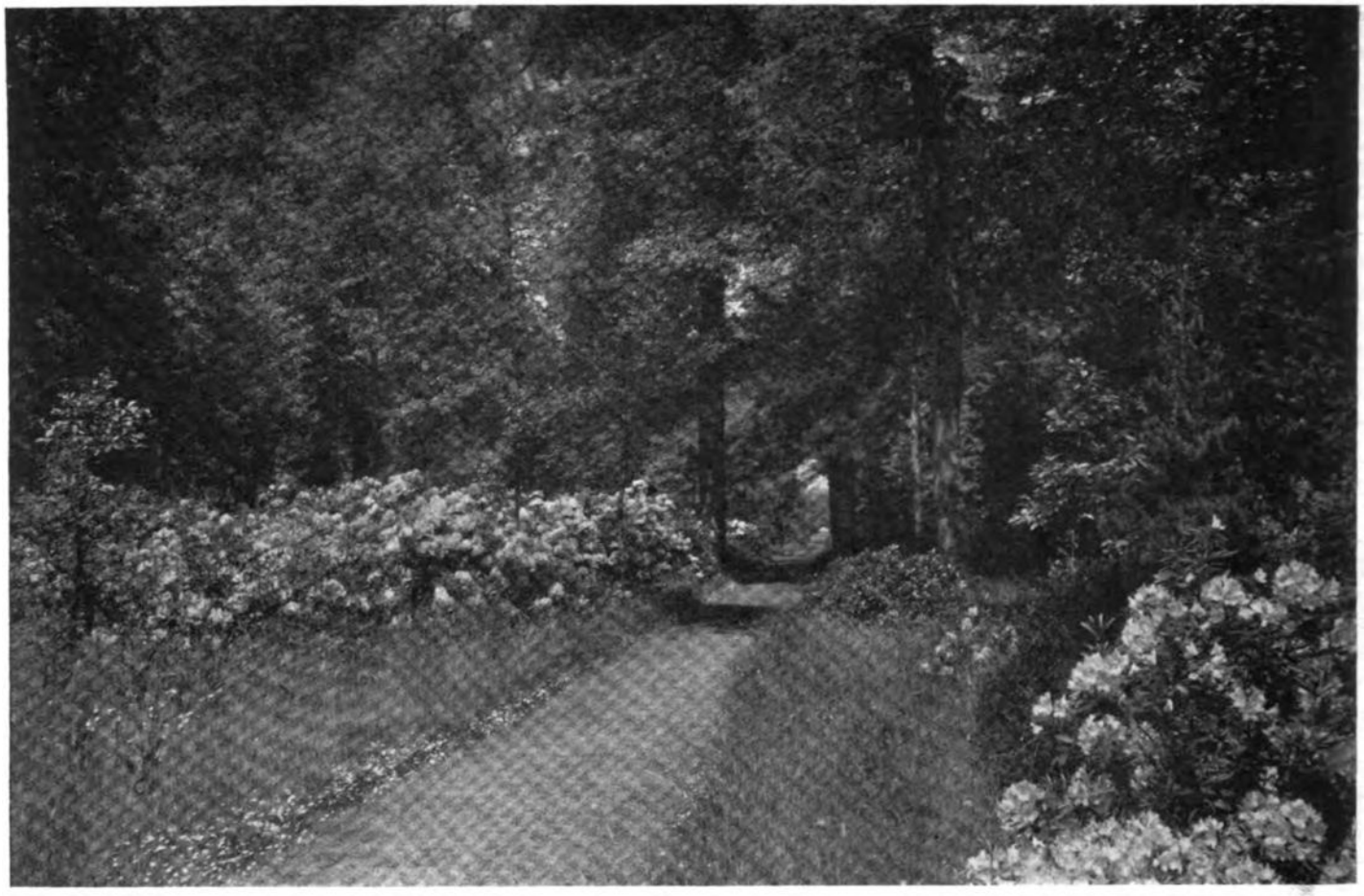
THE GARDENS AT ALDENHAM



THE RHODODENDRON WALK AT ALDENHAM.

NEARLY two thousand years ago there came to the shores of the "Western Isles" a large party of adventurers, in the form of the invading Roman legions, under Julius Cæsar, and an evidence of their occupation and activities, in the shape of the old North Road, now named Watling Street, running from their camp at Londinium (London) to the one at Verulam (St. Albans) still exists. The travellers of those early days, having topped the long rise of the road from their camp by the river, reached, at a point about midway between the two places, the commencement of a stretch of what was undoubtedly undulating forest country. Now, again, adventurers from all parts of the world—a different world from that known by the Romans, and one that fulfils the legendary Druidical prophecy to Boadicea, Queen of the Iceni, immortalised by the poet in the words "Regions Cæsar never knew, thy posterity shall sway"—are journeying to Britain.

The scene along the old North Road has, however, changed, and at the top of the rise from the village of Elstree (twelve miles direct from the Marble Arch) a long stretch of fairly open country meets the eye, and situated at the beginning of it lies the estate of Aldenham Park, owned by Lord Aldenham, in the gardens of which has been gathered together through the activities of the resident, his brother, the Hon. Vicary Gibbs, the most wonderful private collection of hardy trees and shrubs in the world.

Visitors from the Colonies and other places abroad who are making their way to the Wembley Exhibition will, on reaching the Exhibition grounds, be at a point roughly about six miles in a cross-country line from these world-famous gardens. It was only about thirty years ago when a real and comprehensive start was made on the collection, and yet in that space of time an air of permanence has been imparted to the gardens such as one would hardly expect to be attained in double that period. In them are set out in most attractive fashion the treasures gleaned from practically every country and clime of the globe. Thousands of fine specimens are to be seen, and the introductions of intrepid explorers like Messrs. E. H. Wilson, R. Farrer, G. Forrest, etc., from the almost unknown regions of China, are to be found growing happily side by side with plants from Canada, America (through the United States, Mexico and the southern portion of that great continent), Europe, Africa, Australia, New Zealand, India and other parts of Asia; and, from wherever our visitors in this year of grace, 1924, may travel, they can probably find a number of plants reminiscent of their own location beyond the Four Seas.

For examples, in one spot two large specimens of the eucalyptus (cider tree) of Tasmania and South Australia rear their heads; near by can be seen a large bush of Hymenanthera crassifolia from New Zealand, and an Amelanchier canadensis of the Canadian regions in close proximity. American visitors would be interested in the wonderful collection of the beautiful American cratægus, of which Aldenham possesses about seven hundred species and varieties grouped together. So the tale of the collection runs on; and, besides the hard-wooded forms

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of plant life, there is also a very big collection of alpine and rock plants; while two of the greatest attractions of the gardens are the large collection of Michaelmas daisies, the majority of which were raised at Aldenham (they number somewhere about 150 distinct varieties), and the enormous collection of phloxes (so lovely in July and August), mostly, again, Aldenham-raised.

Fine examples of avenue planting are to be seen in various directions, full use of this interesting feature having been made, and a variety of subjects chosen for the work, such as oak, elm, lime, maple, birch, etc. The water gardens, through which runs a stream, set in, after most careful thought, a region that was originally a quiet grass paddock but is now a most ornamental quarter, with its carefully planted shrubberies, through which the stream wends its way to the bathing pool and the moats. The latter, appertaining to the original residence of old times, were allowed to silt and fill in, but the late Lord Aldenham had them excavated and placed into good order, and they are now a most pleasant feature, their edges planted with suitable subjects, and their waters carrying their burden of aquatic plants, as does also the ornamental water in another direction, known as the Wrestler's Pond.

Much care and attention have been paid in recent years to the grouping of plant families, and among those so dealt with are the bamboos—which have a large garden devoted to their culture — the oaks, flowering crabs, American thorns, elms and the yews, of which latter group there is a most complete collection of known species and varieties. Berberis, too, have been grouped, and of this family there are to be seen no fewer than 160 species and varieties under name, and about another sixty or seventy so modern of introduction that they are still under the collectors' numbers, not yet having been determined for nomenclature. The oaks, just mentioned, form a group from various parts of the world, just on 200 strong in species and varieties. This will give a little idea of what the Aldenham collection is like, it being roughly estimated that there are now something between 8,000 and 10,000 species,

ONE OF THE LILY POOLS, WHICH IS SET TO ADVANTAGE WITH A BACKGROUND OF FINE TREES.

A FINE TREE OF CORNUS CONTROVERSA.

varieties and forms, including a certain number of florists' varieties, of trees and shrubs alone, an enormous number, the size of which is due in a large measure to the really extraordinary number of new introductions in the past ten to fifteen years, sent home by those wonderful collectors in China.

Long vistas, too, exist through the woodland portions, to which every care and attention have been given, and the journey through this part, on round the lake in the park, etc., easily fills a long day, until the visitor comes to the conclusion that, probably, it would have been better to select a month to wander round in order to see all the many attractions of Aldenham.

No notes on these gardens would be complete without reference to the vegetables grown there, for which, again, Aldenham and the name of the head-gardener (Mr. E. Beckett) are almost synonymous terms in the horticultural world, the highest awards at the large exhibitions all over the British Islands having been gained by the edible produce of Aldenham.

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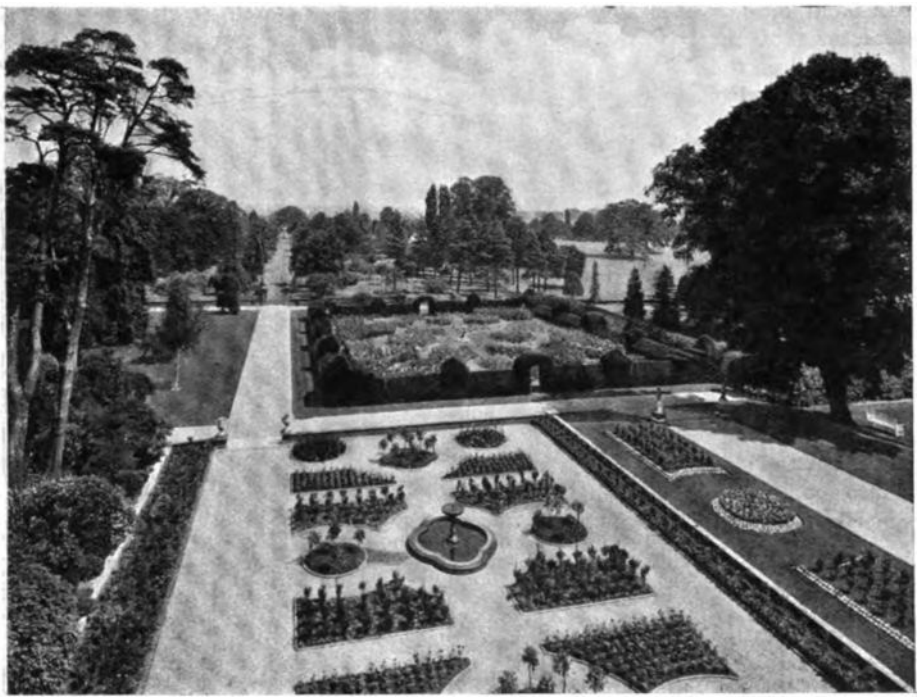

A PERSPECTIVE VIEW OF THE GARDENS.

A great success, considering that the soil of the estate consists of heavy London clay There are a large number of really fine trained fruit trees on walls at Aldenham, which illustrate this very useful mode of culture.

The gardens, thanks to the courtesy and kindness of the Hon. Vicary Gibbs, are opened to the public on each Saturday afternoon during the months of July, August and September, and the whole of August Bank Holiday, and many hundreds of visitors avail themselves of the privilege. Further than this, special permission, upon application being made, is invariably granted to the keen student and enthusiast in matters horticultural, for Mr. Gibbs is always most pleased for plant lovers to see his efforts. In view of the many visitors from abroad that will be attracted to this country this year owing to the Empire Exhibition at Wembley, through the kindness of the Hon. Vicary Gibbs we shall be glad to make arrangements for visitors who may be unable to visit the gardens on the public days to have a chance of viewing this famous garden. For many years past there have been numbers of visitors from the Colonies and other places abroad to Aldenham, and they have spread the fame of these gardens far and wide upon their return to their native habitats.

THE MIDLAND DAFFODIL SHOW

BY THE REV. JOSEPH JACOB.

TO my great regret I was unable to get to London this year to pay my respects to Mistress Daffodil. There were great searchings of heart among those who were responsible for her court in Vincent Square as to what would happen after the cold and unpropitious March, but the S.O.S. call was heard in Ireland and Cornwall, and in one or two other climate-favoured spots in the South, with the result that there was a goodly muster of bloom on April 15th, of which I am told the outstanding features were the splendid shapely perianths with which Mr. P. D. Williams had surrounded his red cups.

At our informal meeting after our daffodil dinner at Birmingham, someone asked "What are raisers of seedlings trying to get?" No doubt, for one thing, better perianths for our red cups and bowls. However the association of these coloured coronas with wild, untamed perianths may tickle the fancy of the "market men" and the arrangers of cut flowers in vases, they are blemishes when compared with the ideal flower which, at present, has no more substantial existence than in the fond imagination of the daffodil "curious."

This untoward spring showed its sinister influence at Birmingham. "Poets" were as infrequent in the competitive classes as currants in a penny bun; and there were no flowers from our time-honoured supporter, Mr. Joseph Mallender, and no group—not one bloom even—from our prehistoric supporters, the Pearsons of Lowdham: for long before there was a Midland Society they had got into the way of exhibiting daffodils at Birmingham (page 10 of the Annual Report for 1908). They began in 1893, but the Midland Society did not come into being until 1899.

If the season was unpropitious, the weather on the two days of the Show (April 24th and 25th), was just about right—dull, with but little sun, and fairly warm. Our venue is the big range of glass at the Botanical Gardens at Edgbaston, so it will be readily understood that a blazing sun is, in more ways than one, not exactly what the blooms relish. Their complexions suffer. Delicate refinements and grades of colouring are obliterated in strong sunlight, and too much heat promotes too much perspiration, which soon exhausts the old blooms and damages the new.

"Where they do agree on the stage, their unanimity is wonderful."

I had many misgivings. The first item in the 1924 Schedule was "The Leamington Cup" for "*the best flower in the Show*," to be judged by the Floral Committee. "Now," I said to myself, "we are in for it"; but *mirabile dictu*, when it fell to my lot to put the motion that "The Cup be given to the flower marked 22LY in the first prize group of the Bourne Cup Class," ten out of the eleven of us voted for it. 22LY is now Rewa. Dr. Lower of Presteigne, its raiser and exhibitor, thus named it for the sake of his old association with a ship of this name as ship's surgeon. It is a flower with a perfect perianth—pure white, smooth and with that "good" look which we know so well in other things. It has a large cup of Bernardino colouring suffused with and edged by a narrow band of pale orange. It carries itself well. In a word, it is a grand flower. I did not measure it, but it would probably have a diameter of about 3¼ins. to 3½ins.

"WHEN DOCTORS DIFFER."

It fell to me to be one of the judges of the "single bloom" classes. Immediately we started on the yellow trumpets I found that my yoke-fellow and I were as far apart as the poles in our ideas of what we were to look for in the flowers. Was it to be their suitabliity for garden decoration, or their excellence on the show tiers? The Royal Horticultural Society has acknowledged that there is a distinction by the regulations of its Floral Committee as to the granting of awards. The standpoint of all judges at a daffodil *show* surely ought to be that of the "show." This point is not sufficiently considered by those who act in that capacity. The question, in the special case to which I have referred, was: Should the first prize go to a large but somewhat rough variety, Golden Harvest, or to an exquisitely refined flower which, I found after judging, was staged by Dr. Lower? In the beautiful smoothness and quality of its perianth it was reminiscent of his Royalist, which Mr. Guy Wilson has described as "the most perfect show yellow Ajax yet seen." I may add that two experts whom we called in and by whose decision we agreed to abide, with one consent put Dr. Lower's flower first.

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GROUPS.

There were eight non-competitive groups of various sizes. Of these the Donard Nursery Co. and Messrs. Barr and Sons received gold medals. Mr. J. L. Richardson gained a silver-gilt; Messrs. Bath, W. F. M. Copeland, Cartwright and Goodwin, and Guy L. Wilson, had silver medals; and Messrs. Hewitt and Co. a bronze.

As may be imagined, these helped the show very much. There were no end of good things for the public to see and buy. However, as the end of these displays is to sell to visitors, I sometimes feel that if a fair proportion of quite cheap varieties were included it might be a better bait than having nearly all expensive ones. The ordinary public do not want to start with a Royalist at £18 a bulb, when they can get an Emperor for 3d.

THE REPORTERS' TRIALS.

How many exhibits were staged for the big—that is the swagger—classes at the London Show, I do not know. We Birmingham folk are not a little proud of the number that were staged at ours. There were six groups staged for the Bourne Cup, which was won by Dr. Lower; five were staged for the Cartwright Cup, also won by Dr. Lower; and six lots of six blooms each for the White Daffodil Trophy, which was won by Mr. Guy L. Wilson. These entries mean that the Doctor and Mr. Wilson had to fight hard for their honours and that there was a fine display of the very best and newest varieties to be seen. Yes! to be seen, but not described. Such a very large proportion of the very "latest out" are shown under numbers or letters—not names. Time and again I have said I must "do" that, only to find that "that" was 2XW or some such combination, and I do not think for several reasons it is any good giving such a one a detailed description. It is unfortunate that it is so and I can only ask you to take it from me that in the three above mentioned classes, together with the smaller ones, Seedlings and New Varieties, there were many fine blooms. Could not all blooms in competitive classes be named?

I hope, in the next issue, with the Editor's permission, to say something about ten or a dozen varieties that caught my eye.

NEW DAFFODILS.

TENEDOS comes first as it received a first-class certificate. It is in every sense of the word a "great" flower. It was raised by Mr. Engleheart, and I have read that the Brodie of Brodie considers it one of the plums of his unique collection. The flower has a diameter of at least 5ins. when well grown, a rather long straight-shaped cup which opens a primrose yellow, as one would expect on looking at the bottom of the corona. The perianth segments are narrow and pointed, and so are a break-away from the old orthodoxy.

BEERSHEBA.—A white trumpet variety raised by Mr. Engleheart from White Knight, but, unlike that variety or any of the older groups of whites, it has a good stem. It has a diameter of 4½ins. and the purity of the flower is very remarkable. The perianth is placed at right angles to the corona and has pointed segments. Will this be one of the flowers along with White Lady that will hand the name of Engleheart down to future generations?

WHITE NILE.—A giant Leedsii, raised by the Brodie of Brodie. The delicious green base as you look down the corona proclaims its whiteness. Its flat, good looking perianth proclaims its high quality, even if it is but 3½ins. to 3¾ins. in diameter. I am coming to the opinion that a daffodil may be too big, even if it has all its members in proper proportion and is also of good quality. "You are wrong," said a man who has an eye on the mercenary side of seedling raising, "You cannot have a flower too big for the market." Well! well!

MASTER ROBERT is a large, smooth, rich yellow trumpet variety with a wide bold edge to the corona and a diameter of 4⅝ins. It is a good variety, but hardly a Grand National winner.

MOIRA O'NEILL.—A very pale bicolor trumpet. The perianth is flat and shapely and has a diameter of 4½ins. The bold recurved top of the pale lemon corona gives the flower a stately and important look.

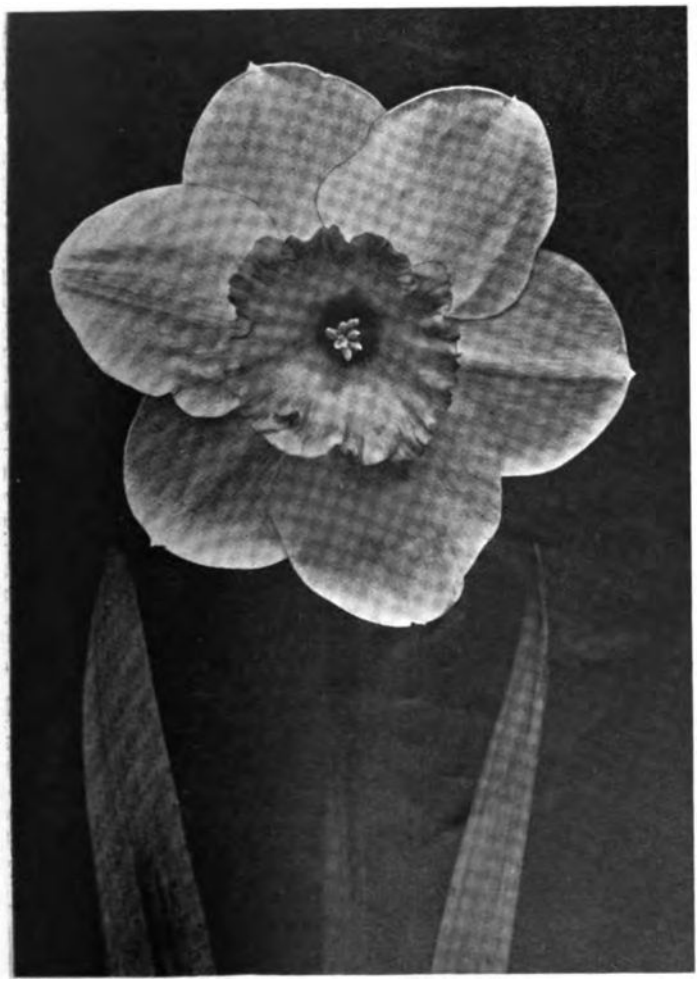
CRUCIBLE.—This is a white perianthed Barrii. The flat cup has a wide red edge. As a whole the flower has a peculiarly fresh and clean look.

CICELY.—A giant Leedsii with a narrow long corona and a clean cut perianth with pointed segments. It should make a good garden plant and be useful for showing, as it is out of the ordinary in its general appearance. It was sent by Mr. Alex. M. Wilson and was a pleasant reminder that he is still able to get about his daffodils. I am so glad.

MAGICIAN.—The large flat orange red corona is the striking feature of Magician. This has a diameter of 1½ins. and superposed as it is on a pure white somewhat reflexing perianth made a flower which fully earned its award.

GOLDEN HARVEST.—A Dutchman that gained a F.C.C. at Haarlem in 1923. It is a rich yellow trumpet and ought to make a good garden plant.

IRENE COPELAND.—One, of course, of Mr. W. F. M. Copeland's raising. A very full flower of many white segments with pale maize snippets among them. it is reminiscent of Parkinson's picture of "John Tradescants great Rose Daffodil." Mr. Copeland is very bucked up after the London Show. He thinks "doubles" are coming to the front.



JUDGED TO BE THE BEST FLOWER IN THE SHOW – NARCISSUS REWA.

THE ROYAL GARDENS, KEW.

His Majesty's Stationery Office has just published an illustrated guide to the Royal Botanic Gardens, Kew. It is an excellent little booklet and should prove of inestimable value to visitors to the Gardens. In addition to some excellent views of the Gardens, a map is included which should be quite easy to follow. The guide is obtainable at the Gardens and the price is 1s.

For the first time since the war no charge is being made for admission, except on students' days (Tuesdays and Fridays), when 6d. is charged. The Gardens, which are about 300 acres in extent, are easily reached from all parts of London. There will be a great influx of tourists from abroad for the purpose of visiting the Wembley Exhibition, and they should not fail to make a pilgrimage to Kew. The hours of admission are from 10 a.m. till dusk, which allows plenty of time for examination of plants.

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THE EFFECTS OF WINTER ON A WEST SOMERSET GARDEN

BY N. G. HADDEN.

A WINTER which begins in November and goes on well into April is so uncommon an occurrence in the usually genial West Country that some notes on its effect on some of the more tender plants may be worth mentioning. Although no very severe frost has been recorded (not more than 10° Fahr. on the screen), several degrees night after night, accompanied by bitter winds, soon make many plants look unhappy. The excessive rainfall of the early part of the winter rendered young shoots tender and little able to resist frost, while it also caused a heavy casualty list among the mesembryanthemums and other delicate succulents. On the whole, however, there have been surprisingly few plants killed outright, though many have been either cut to the ground or badly browned. All fuchsias have suffered considerably, all the choicer species (*e.g.*, Cottinghamii, venusta, cordifolia and even macrostemma conica) are killed down to ground level, but are gradually breaking from the base now. The two New Zealand fuchsias (F. excorticata and the little F. procumbens) have escaped damage—the former species, indeed, is already hanging its flower buds from the almost leafless twigs. Calceolaria violacea looks sad, all last season's growth being killed, so that we cannot expect to enjoy many of its quaint little gaping mouthed flowers this year. C. alba has come through better than I dared hope, though I have only a small plant with little hard wood as yet: it is such a distinct and refined species that it is curious it is so seldom grown, even under glass. Its small white flowers are exceedingly attractive, even if they are formed uncommonly like a tiny human skull! The strong-growing C. integrifolia stands a lot of frost when once it has made hard wood, and is then a very handsome little shrub with masses of yellow flowers. Clematis indivisa on a south wall is looking quite happy and its large flowers are already beginning to expand and change from green to white. It has only been planted out for two winters, but has already run up above the wall and is rambling through the branches of an old ivy which gives it welcome shelter. C. calycina has been flowering steadily since the New Year, but it is not sufficiently showy to appeal to most people, despite the beauty of its fern-like bronzy foliage. Like most of the wild clematis species, it requires a good deal of space to show itself to advantage; it is more suited for climbing over some worthless tree than for precious wall space.

Cestrum (Habrothamnus) elegans has lost all its leaves but is now breaking to the very tips of the branches; this was planted out two years ago from a small pot, and is now a fine shrub 8ft. high. Its large trusses of ruby red flowers are so freely borne over so long a period that it is a magnificent plant for districts where it will succeed outdoors. I should like to try the orange C. aurantiacum outdoors also, but fear it is less hardy and more difficult to obtain.

Bowkeria triphylla has had the tips of its shoots nipped by east winds, but is otherwise uninjured; it is interesting as being one of the very few South African shrubs that are at all hardy in English gardens. Its flowers are like white calceolarias, but they are not very freely produced till the plant is a fair size—luckily, it grows rapidly.

On a wall facing east, but given the shelter of a wattle hurdle in severe weather, it is good to find a young plant of Tecoma jasminoides looking full of health and vigour. Alongside it is a plant of Cantua buxifolia, which has shed a good many leaves and certainly hates cold winters; it is a quick grower, but does not appear to flower very freely while young. The buds are liable to drop off if they are formed too early in spring, so a check to their development may prove a blessing in disguise; the beautiful rosy tubular flowers are not unlike those of Abelia floribunda on a larger scale. Just beginning to send its thread-like twining shoots among the twiggy branches of the cantua, Sollya Drummondii has come through the perils of winter unscathed; this plant was only put out last autumn, but it appears as though it may prove as satisfactory a doer as the more familiar S. heterophylla. The flowers of S. Drummondii are smaller but of a much more intense blue, comparable, indeed, to Gentiana verna, while they hang from almost invisible foot-stalks. Another Australian climber which appears unhurt is Kennedya Comptoniana, but this is still a very small piece, and I have not yet seen its large purple pea-flowers. The South American "blue pea" (Lathyrus pubescens) has come through perfectly, planted against an east wall, and has proved itself a most satisfactory plant in every respect, quite the best of the perennial peas that I know. The flowers are of a particularly attractive shade of lavender-blue—nearer blue than anything in sweet peas, but not the true blue of the little annual chickling pea.

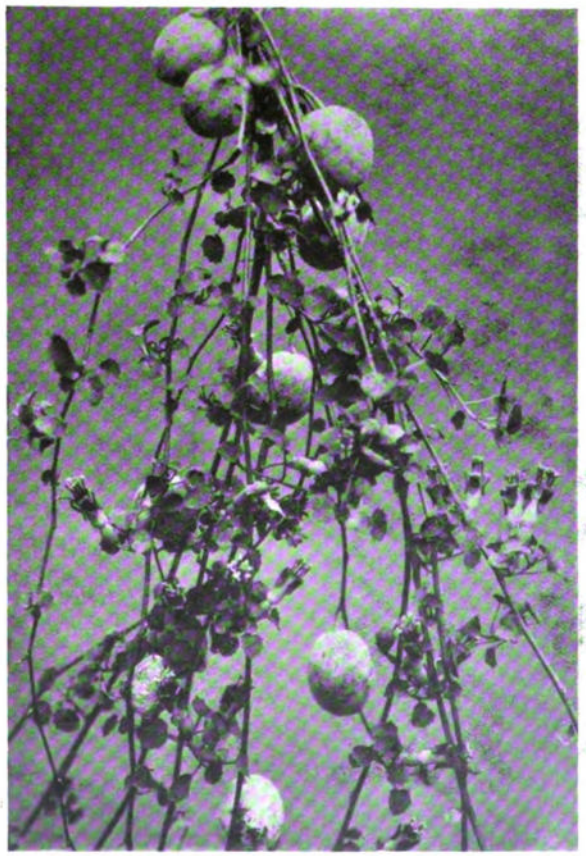
Leonotis Leonurus looks about as dead as Queen Anne, but there is still hope that it will come from the base. Last winter it scarcely shed a leaf, and is well worth a trial in mild districts for the sake of its whorls of gorgeous orange-red salvia-flowers which come late in the autumn. Beside it is a small plant of Lagerstrœmia indica, which only arrived here from Japan fourteen months ago; it foolishly continued to make young growth so late that the November frosts cut them back very severely. Still, the plant is quite alive and will soon come into leaf again; its rosy blossoms come in profusion in late autumn, but only if the wood has been thoroughly ripened by a hot summer.

I am watching a 5ft. high Buddleia Farreri with great interest; it has not suffered from the winter, but I do not know yet if it is going to flower. The great "grey flannel" leaves are so distinct that it seems worth growing for their sake alone, but I should like to have the flowers as well.

Buddleia auriculata is, as usual, quite uninjured: in fact, it makes such rampant growth in these parts that it has to be drastically restrained from smothering its neighbours.

I have never seen B. asiatica in the open in England, but it is reported to grow in Cornwall; it is quite distinct from B. auriculata, though frequently confused with it.

Acacia falcata (a home-raised seedling now about 10ft. high) is a mass of bud and has once more proved itself the



THE NEW ZEALAND FUCHSIA PROCUMBENS HAS ESCAPED DAMAGE.

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hardiest species grown in this district. The delicate foliage of A. dealbata is much more easily damaged by wind, though the plants flower abundantly when well sheltered. Small plants of A. armata, screened from the east by other shrubs, are laden with buds, but others in a more exposed position are badly browned. A. Baileyana is unharmed, but my plants are too young to flower as yet. Cordyline australis of various ages are all untouched, but some two year old seedlings of C. indivisa (the broad-leaved form) are slightly nipped.

Prostanthera rotundifolia has come through the trials of the long winter nobly; for the first two or three seasons here the young plants were badly cut by slight frosts, but now they appear to have become acclimatised and are already becoming transformed into 8ft. pyramids of violet blossoms. I am pleased to read that this fine shrub has recently received public recognition, though doubtless the specimens sent from Kew to the Royal Horticultural Society's Show were grown under glass.

Perhaps our greatest disappointment this spring has been Viburnum Carlesii, which had set over forty flower buds in the early winter, but every one went blind. I do not know whether to cast the blame on the frosts or the rains or the Evil Eye; anyhow, the plant seems in robust health, and its foliage is developing rapidly. The newer V. fragrans is too small a plant to flower here yet, but if it lives up to its reputation of being superior to V. Carlesii it must, indeed, be a precious treasure.

The evergreen V. odoratissimum (Awafuki) has suffered slightly from cold winds, but will soon recover when more genial weather comes along. V. tomentosum Mariesii and plicatum are well laden with buds; and all lilacs, deutzias and philadelphuses (even young plants of P. Falconeri) afford a similar promise of a treat in store. All the varieties of the common myrtle are slightly nipped, but this often happens and seems to make little difference to their flowering when August comes round. Myrtus (Eugenia) apiculata and M. Ugni stand frost better, in spite of the fact that the latter species makes its young growth very early in the year; its strawberry-flavoured fruits make such excellent jelly that it is worth growing on that account alone. By the way, can the fruit of the common myrtle be put to any economic use? It is nearly as sour as a sloe, and suggests the possibility of "myrtle gin."

In a particularly snug corner Embothrium coccineum looks rather less miserable than usual; it makes a few feeble shoots annually, but has never flowered here. I am inclined to think that this most gorgeous of flowering trees resents coddling and prefers an open situation, provided, of course, that the district is a mild one. It is also rather difficult to obtain a really healthy young plant to begin with, but everyone who has been in Cornwall when the embothriums are in bloom must admit that it is worth every effort to attain success. The evergreen Eucryphia cordifolia has come through untouched, but a small plant of E. pinnatifolia perished—not from cold, I think, but the natural cussedness of this wayward but lovely shrub. Fortunately, Tricuspidaria lanceolata (Crinodendron Hookeri of former days) is much more easily satisfied and rarely suffers from frost in this district, although it carries its buds all through the winter. As it grows quickly, is easily raised from cuttings and is quite unique in flower, this is one of the very best shrubs for localities where it will thrive in the open, but apparently it will not grow at Kew away from a wall.

Abutilon megapotamicum on a wall (also a small plant in the open) has suffered no injury, but the large-flowered yellow variety has lost most of its big soft leaves, but is not permanently crippled. Callistemons, both scarlet and yellow, have only lost a few of the most forward buds. Metrosideros lucida made young growth late in the autumn, all of which was killed by the first frost, though the older wood is undamaged.

The beauty of Lithospermum rosmarinifolium (best of a lovely genus) has been quite spoilt this winter by the flowers and young shoots being so frequently frosted; the leaves also have acquired a yellow tint as a protest against east winds. The ideal site for this splendid little shrub would be in a dry wall facing due south and well screened from the east.

In the front of a warm border, Damnacanthus indicus—a quaint and spiny shrublet 4ins. tall—has come through the last five or six winters unhurt; although it flowers freely it has only once produced its small scarlet berries.

The Madeiran Clethra arborea is badly browned at the tip of every shoot, but this is not surprising, as it sometimes gets killed to the ground even in Cornwall. My little piece came as a cutting from a famous Cornish garden, where this shrub is a grand sight when in flower in August.

BUDDLEIA AURICULATA MAKES RAMPANT GROWTH IN WEST SOMERSET.

Cyclamen persicum, the true species from Tunis and a few seedlings of a cultivated strain, were planted out in sheltered corners last summer as an experiment; all have survived and some are just about to flower. Cinerarias (large-flowered and stellata varieties) generally come through our winters outdoors and sow themselves abundantly among shrubs, but the frosts of last November destroyed most of them, and only a few in the shelter of evergreens have survived. That noble foliage shrub, Senecio Petasites, has suffered severely, losing practically all its leaves, which are its principal claim to admission to a choice collection.

Those rhododendrons which are generally known as "greenhouse varieties" do not show any damage, though their flower buds are a good deal later than usual in swelling. R. sesterianum and Lady Alice Fitzwilliam have come through the last three winters unscathed, although two years ago their branches were bowed to the ground by snow on April 1st. R. ciliatum has already flowered well and remains in bloom for four or five weeks. Erica Veitchii has been a mass of flower since early in February and is certainly the grandest of the tree heaths on lime-free soils. The eucalypti look rather weather-beaten, but only one out of my half-dozen species is seriously hurt, *i.e.*, E. calophylla. EE. Beauchampiana, Stuartiana, Globulus, resinifera and coccifera are none the worse and are already making fresh shoots. One side of a plant of New Zealand pink broom (Notospartium Carmichaeliæ) has been browned, but the more protected side is green and healthy.

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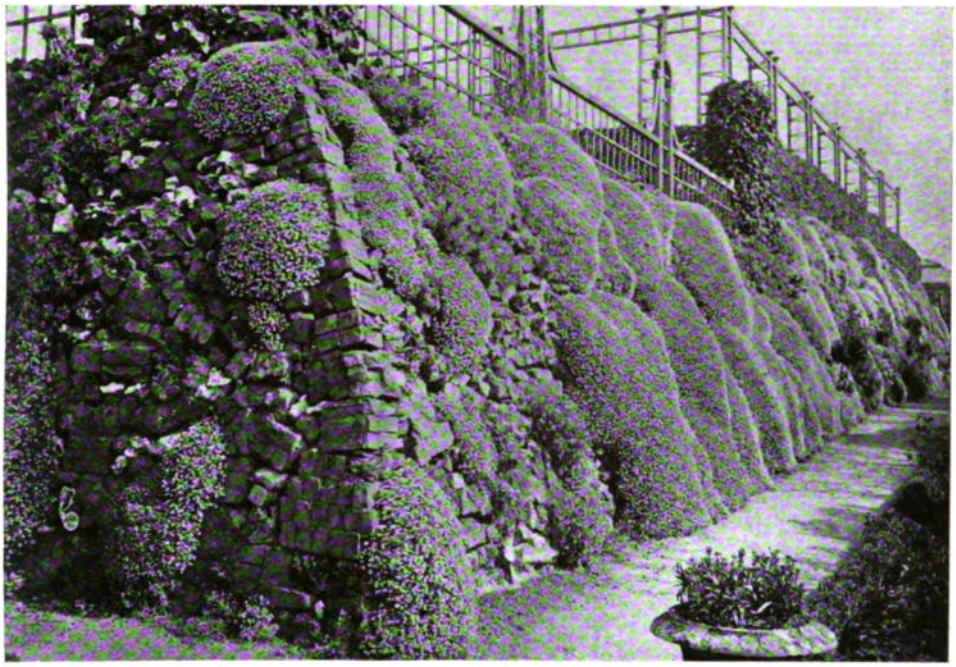
NOTES FROM CONTRIBUTORS



A WONDERFUL PROFUSION OF AUBRIETIAS IN A READER'S GARDEN.

AUBRIETIAS ON A WALL.

I ENCLOSE a photograph taken last Easter Monday of one of our rock-walls here. The aubrietias have been particularly beautiful this year, as the illustration shows.—(Miss) M. HAWKINS, *Kent*.

THE BREAKING OF TULIPS.

THE notion that the breaking of tulips might be caused by the action of some remote disease has not been entirely excluded from the considerations of the Tulip Society, its scientific members regretting their lack of time and opportunity for the necessary investigation, though the apparent vigour and healthy growth of the plants of the broken or rectified tulip rendered the suspicion of disease not very obvious.

In the absence of scientific evidence as the result of well ordered research and judging only by the light of one's experience, the proposition is not one that can be readily assented to, though there are many phenomena that might lend countenance to the idea that tulip bulbs in store in cabinet or on tray may be subjects of infection by visitations of sucking insects. Properly grown, and with due regard to suitability of soil and climate, the progeny of broken tulips can be kept going: vigorous plant, good bloom and sound bulbs following in due succession over a long series of years, though in an experience of thirty or forty years some evidence of "old age" may be noted in several varieties, especially a reluctance to give offsets alongside a bulb of blooming size.

An American friend informs me, "The disease aspect of breaking in tulips has not been definitely investigated."

Professor Griffiths says, "Breaking in other plants is caused by mosaic, and the phenomena are very similar in tobacco and in tulips. The patterns obtained, while not so spectacular in the ornamental tobacco, are quite similar indeed."

Another American scientist has been trying to transmit the tulip mosaic. He says, "Experiments in artificial breaking of tulips have so far not been very extensive and no results have been published. My own results are as yet largely negative. I have pulped up broken bulbs and inoculated healthy bulbs with juices thus obtained without result. I have planted broken and mother bulbs side by side and had a number of them come broken the second year. I have some bulbs which are growing at present which have been inoculated at an early stage of growth which may show results this year."

I understand that at Billingham, Washington, Dr. Griffiths has not had broken tulips among the Darwin and Cottage varieties grown on the experimental acre of the U.S. Department of Agriculture under his direction. "Fortunately," we are told, "the aphids have never been numerous" in their bulb fields.

It is known that aphids transmit mosaic disease from plant to plant in the case of the potato, but scientific results of investigations into the cause of breaking in tulips have not yet been made known either by American or Dutch scientists. In Holland, as in America, some investigation has been made, hitherto with only negative results. Perhaps we may hope for definite knowledge as to the cause of breaking and the cause of mosaic disease in the near future; in the meantime there is nothing to show that breaking in tulips is not a natural result.

It may, perhaps, be deduced that tulips, along with other plants, are subject to attacks of mosaic disease, but it remains to be established that "it is mosaic" that causes the breaking, for tulips may break without having mosaic; research has not yet identified that disease in the bulbs of broken tulips. —CHAS. W. NEEDHAM.

AN ANCIENT APPLE TREE.

I ENCLOSE a photograph of an espalier-trained apple tree growing in West Sussex. The length of the branch from the trunk to the tip is 26ft. The length of the corresponding branch on the right-hand side of the trunk is 22ft., but it used to be longer. It is obvious that the tree used to have a tier of horizontal branches, which have, however, disappeared, except the top one. I know of two other gardens in the district where there are three ancient espalier-trained apple trees, but I have not noticed that apple trees at the present time are trained in this manner. This, however, may be due to my want of observation and want of interest in the subject. The tree is over 100 years old. The girth of the trunk at ground level is 3ft. 9ins., and the girth at 18ins. up the trunk us 3ft. 6ins.; the trunk being much thicker in between these two points of measurement, where the lower branches used to spring out from. —W. M. C.

[Such a large espalier-trained apple tree must be distinctly rare. We should be grateful if our readers could tell us of trees equalling or excelling this one in size. Espalier-trained trees are fairly common.—ED.]

AN ESPALIER TRAINED APPLE TREE WHICH IS SAID TO BE ONE HUNDRED YEARS OLD.

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CORRESPONDENCE

PLANTS IN EAST AFRICA.

AS readers of THE GARDEN are invited in the Editor's Post Bag to send any notes on the flowers usually grown in English gardens which are likely to succeed in Uganda, perhaps the following hints may be useful. Those who desire to establish a garden there and grow the old familiar flowers of the homeland should purchase a copy of *South African Gardening and Country Life*, a monthly journal devoted to the interests of horticulture and outdoor life in that great country. It is obtainable in Johannesburg, and in the same city (P.O. Box 1,141) Madeleine's Floral Farms publish an excellent list which includes all the latest novelties in named varieties of antirrhinums, asters, clarkias, Phlox Drummondii, zinnias, sweet peas and a whole host of the annuals so familiar on this side. It must be remembered that the South African seasons are complementary to ours in the Northern Hemisphere, which is at the outset rather confusing; but *South African Gardening* (familiarly known as "S.A.G.") gives a sowing calendar each month for flowers and vegetables, and the time for sowing is given for five different zones. Zone I embraces Rhodesia. Full particulars are given as to how various plants should be grown, the time for sowing, the time when they should germinate, when they should be transplanted (if required) and when the flowering plants should blossom.

The Winton Nurseries, Bonnie Vale, C.P., publish a capital catalogue and deliver plants free throughout the Union, and they will give the fullest information needful to those who reside in any particular district. A new settler will probably be surprised at the up-to-dateness of the nurseries, and will find that the newest varieties of roses, lilies, perpetual-flowering carnations, irises, chrysanthemums, dahlias, delphiniums and many other favourites can be as readily obtained as in the Old Country.

In the Editor's Post Bag (page 274) we read that there are thousands of plants in Korea which have never been grown in our gardens and the same remark is true of South Africa. The present writer has recently received seed of gladioli from the banks of the Zambesi, and has sent out in exchange some seed of the various meconopsis.

It will be curious if an enquiry from Nairobi addressed to THE GARDEN in England should be the means of directing the writer to the source of information to be found in *South African Gardening*, the editor of which journal is a Fellow of our Royal Horticultural Society.

I have two brothers and two sisters in various parts of the colony and frequently send them seeds, and I have sent out a good many plants, including the newest roses from Messrs. Cant, irises from Messrs. Wallace, perpetual carnations from Mr. Engelmann, and chrysanthemums from Messrs. Keith Luxford. The roses and Engelmann's carnations did particularly well, sent out in cold storage. In a very hot district like Nairobi I should try half-hardy annuals and things that are raised in heat here. Unfortunately, it occasionally happens that monkeys have a game with the cucumbers and lions kill a buck in a rose-bed. There are also very bad storms of wind and hail and floods to contend with. Gardening is a quieter occupation on this side!

Roses may certainly be grown there, for an account recently appeared in the Press of how a favourite setter was killed by one blow from a leopard "in a rose garden." The same writer (late of the East African Surveys) states that a few days ago the East African mail brought details of a night visit paid by two hungry lions to a plot behind the house which he recently occupied. They slaughtered and partly devoured a couple of draught oxen alongside a tennis court. On another occasion there came the sound of a wild stampede just before dawn, and a large buck was found lying with a broken neck in the centre of the lawn. Two more were discovered tangled in the fencing wire, and the spoor of a pursuing lion was traced across the flower beds.

Such visits must be very trying to the gardener and, however anxious he may be to make his garden resemble an English one, he may at any time receive some such unpleasant reminder that the conditions are widely different, in spite of the lawn, with its beds filled with English flowers and its rose garden. In East Herts we receive an occasional visit from a fox, and on one occasion a hunted stag took refuge in a conservatory that belonged to a relative of mine, and there she kept it till all hounds had left her garden and horses no longer trampled over her usually well kept lawn. Fortunately, we do not include lions among our garden pests in this country—H. H. WARNER, *Hoddesdon*.

NOTES FROM FRANCE.

I AM Scottish, but live in France. In the centre of France, south-east of Paris, where the climate is hard till the spring sun shines and where corn, beet and roses grow richly in the heavy sandy clay loam. "Terre battante," as it is known here. My home is the ancient Cochet Nursery Garden. Cochet was the father of rose growers. Maman Cochet first saw light here. *Le Journal des Roses* was edited in this house throughout a century or more. I came to it in 1920 and found it in tangle and disarray, neglected before and during the war. The grounds were full of barley and haricot beans. To-day it is April 25th, 1924. The winter has been harsh and bitter. Raging winds have swept this plateau, in spite of its ring of grey walls. Yet, ten days ago a quick, all-embracing warmth succeeded the horror and is still with us. The whole property is snow-clad with fruit blossom: pears, plums, apples—only the peach is over, scattering pink petals. In front of the house is a blazing clump of rose-red. It is a seedling of Rhododendron Aucklandii, coming enthusiastically into being in spite of adverse prophecies and almost as beautiful in another way is a small caucasicum, Cunningham's Sulphur with yellow blossoms. I brought these plants in 1922, much to their delight, from England. Spiræa Van Houttei, Prunus triloba and Viburnum Carlesii are all in full fettle, close together, and illumining imagination for future group-schemes. The gooseberry bushes are hidden by a drift of Rhododendron Loder's White late in blossom for the season. But above all description is the beauty of the poplar wood. This had evidently been a neglected collection of trees intended for sale and planted far too close together. Through it I cut glades, and after fierce battles with the slugs and snails in possession I achieved a vista of loveliness this day through aisles of grey trunks breaking into green that nothing can surpass. Gigantic daffodils, despised in Vincent Square but Emperors of this fine situation, vie with the palest parchment cream narcissi with orange crinkled lips. This forest of tinted yellows, waves above purple-shaded St. Brigid anemones and nods across a few inches of grass to Munstead polyanthuses, white and yellow tulips, ahd forget-me-nots, the whole lot unexpectedly hedge-high. But beyond these what was meant to happen has happened—how rare a thing in life or gardens—a glorious assemblage of reds. Gesneriana tulips and Keizerscroon, Blood Red wallflowers, and Anemone fulgens growing impertinently beyond all repression, and here and there accidentals of white forget-me-nots and Muscari Heavenly Blue that I had forgotten all about these two years. This *parterre* mingling with the yellow and purple and dipping into distant shadows of light green, the gay *cinquecento* recalled to life by a jazz tune—the world yesterday and the world to-day—and being so entirely beautiful and satisfying all in the same moment, a simple combination in an original setting, just when everyone had said, "You won't get all this to grow at once in France," caused me to write and tell you about it.—MILLICENT HAWES (Millicent Duchess of Sutherland).

NOTES FROM BRITTANY.

ENCOURAGED by the Editor I venture to send a few notes on my garden on the north coast of Brittany. Although only a few hundred yards from the sea it is somewhat sheltered by high stone walls and where they can have shelter all flowers do well in this poor-looking grey soil, that seems to be mainly composed of chips of granite.

Just now the best effect is made by immense drifts of Virginian stock, self sown in autumn, in all its delightful chintzy shades of lilac and pink. These form a most harmonious setting for large groups of the St. Bavo anemones, to my mind the best of the family for garden effect. They have slightly pointed petals and come in all lovely shades of salmon, mauve, scarlet, crimson and violet; they grow and sow themselves like weeds and flower very early, but for a considerable time as there seems to be an endless succession of flower buds. The leaves, too, are exceedingly pretty. Once planted you will not find it easy to get rid of them.—F. BLOIS, *St. Briac*.

THE SPURGE LAUREL.

WHILE I have always believed the flowers of that dismal shrub, Daphne Laureola, to be scentless, it has just occurred to me that it does not do to be too sure about such things. A few days ago, on passing a flowering bush of Daphne pontica, I was surprised to find that not a vestige of perfume was being given off by its yellowy green clusters. It is well known that the blossoms of this very sweet old daphne are more fragrant under certain conditions (which I cannot define) than under others. But I now find that I have had to know and grow the plant for over thirty years before discovering the fact that it sometimes has no scent at all! This may, I trust, afford some interest, if not a little comfort, to some of those who have lately been contributing their experiences under the above heading.—A. T. JOHNSON.

ZONAL PELARGONIUMS.

IF any of your readers grow the old single pelargoniums, such as were sent out by Messrs. Pearson in the seventies and eighties of the last century, I should be glad to hear from them. I refer to such varieties as The Rev. Atkinson, sent out in 1875; Havelock, David Thomson, Lady Sheffield (1876); Mrs. Leavers, Lizzie Brooks (1877); Titania, Sophie Berkins, Burier (1878); Mrs. Strutt, H. H. Crichton, Aphrodite (1879); Miss Hamilton, Eceria, Beatrix, Edith Pearson, Atala, Dr. Orton (1880); Rose, Mrs. Gordon, Constance, Metis (1881); Kate Farmer, Jas. MacIntosh, Bianca (1882). I should much like to procure any of these if they are still in existence.—J. E. HALL, *The Grange, Leamington Spa*.

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NOTES FROM THE UNITED STATES

I AM interested in the series of articles by Mr. R. G. Hatton. I have grown many bush and cordon trees in the past and now that I have additional ground on which to work, I am attempting to repeat over here what I used to do in England, by planting several dozen one year whips this spring; apples, pears and plums as well as various other fruits that may respond to dwarf training. Among the plums I have several varieties both native and Japanese which, according to catalogue descriptions are worthy of being planted. During the four years I have resided here, I have never bought a plum even approaching the poor flavoured Victoria as found in the British Isles. The California plums (Sugar Plums) that come East are magnificent in appearance and beautifully packed. They are almost as big as eggs, but the flavour! I have found some in a basket to be so tasteless that I have hurled them in the ash bin. Even the best have been about as well flavoured as a pumpkin.

California Barlett (Williams) pears are first-class and in the season we can get them in New York at two or three cents each, as large and as fine as the French importations I used to pay 2d. for in pre-war days. As for grapes, the wonderful Californians—bunches as big as English hot-house and really good in flavour—can be had for weeks on end at 8 to 15 cents a pound.

Regarding the trees I am planting, some of the apples are on the Paradise or Doucine, others on the free stock. It took me some time to find someone working on Paradise and the one year trees cost me a dollar apiece against 25 cents for those on the free stock. I understand that dwarfing stocks have been dropped because they were often infested with crown gall and that, having to be imported, the cost runs too high to make them a paying proposition. I have the notion, however, that nurserymen prefer not to fuss with dwarf trees and certainly not to train them for the benefit of small gardeners.

The main idea all along has been mass production; the nurserymen have more or less ignored the small garden. Since the war, however, they have woken up to the fact that there are myriads of small gardens, although in most cases they are all bending their efforts on the production of evergreens; to me it seems as if evergreen madness prevailed, for vast numbers of home gardens contain nothing more than a border of conifers around the house and a lawn. Some day the owners will wonder whether it will be advisable to chop the evergreens out or shift their houses, for the tree sellers are not averse to over-planting and often use subjects that are apt to grow too large for their position. Personally, not being an evergreen crank I have not one in my garden, and precious little grass either. I was told my energy for intensively working my ground and filling it with flowers would evaporate, but if I believed it were necessary to confine myself to mowing grass and watching evergreens, with perhaps an odd bed or two of peonies, irises, dahlias and gladioli, which is the limit of many, I certainly would put the whole plot down to chickens.

I note M. Ch. Leray of Paris has a letter on Stevia serrata, but from his remarks and the illustration on page 114, I venture to state that he is referring to S. paniculata. In America the former is an important florist flower, being most valuable for mixing with other flowers. The plants are raised mostly from seed, being lifted before the frost, as one touch of frost is fatal to all Stevias. Standardised Plant Names lists Stevia serrata as Piquevia serrata and P. trinervia. Bailey's Encyclopedia also states that Stevia serrata as grown by florists is Piquevia trinervia. Stevia serrata is quoted by Johnson as flesh-coloured, with saw-edged leaves, while S. paniculata is described as white and panicled, and this accurately describes the form referred to by your Paris correspondent. This is also the form which is sold in America as S. serrata. It certainly is not sufficiently serrated to be termed saw-leaved. Personally, I am willing to accept the dictum of Johnson as revised by Hemsley and Fraser, and Kew's confirmation of my own impression years ago is an added testimony. So far as true S. serrata is concerned, I am inclined to believe that it does not exist in cultivation in America or anywhere else.—T. A. WESTON, *New Jersey*.

[Owing to the lack of the actual material we are unable to express an opinion of our correspondent's statements.—ED.]

ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Daffodils Unsatisfactory (M. H. A., Tiverton).—The daffodil bulbs are sound, but very small and starved. Keep the leaves green as long as possible and replant in good (but not freshly manured) soil. Two years, perhaps longer, must elapse before good flowers can be expected.

TREES AND SHRUBS.

Pruning Jasminum officinale (A. B., Finchley).—There is no definite rule with regard to the pruning of this climber. It is frequently done when clearing up the garden in late autumn, thinning the tangle of growths by removing some of the older pieces and loosely tying in the long trails. Should the plant be in an exposed position, cutting out is usually deferred until March, the mass of growths giving some protection to the older stems if the young shoots are damaged.

Corchorus japonicus (A. B.).—A more generally favoured name for this beautiful shrub is the Double Jew's Mallow, Kerria japonica flore pleno. Cut away all the old wood which can be spared, to encourage new growth. The flowers are borne on the young wood of the previous year.

FRUIT GARDEN.

Apple Wood for Inspection (B. I. D.).—The apple trees are badly attacked by the woolly aphis, and probably by the canker fungus as well. It is too late now to spray them with caustic wash, but that is the best winter treatment. From now onwards they ought to be painted with methylated spirit or linseed oil wherever the white woolly matter that protects the aphis makes its appearance, working the brush well into the wounds and among the galls the pest makes.

Artificial Pollination of Apples (G. N. E.).—To carry out the cross-pollination of apples with any large area outdoors is very difficult and tedious, as to be sure of doing it pollen must be transferred by means of a brush from one tree to another. Pollination, as a rule, occurs naturally; but effective cross-pollination in apples means taking pollen from the flowers of another variety altogether. The only feasible method would appear to be the removal of branches from one variety to the tree it is destined to pollinate, and the use of a rabbit's tail alternately on the flowers of the branch and of the tree.

MISCELLANEOUS.

Papaw Fruit (W. F. D., Dorset).—The papaw (Carica Papaya) is a common tropical fruit which may be eaten when ripe as a dessert, cooked when young and green as a vegetable, or pickled in the green state. Papain, the dried milk or juice of the fruit, is of value for medicinal purposes, and the leaves have the singular property of rendering tough meat tender if it is wrapped in them. It may be noted that yams are the tubers of various species of Dioscorea, and that the sweet potato, which is also of tropical origin, is the tuber of Ipomœa Batatas.

Superphosphate (F. K. W., Surrey).—The manure is superphosphate, and under that name may be obtained of any dealer in horticultural or agricultural manures. Its full name is superphosphate of lime. If our correspondent's vendor has sent sulphate of lime, a totally different thing, an error has been made.

Aucuba japonica (E. M. G., Boldre).—This Japanese evergreen shrub, represented in gardens by a number of forms bearing either green or variegated leaves, contains the glucoside aucubin and is noted in several works dealing with poisonous plants, although no records have been traced giving specific cases of injury to domestic animals. On the other hand, the leaves of the cherry laurel, Prunus Laurocerasus, which contain a substance yielding prussic acid, have caused the poisoning of numerous cattle and sheep on the Continent, but are, apparently, less harmful in this country.

Names of Plants.—A. T., Kent.—Prunus tomentosa.——H. E. B., Bath.—Acer opulifolium, Italian maple.——W. S. M.—Magnolia Soulangiana.

CATALOGUES RECEIVED.

Dicksons Nurseries, Limited, Chester.—Bedding Plants and Dahlias.

Messrs. McDougall and Robertson, Limited, Manchester—Insectides and Weedkillers.

XI All Horticultural Specialities—Supplied through Horticultural Sundriesmen, Nurserymen, and Seedsmen.

PUBLICATION RECEIVED.

"A Handbook of Garden Irises," by W. R. Dykes, M.A., L-ès-L. Published by Messrs. Martin, Hopkinson and Co., Limited, 14, Henrietta Street, Covent Garden, London, W.C.2. Price 12s. 6d.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Early Potatoes.—Any night we may experience a little frost, so it will be advisable to keep an eye upon the early crop of potatoes. Those well advanced may be protected with a few evergreen branches, but for the bulk a little soil drawn over the growths will suffice.

Brussels Sprouts.—If seeds were sown early in the year and the seedlings pricked off, the plants will now be ready for transferring to their final quarters. These plants need good ground and plenty of space fully to develop, so for the strong-growing kinds a distance of 2½ft. between the rows and 2ft. in the lines should be allowed.

FRUITS UNDER GLASS.

Melons.—Early melons will soon approach the ripening stage, and, when the fruits finish swelling, feeding of the roots should cease, the atmosphere be kept on the dry side and more air admitted. So long as the foliage is healthy the roots should be kept more or less moist, as many fruits are spoilt through lack of water during the finishing stages. Later plants will be growing freely, and when the fruits are set the roots should be top-dressed with good fibrous loam. Keep them well supplied with water, syringe the foliage twice each day, and maintain a more or less moist atmosphere. A little air during the middle of the day will be needed. If a succession is desired, seeds may be sown to produce plants to take the place of others that are ripening their fruits.

Melons in Frames.—Melons can be successfully grown in frames or unheated pits, but better results are obtained if a small hot-bed of manure and leaves is employed so as to give the roots a good start. A bushel of loam should be placed in the centre of each light, and one plant on each mound of soil will be ample. Place the frame in a sunny position, and the light should be closed about 3.30 p.m. after sprinkling the interior with tepid water.

THE FLOWER GARDEN.

Wallflowers play an important part in spring bedding, and this year, in spite of the cold east winds, have given a good account of themselves. A bed of the early-flowering varieties, such as Yellow Phœnix, ought certainly to be grown, and during a mild winter they produce quite a number of flowers. Other fine sorts are Fire King, Orange Bedder, Blood Red and Cloth of Gold. Sow the seeds thinly in lines 1ft. apart, and if the soil is dry give the drills a thorough watering before sowing the seeds. When the seedlings are large enough transplant them 1ft. apart, and when established pinch out the centre, no more stopping being required. Choose an open site and keep the soil hoed to prevent the plants being overrun with weeds.

Polyanthuses.—Seedlings raised early in the season should be transplanted as soon as possible, selecting a partially shaded piece of ground. Old plants having passed the flowering stage may have their seed-pods removed, the roots divided into single crowns, and then set out in lines 1ft. apart. They will be found useful in the autumn for planting along woodland walks if not required for the beds. For a few weeks the roots will need water if the weather is dry.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Cabbages and Cauliflowers.—Plants in their early stages are often attacked by slugs, and so one has always to be on the look-out, especially in dull, damp weather. Where slugs are troublesome lime or soot should be dusted around each plant and the applications renewed after heavy rains.

General Work will include the staking of peas as succession rows of plants advance in growth, and the further sowings of beet-roots, carrots, French beans, peas and garden Swede turnips. The lettuce and radish crops, to be sown at intervals as requirements demand, should be grown on top of the raised ground which has been thrown up between the celery trenches. A little thinning should be done among the early carrots, while later thinnings may be used for culinary purposes. Occasional applications of salt should be sprinkled over the asparagus beds during showery weather.

Leeks.—Where sowings were made early in the year, either in boxes or frames, the young plants will be sufficiently advanced now to plant out. Leeks will grow in almost any soil or situation, although, like other vegetables, they respond to good treatment. Well manured and deeply worked soil is therefore necessary to produce a good crop. Fairly deep drills should be drawn out with a triangle hoe at 12ins. apart, and the leeks set about half that distance from each other in the drills. The usual method of planting is to make nice round holes with a dibber from 4ins. to 6ins. deep, the depth varying according to the strength and length of the plants. Drop a plant into each hole, then push in just a little soil from the top of each hole to cover the roots of each leek as the planting proceeds.

THE FLOWER GARDEN.

Anchusa italica Dropmore Var.—All who love to have blue-flowered plants on the herbaceous borders should certainly include the alkanets. Anchusa myosotidiflora should be quite handsome at present with its myriads of blue myosotis-like flowers. The Dropmore variety, however, is really grand when in flower, especially when several plants are grown together. The plants like a rich and deeply worked soil, and young plants which have been wintered in pots in a cold frame or partly covered up with fine ashes out of doors should be set out forthwith. A good stock of plants can easily be raised from seeds or root cuttings.

Hardy Annuals.—Stations marked on herbaceous or shrubbery borders for seed sowing should be raked fine and, before sowing, sufficient surface soil should be collected from each station to cover the seed. Pass this soil through a sieve or ¼in. riddle over the seed as soon as it is sown, then gently firm with the back of the spade. The old and easily remembered rule regarding seed sowing is worth repeating, which is, the smaller the seed the less covering of soil it needs. Clarkia, cornflower, collinsia, godetia, Limnanthes Douglasii, linaria, linum, nemophila, Matthiola bicornis and viscaria are a few well known and easily grown hardy annuals. Linum grandiflorum rubrum is quite effective when grown in small patches between border chrysanthemums, such as Nina Blick or Abercorn Beauty.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Coleus thyrsoideus.—This beautiful blue-flowered plant is indispensable for flowering during the winter. It may be raised either from seed or cuttings. If the former method is adopted the seed should be sown during this month. Cuttings may be inserted about the middle of June, while plants for furnishing the stages may be propagated as late as the beginning of September. Seeds germinate readily in an intermediate house, while cuttings will root in a close case with slight bottom heat. During its growing season this plant is best kept in a warm greenhouse and when growing freely requires liberal feeding, or else it soon loses its bottom leaves. Large specimens for standing in the beds should be potted on into 8in. pots. Plants for the stages should be flowered in 6in. pots, while later rooted plants may be flowered in 48-sized pots. This plant requires careful watering at all times.

Coleus barbatus has pretty pale blue flowers and is a very desirable plant for the autumn. It should be propagated by means of cuttings at this time. During the summer it should be grown in an intermediate temperature and when in flower placed at the warmest end of the greenhouse, as the flowers are apt to damp off. The many varieties of coleus with coloured foliage are still very popular for greenhouse decoration, and well coloured plants in small pots are very useful for indoor decoration. They root so readily in a warm case and grow so quickly that it is easy to keep up a succession of useful plants for this purpose. Large specimens are very useful for the conservatory during late summer and early autumn and for this purpose they should be potted on into 8in. or 10in. pots. To obtain well furnished specimens the shoots should be frequently pinched. The plants may be trained either as bushes or in pyramid form.

Cinerarias are popular plants for greenhouse decoration, and this is, no doubt, due to the fact that many fine strains of intermediate varieties are now obtainable in beautiful shades of blue, as well as rose. These plants have largely taken the place of the so-called florists' varieties with large regular-shaped flowers, which are less useful for decorative purposes. Seed may be sown from now onwards until the beginning of July, as by this means a long succession can be maintained. The seed may be sown in an ordinary greenhouse, and during all stages of their cultivation the subsequent plants require perfectly cool treatment, with moist atmospheric conditions. During the summer they may be grown in cold frames, or better still, in low pits. They may be flowered in 48-sized pots and in this size are very useful for decorative purposes. Larger specimens for conservatory furnishing are best grown on into 6in. or 7in. pots. If little or no leaf soil is used in the potting compost, much hardier and sturdier plants will be produced. When they have well filled their pots with roots they enjoy liberal feeding. In bright weather they will require shading during the hottest part of the day. These plants are very subject to attacks by green fly, which should be prevented by frequent light fumigations. Towards the end of September the plants should be removed to an airy greenhouse where they can be safeguarded from frost.

J. COUTTS.
Royal Botanic Gardens, Kew

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THE GARDEN

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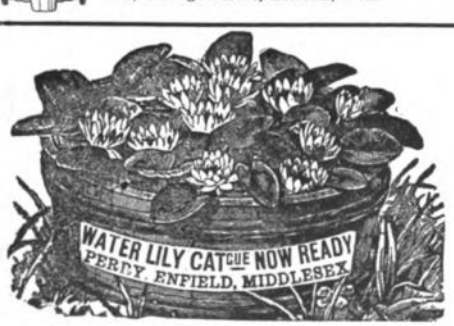

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THE GARDEN

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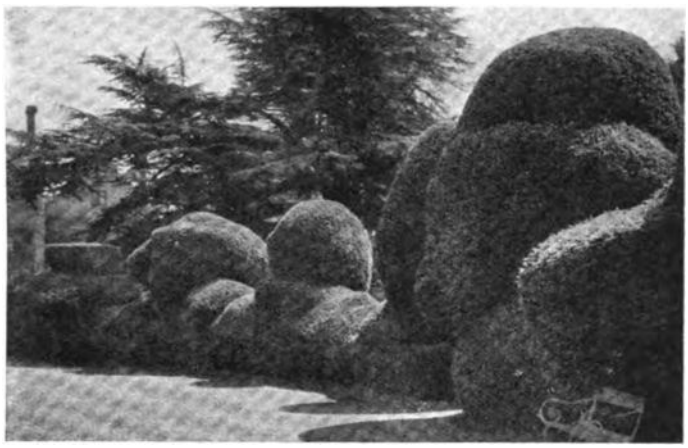

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ON VIEWING A GARDEN

AT this time of year, when the world and his wife are scattered around the country, many gardens are visited and looked at and examined from every point of view. Now, this is not quite such an easy operation as might be imagined. For friends who have the same enthusiasms it is comparatively simple. They make a bee-line for the latest acquisition or some stubborn plant, and examine it and discuss it together for hours. I am reminded of Mark Twain's story of the blue jay which tried to fill up a knot hole in a roof with acorns; he collected his friends and discussed the question for hours on end. This kind of garden discussion is in keeping with the enthusiasm of those who have reached out beyond the stage of beginners. I have an unfortunate friend who obediently followed me in a tour round some of the Cornish gardens. His bitter complaint was that we passed everything in full flower and centred our attention on some stick which had few leaves and no possibility of flowering within the next decade. He dubbed such plants as nudissimums. That is one way of seeing a garden.

At the other extreme are a class who say that they would love to see the garden and then keep their eyes firmly fixed upon the path and discuss racing and clothes and anything else that may enter their heads, provided that it has nothing to do with gardening.

Between the two extremes are the largest class of men and women, who like flowers and pretty effects but are usually shy and nervous about showing their ignorance. They make banal remarks on the plants and ask questions and make guesses at the names until the person showing them round catches their nervousness, which is infectious, and by slow degrees they drop the subject of gardens and wander off along some bypath. This is unfortunate, for in all probability the visitors are just as enthusiastic as the owner or the gardener, but a little tact and skill are wanted in developing the conversation along the right lines. It is little use showing and impressing a visitor with a fine collection of rock plants if the visitor is only interested in trees. The owner should sometimes remember that he can always see the part of the garden which is most interesting to him, while the visitor may only have the opportunity of seeing his particular branch of the hobby on this one occasion.

On the other hand, I have every feeling of sympathy for the owner of the garden. If I visit a strange garden for the first time, I know that I am being carefully examined to see in what direction my gardening enthusiasm lies. Owners of gardens have to be shrewd judges of character, for there is nothing more boring than showing an unwilling visitor round a garden. The best plan is to state boldly and clearly where your tastes lie. In that way an immense amount of trouble is saved and what might have been a dull afternoon may be very pleasantly spent. I know of several large gardens where distinctly different routes are laid out for showing the garden to visitors according to their taste and knowledge. The first class is shown everything, and the showing takes the best part of a day. The nurseries are not included in the itinerary of the second class; the third is only shown full grown plants, and so on. This is a good method.

There is one disease to which even the most enthusiastic are addicted, and that is horticultural indigestion. If a succession of gardens is visited, there comes a time when we are satiated with gardens and looking at beautiful things. Our mind is filled with a whirl of memories of special plants and varieties of complicated names. There is no cure for this complaint except a rest in some place where there are no flowers, but there is a preventive. I have found it a good plan to carry about a notebook with me in which I take copious notes. When I leave, the notebook is closed and I pigeonhole all that I have seen for future reference, but in the next garden I visit I eschew mental comparisons as far as possible. In this way I can open my notebook at some future date and at a glance my memory is refreshed. I am no longer bothered by trying to memorise a bookful of information and names.

Remember that all keen gardeners are enthusiasts at heart, but, although each may have his own particular hobby, gardening is a subject which should be taken as a whole.

E. H. M. C.

FORTHCOMING EVENTS.

May 20.—Croydon Horticultural Society's Meeting.

May 22.—Royal Botanic Society's Meeting.

May 24.—Wakefield Tulip Society's Exhibition (four days).

May 27.—Royal Horticultural Society's Great Spring Show at Chelsea (three days).——Bath and West and Southern Counties Society's Exhibition (five days).

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NOTES ON PRIMULAS

BY DR. MACWATT.

AS we stand in our gardens in early spring and see the flowers, so aptly called Nature's miracles, unfolding on every hand, our senses are thrilled with exquisite delight, and we gaze with joy on the growing stems, the spreading green leaves, and the opening buds. At this season Nature appears to sing with a voice eloquent of triumph and full of joyful welcome: triumph over the dark and dreary days of winter—vanquished but recent!—and welcome to the gentler rains and warm sunshine of the approaching months! Almost as we watch we may see the development of life. Under the genial influence of their spring environment the little buds add cell to cell and strength to strength, until at last they emerge as the perfect flower, and Nature is again supreme with a perfection of form and colour which our intelligence can only vaguely comprehend and our most skilful art only faintly imitate.

Earliest and most beautiful among the spring flowers are the primulas. All the temperate zone of the earth is their domain. The meadows, woods and hedgerows of our own country, the wild precipices of the Alps, the unexplored recesses of the dark Caucasus, the Himalayas crowned with perpetual snow, the lofty plateaux of Western China, and the slopes of the vast mountain ranges of North America are glorified and gladdened by their presence. There is no more beautiful or interesting tribe in the whole vegetable kingdom. They possess a charm peculiarly their own, a charm which increases the more closely they are studied, which no familiarity can ever diminish. And not only are they the loveliest of plants, but their beauty lies open to the most casual glance, and appeals to all sorts and conditions of men.

While members of the primula family have been cultivated from time immemorial and may, indeed, be reckoned among the oldest of our garden flowers, the last quarter century has greatly multiplied the numbers of species in cultivation. Most of the newer species come from Western China and for these we are indebted to the labours of Wilson, Forrest, Kingdon Ward, Purdom, and other collectors in that distant region. Mention should also be made of the services of Messrs. Bees, Limited, who have done much in the way of introducing new species to public notice. Some of these novelties are rapidly becoming popular, and are to-day among our best known spring flowers; others, either owing to their scarcity, the difficulties attached to their cultivation, or because their attractions are not such as to cause us to fall in love with them at first sight, are as yet comparatively unknown. It is principally, though not solely, to direct attention to some of these less familiar primulas that this article has been written.

The Common Primrose (Primula acaulis) and its neighbours the Cowslip (P. veris) and Oxlip (P. elatior), are known to everyone. It may not however be generally understood that the parent of the coloured primroses of our gardens is the Caucasian form of the common primrose (P. Sibthorpii), an early-flowering lilac variety, while the origin of the polyanthus is probably a hybrid between the primrose and the cowslip.

Many beautiful varieties of double primroses and polyanthuses are now in commerce and the appearance of new, handsome and vigorous varieties may be confidently looked forward to, as anyone who likes to take a little trouble can raise new varieties on Mendelian lines; in the third generation double flowers are produced from single varieties fertilised by pollen from doubles.

P. Juliæ is a Caucasian primula which is almost too well known to need description. It is the parent of numerous natural crosses with the primrose, cowslip and oxlip; several of which I have exhibited at the Chelsea Shows.

P. Palinuri, the so-called Cape cowslip or Italian primrose, has been in cultivation a long time. Its native habitat is chinks in the rocks in the Apennines above Cape Palinuro. Its tall erect flower stem, crowned with drooping golden-yellow flowers which exhale a strong cowslip-perfume, rises from amid vigorous foliage. It is a variety of rapid growth and fairly hardy in this country, but is seen to most advantage, especially in cold districts, when it is given the shelter of a cold house or frame.

Two beautiful hybrids are Linda Pope and Marven. The first named is probably a hybrid between P. marginata and an Alpine auricula. P. marginata is an abundant species on the Cottian and Maritime Alps and manifests in cultivation its preference for an elevated situation, being best grown on raised rockwork where its rhizomes can find their natural position. In colour it ranges from rich violet to white, and is easily grown if it gets a chance as above described. Linda Pope excels in beauty its supposed parent. Its deeply serrated leaves are densely covered with white farina. It is easy of cultivation. P. Marven is a hybrid between P. marginata and P. venusta, which is itself a natural hybrid between P. Auricula and P. carniolica. The latter is easily grown on good soil, and in its general appearance resembles a purple auricula. P. Marven is a garden cross, is dark violet with a white eye, and flowers in April. It may be characterised as a good doer.

PRIMULA SECUNDIFLORA, FROM A PHOTOGRAPH TAKEN BY MR. FORREST IN YUNNAN.

CHINESE PRIMULAS.

Our gardens have been enriched, especially in recent years, by the introduction of a great number of beautiful primulas from Southern China. Among these may be mentioned P. secundiflora, introduced by Messrs. Bees, Limited, in 1908, from seed gathered by Forrest. It carries an umbel of drooping flowers of a deep crimson colour, the outside of the corolla being a little paler, while the calyx is ruddy and banded with white meal. In its native haunts in Northwest Yunnan it grows at a great altitude and it therefore might be expected to be quite hardy, but, unfortunately, it has a decided tendency to rot off at the neck after flowering. As it seeds freely, however, there

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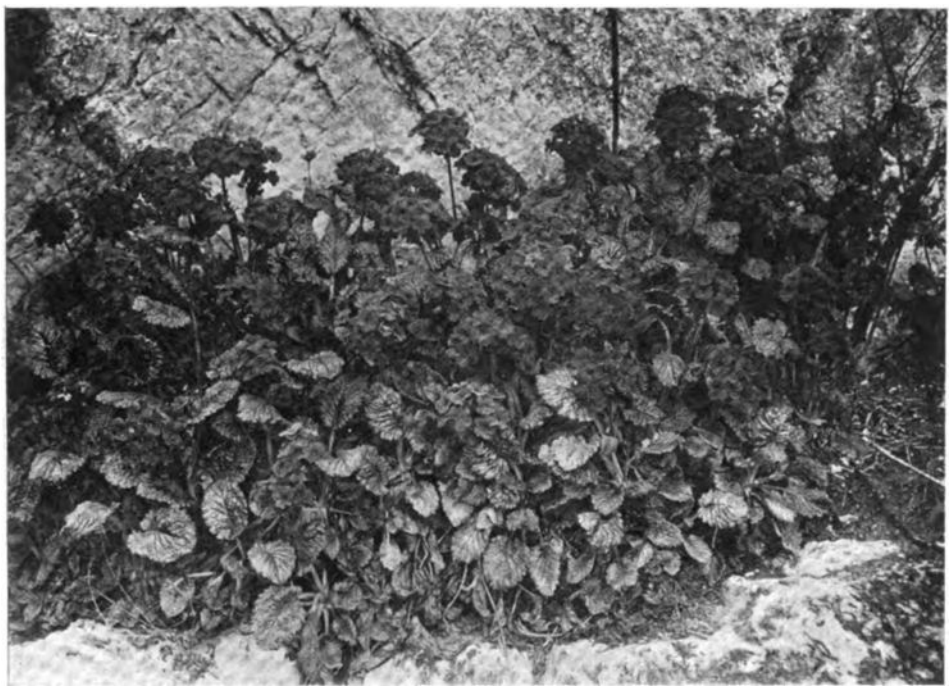
is no difficulty in renewing one's stock and the same may be said of P. vittata, a plant introduced by Messrs. Veitch, and which in practice it is scarcely possible to distinguish from P. secundiflora.

P. Veitchii is a hardy, free-flowering species which grows well in ordinary soils and bears abundance of magenta flowers in whorls on stems 12ins. to 18ins. long. It much resembles P. lichiangensis, from which it is distinguished by the reddish hairs underneath its leaves. In P. lichiangensis the flowers are larger and more drooping than in P. Veitchii and the anthers are purple instead of yellow. P. Lapala appears to be simply a variety of P. lichiangensis, with the underside of the leaves thickly covered with white hairs. P. obconica is too well known to require description.



ANOTHER OF MR. FORREST'S YUNNAN PHOTOGRAPHS, A FINE CLUMP OF P. RUFA.

P. SINO-LISTERI, A RELATION OF P. OBCONICA WITHOUT IRRITANT LEAVES.

P. Sino-listeri is a plant of great interest, and possesses the advantage of being devoid of those irritant hairs which prove a source of annoyance to many people in P. obconica. It should be hardy in the South of England, but in less favoured districts requires much the same treatment as P. obconica. It forms fine tufts of green orbicular leaves, and carries scapes —usually two-tiered—of white, lilac or pink flowers. P. werringtonensis is the western woodland form of P. obconica. It has rose coloured flowers with a greenish yellow eye. It makes a good plant when grown in shade in a cold frame.

P. heucherifolia, a very fine hardy garden plant, much resembles a Cortusa. It was introduced into cultivation by Miss Willmott under the name of P. Gagnepainii. It has soft crinkled leaves and bears an elegant head of bell-shaped flowers of a pleasing rich purple hue. P. septemloba also resembles a Cortusa. P. geranifolia, a Himalayan form of this last, differs mainly in possessing larger and more open flowers. All the three species are alike in possessing geranium-like leaves. PP. geranifolia and septemloba should be grown in a cold house except in the most favoured districts; P. heucherifolia is hardy in the open.

P. pycnoloba is one of the most singular of the whole family and has been appropriately named "The Hooded Primula." The lobes of the calyx are large and shaggy; from them emerges the trumpet-like corolla, white with the mouth tinged with red. The glossy-green leaves are cordate in outline. Resenting pot culture, it should be planted in open soil, but will require the protection of glass except in the Southern Counties.

P. Forrestii is another very distinct primula. It is of under-shrub habit with stout stems, surmounted by dense tufts of leaves, the closeness of which is increased by the retention of desiccated old leaves. Its flowers are deep yellow and delightfully fragrant. Unfortunately, this very characteristic plant is not quite hardy in the North. P. rufa much resembles it, but appears to be a shade hardier; its distinguishing feature is that it has more rusty-brown hairs on its leaves. If planted outside these primulas should be placed in the crevices of almost perpendicular rockwork with a shady exposure, damp being their chief enemy. P. redolens is a pinky-white form of P. Forrestii and is more robust than the type.

P. Littoniana is one of the best known of Messrs. Bees' introductions, and deserves its popularity, as it is a most striking species. It is like a red hot poker, with scarlet bracts and calyces and lavender-lilac flowers in a dense spike, carried on a scape which may be anything from 6ins. to 24ins. in length. The erect leaves are clothed with downy hairs and the scape is mealy. There are two forms; var. robusta is the larger but inferior in colour to the dwarfer variety. This primula thrives in rich soil, but is rather susceptible to damp.

P. Watsonii has little to recommend it as a garden plant; its blackish-purple flowers being rather unattractive.

(To be continued.)

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RARE AND NOTEWORTHY PLANTS

BY E. H. WILSON,
OF THE ARNOLD ARBORETUM.

CORNUS OFFICINALIS.

CORNUS OFFICINALIS is the Oriental relative of the familiar Cornelian cherry (C. Mas). It is a native of central and southern Korea, and is said also to grow wild in the Chinese province of Chekiang. In Japan it has long been cultivated, and its fruits are considered by the people of the Orient to possess valuable medicinal properties. As I saw it wild in Korea, C. officinalis is a tree about 35ft. in height, with a trunk 4ft. in girth, and an erect-spreading, rather irregular crown. It is perfectly hardy in the Arnold Arboretum, where small plants are now, in mid-April, flowering freely. The fruits are bright red, thinner and more oblong than those of the better known C. Mas. In the colder parts of the British Isles and especially the East Coast, this Cornel ought to be generally grown. At present it seems little known and quite rare in western gardens, though named and figured in 1839 by Siebold and Zuccarini in their "Flora Japonica," Vol. I, page 100, t. 50. I have been unable to find out the exact date of its introduction into Europe. However, this seems to have been about 1870, for Lavallée enumerates it as growing in his arboretum at Segrez in 1877.

The barks of trees often afford good and obvious distinguishing characters when those of flower and foliage are lacking or obscure. C. officinalis is a very good case in point. In flower and leaf this and the Cornelian cherry (C. Mas) are well-nigh indistinguishable—at any rate, they are so much alike that only a skilled observer notes the difference. The bracts enclosing the flowers are less concave and more sharply pointed, the pedicels are longer, the sepals a little larger and more acute, the petals narrower and more pointed and less

A FLOWERING BRANCH OF C. OFFICINALIS.

re-curved in C. officinalis; but these differences are all relative and inconstant. When grown side by side the flowers of C. officinalis are seen to be of a brighter yellow and the inflorescence rather more lax. The barks, however, are totally different. That of C. Mas is close in texture, dark grey, blackish in appearance, and is adherent firmly on the branches for many years, becoming rough, scaly and flaking off in small patches and showing a grey undersurface on the trunk and old branches. In C. officinalis the bark is red-brown, splitting and peeling the second or third year into translucent papery shreds, which cling to the branches and, with the light showing through, present a pleasing appearance; on the trunk it is grey, soft and spongy in texture, and, flaking off, exposes a pale brown undersurface.

These two early spring-flowering cornels are characterised by having their small yellow flowers in an umbel subtended by an involucre of four opposite and decussate bracts borne on leafless branches. They belong to a little group composed of four species whose distribution is interesting. The well known Cornelian cherry (C. Mas) is native of Europe; another species (C. sessilis) is a shrub with oblong blue-black fruits and is confined to the regions of North America west of the Rocky Mountains; another (C. chinensis), which is a large tree characterised by its small black fruits, is confined to the mountains of central and western China; the fourth is C. officinalis.

Before the advent of the Japanese and Chinese witch hazels, the Cornelian cherry was greatly appreciated in European gardens as the first of spring-flowering shrubs to open its blossoms. In New England it has been very generally planted and, owing probably to the greater summer heat enjoyed here, it fruits abundantly. In the early spring, when its naked twigs are starred with yellow and in the autumn, when laden with its scarlet fruits, the tree is pleasant to look upon. The American species is not hardy with us, and I fear that of China is not in cultivation, though I sent seeds to the Arnold Arboretum in 1907 and 1908 and again in 1910.

A TREE, TWENTY FIVE FEET IN HEIGHT, OF CORNUS OFFICINALIS IN CENTRAL KOREA.

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THE CULTIVATION OF CINERARIAS

THE cineraria is no longer the plant that it used to be, nor are its uses limited merely to the decoration of the stages in the conservatory and occasional use in the house. The introduction of the stellata and cactus-flowered types has made it one of the very best flowers for cutting during the winter, where light, graceful arrangements are the aim. The smaller and narrower petals of these, too, have had a moderating effect upon the colour, so that the blues are less brilliant, the crimsons less vivid, the purples less intense, a great point where used indoors and especially under artificial light. This is not all, however, for a number of other softer shades are also found in these smaller-flowered types, that are delightful from every point of view.

Though we have emphasised their value so greatly as a house flower, this does not mean that they are less effective from the garden point of view. They require more space than the dwarfer and more compact large-flowered type—the height is anything from 2½ft. to 4ft.—but, in large conservatories bold groups of the small-flowered hybrids are extremely pleasing. One has but to visit the Chelsea Show of the R.H.S. to appreciate their capabilities in this direction, but both space and height are essential to their successful display.

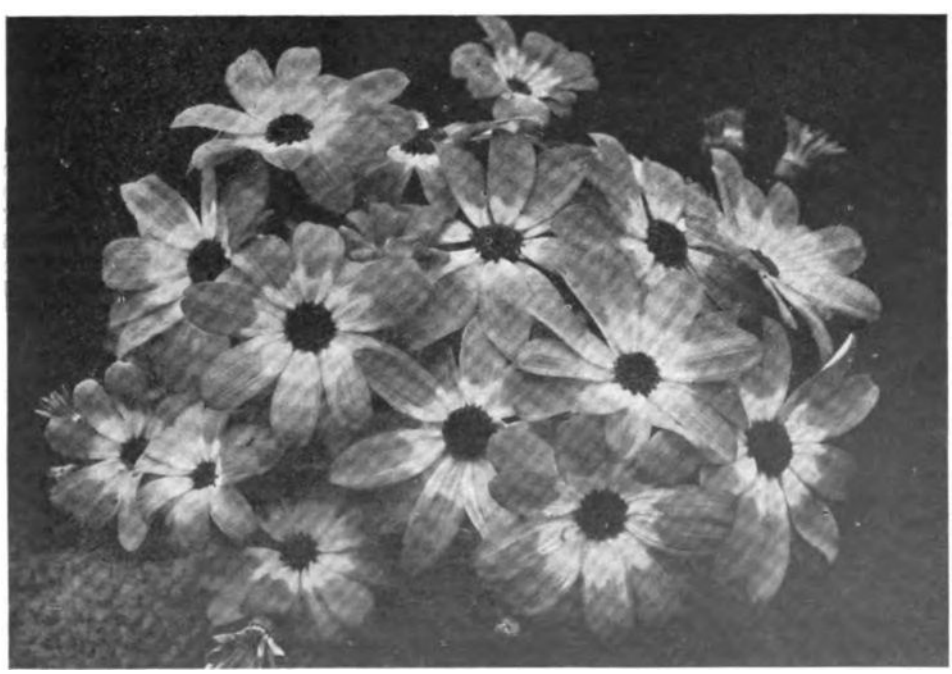
For smaller buildings or where it is desired to produce a solid phalanx of colour of dazzling brilliance, any good strain of English or French origin may be relied upon to give you abundance of material. The English strains are—as a rule—dwarfer, 10ins. to 1ft., while the French attain 15ins., but both will give you a gorgeous display of broad-petalled flowers of large size and gay and brilliant colouring. The blues are often especially sought after and some firms make a speciality of these and offer the seeds in separate packets from the mixed strain. A very striking though not new form is that known as Matador, in which the colour varies from bright scarlet to coppery brown, some examples coming almost a mahogany colour.

Where a long display of flower is desired, more than one sowing of seed will be necessary, but, for general purposes, one is sufficient—made during May. The seed germinates very freely, so that overcrowding should be avoided by sowing really thinly at the outset. Shallow wooden seed boxes do quite well for this and any ordinary light soil will serve, provided only that the surface is made fairly fine. Cover lightly with soil and see that the surface is kept shaded from hot sunshine and evenly moist. The foliage of the small plants is very thin in its texture and readily scorched if—by chance—the soil should become dry and the sun reach them, so care should be taken on this point.

A FINE WHITE FLOWERED CINERARIA.

When three or four leaves have been formed, the young plants are ready for pricking off and this should be done into small pots. Be sure that the pots are perfectly clean and use several pieces of crock at the bottom of each, before the soil is put in. The latter should consist of a good fibrous loam, to which a moderate amount of leaf mould and a good dash of sand have been added. Mix these well together and fill lightly into the pots, then lift and place one seedling in each and press down firmly. The cinerarias make an immense mass of fibrous roots and, to keep the plants dwarf, the soil should be well firmed—otherwise they are very apt to run up too tall.

When pricking off the seedlings from the boxes, examine the reverse side of the foliage for this will give you a useful indication of the most likely colour of the flowers. The reverse side is densely felted with short hairs, sometimes blue, sometimes crimson, sometimes white and so on, this is the hue that those flowers are most likely to be. Selection from these then enables you to obviate a preponderance of any particular colour, a valuable point when mixed seedlings are being handled. Owing to their immense mass of fibrous roots, the little plants establish again very quickly and the sooner they can be transferred to cold frames, the better they will succeed.



MAROON AND WHITE CINERARIAS ARE USEFUL UNDER ARTIFICIAL LIGHT.

Once beyond the seedling stage there are three items upon which to concentrate, in order to ensure success—a cool moist atmosphere, even moisture at the roots and cleanliness from their arch enemy, greenfly. These are not difficult matters, but deviation from them quickly spells the ruin of the plants. In cold frames that face north and have an ash bottom, coolness and moisture are not difficult to provide and the young plants soon make such rapid progress that a shift into pots of a larger size will be necessary. Do not delay this, for they should not be allowed to become pot bound until the flowering size, 6in. or 7in., pot is reached.

The leaf-mining maggot is sometimes very destructive to the appearance of the foliage, but this pest can be entirely eliminated by thoroughly spraying the foliage several times with a

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nicotine wash which makes the leaves so distasteful to the female that she refrains from depositing her eggs.

For final potting, fibrous yellow loam should predominate in the compost; though a small amount of old manure from beneath a hot-bed is an advantage, with sufficient coarse sand (according to the nature of the loam), to ensure porosity. Retain the plants in the frames as late in the autumn as possible, remembering their love of a cool temperature, but, as the colder days draw on, be careful that too much water is not given or the soil will become sodden. Greenfly must be watched for at all stages, though this seldom proves troublesome while the plants are in the frames, but, at the first signs of its appearance, fumigate lightly and repeat this again if the first has not been effective. When their retention in the frames no longer becomes safe, bring the plants into the coolest house that you have. They do best of all in one where heat is only used to exclude frost, but—in any case—redouble your look-out for greenfly. Nothing is more annoying that to possess a fine lot of plants and then see your labour of months frustrated by these insidious pests. Avoid crowding the plants, sufficient space for the large leaves must be allowed and no single degree of heat beyond that really necessary should ever be employed. Open stages are not good and, wherever possible, the plants should be stood upon either an ash or shingle bed.

Where early flowers are required, the most forward plants should be chosen and introduced into a slightly warmer atmosphere. A very little extra warmth will soon make them grow rapidly and as the centre of the plant (in the stellata and cactus-flowered strains), begins to spindle up, a firm, thin supporting stake should be inserted for its support. Feeding may be done upon generous lines, so far as frequency is concerned, but one must always use this very weak. Water first in the usual way with plain water, then apply just a small quantity of liquid manure really weak and as varied in character as possible. As the spring days lengthen and the sunlight becomes more and more powerful, additional care must be taken to keep the plants cool and lightly shaded when the sun is brightest. Neglect of this considerably shortens the life of the plants, for the leaves and stems will droop and—although they may, to some measure, recover—they never attain their full freshness.

Cinerarias lend themselves especially well to artistic grouping with other plants and those who have a good batch of the various sections can have a most interesting hour, while grouping their plants for display so that the heights and colours present a harmonious whole. In conclusion never forget, please, that their arch enemy is greenfly. This, however, is within the cultivator's control and has no terrors for those who regularly fumigate. H. W. CANNING-WRIGHT.

COMMENTS ON GLADIOLI

IT would be a pretty safe venture to wager that a dozen gladioli bulbs are flowered each year in America to every one in this country. And, *per capita*, Canada and New Zealand, and probably also Australia, have more admirers than we have of this most gorgeous of all the irid family. Why British gardeners have been so slow to welcome the great reawakening to popularity of the gladiolus is not easy to explain, unless, indeed, we accept national conservatism—something of an inborn trait, I fear—as the cause. But evidences are clear and articulate that the renaissance has come, and it is not likely that a flower with such appealing powers will readily fall back into neglect or decay.

I am a true flower lover, of catholic tastes. Before me, as I write, is a vase of sweet and winsome Leedsii narcissi flowers, cool in colour tone and exquisite in form, beautiful enough to take the soul of a Siamese coal-heaver (I put it this way because there are, perhaps, fewer regular readers of THE GARDEN in Siam than in any other country!). I have known the allurements of the May-flowering and the species tulips, the grace and the gaud alike of the lily, the rose and the carnation. I have philandered with the ixia and the auricula, the scandent clematis and the minutest rock plants from the high mountains. But no flower has so enwrapped my fancy, nor granted me so many definite and particular pleasures as the gladiolus. Like most folks, I first embarked on the gladiolus ocean by pottering along the coast line in such little boats as Halley, brenchleyensis and Schwaben; but these have long since ceased to amuse me, for they do not voyage very far, and one wants more modern appliances to set out on the real big-discovery trips to the distant fairylands. In "Inland Voyage" "R. L. S." tells us it is better to journey than to arrive, and there is a deal of truth in that. And so in gladiolus growing it is infinitely better that we should not know whither our experiments lead us than to have accomplished the last possible development of the flower.

There will be great enjoyment for many years to come for all who take delight in cultivating the acknowledged queen of summer-flowering bulbs. The individual flower will take on new forms, also the placement on the spike, while the possibilities of colour blends still to be made are, like the number of the stars, incomprehensible. There are already known some seventy-five distinct species of gladioli, practically all of which, with favourable opportunity, would hybridise together; while the whole genus is composed of some 160 species, some of which in recent years have been assigned to kindred families such as Antholyza, Tritonia, Acidanthera and Watsonia. Now, of this great multitude hardly more than twenty species have been utilised to build up the modern garden gladiolus, so the fancy can easily run riot in anticipation of what is still to be achieved. The great majority of the species come from South Africa, though a few are of European and Asian origin, such as atroviolaceus from Syria, byzantinus and caucasicus from Turkey and Asia Minor respectively, communis from the northern shores of the Mediterranean, and imbricatus from southern Russia. It is very difficult to obtain bulbs of many of the species which promise well for hybridising.

Dr. I. B. Pole Evans, Chief of the Botanical Survey of South Africa, has very kindly sent us bulbs collected from the mountain ranges of the Transvaal, particularly the Drakenburg, and though he has given us many useful hints regarding the particular soil in which they are found growing, etc., we have not yet succeeded in flowering any of these. Dr. Pole Evans came over to see us one afternoon when he was home last September, and I was able to show him a strong plant of G. crassifolius which he had sent in April of last year, and which seemed to be on the point of thrusting up its flower spike. To my great disappointment, however, the foliage began to turn yellow a day or two after, and the plant went to rest. It is now (May 5th) just spearing its way through the soil again, and I am hopeful that it has at length realised that summer is not December, January and February in these latitudes, as it has been accustomed to all its life under the Southern Cross. Last year it did not peep above ground till well into July, so it is certainly mending its ways. I shall take full use of this and of G. Ludwigii calvatus, which also shows a disposition to grow, for crossing with some of the garden varieties, if the opportunity serves. We have already managed to secure crosses between G. tristis, the scented variety, and some of our own seedlings, both large-flowered and primulinus hybrids, and I hope next year will show if any great developments may be expected from such a union. The trouble hitherto with this particular cross has been to get flowers on which to operate when tristis was in bloom, the latter flowering, as it does, in April.

While this work of intercrossing species with species, or species with garden hybrids, is perhaps best left to professional growers, there is also an immense field still open even to amateurs with limited opportunities at their command, by crossing the named sorts which they are growing for flower and producing new hybrids of their own. Amateurs often send us flowers from their gardens, raised from seed supplied by us, and many of these would do great credit to them if shown in a group at Vincent Square. In one parcel received from a customer last year we picked out at least three that would have sold very well if named and described in a catalogue. If we could only get the element of scent into the flowers that we already value for colour and form alone, what a stimulus the cult of the gladiolus would have! J. L. GIBSON.

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NOTES FROM GRAVETYE MANOR

THE CHARMING WHITE SNOW GLORY, CHIONODOXA LUCILIÆ ALBA.

IT is not always possible to develop Nature's best pictures inside the garden proper, owing to the limitations of space and freedom of planting; but once we embark upon the ever-inviting woodlands we relieve ourselves of any such disadvantages and plant with a free and lavish hand such flowers as are known to appreciate the leafy surface obtaining in these woody lands.

Near the house is a typical Sussex woodland, over the rides of which have been strewn daffodils and other spring flowers in their thousands, not densely crowded together but planted in loose, spreading, picturesque drifts, with plenty of bare surface which gives the necessary relief and enhances the natural beauty of the surroundings. Surely the bulbs—which, I understand, have been planted for over thirty years—were strewn broadcast and put in where they fell, and the result is certainly gratifying, for these spring woodland scenes are very beautiful.

Although the rides and their margins were the first to be planted in this way, these drifts of colour are by no means confined to them, and in many instances they are to be seen streaming away into the distance and losing themselves among the leafless underwood, or blooming conspicuously over a mound half a mile away with the ground about them a carpet of primroses and rapidly developing bluebells.

In order to enhance the beauty of these woodland pictures and improve the vision of distant effects the lower branches of the picturesque old oaks are removed, and thus, with the ever changing shadows playing upon their lichen-covered trunks a woodland picture of considerable grace and charm is revealed.

CHIONODOXA LUCILIÆ ALBA.

This precious early-flowering plant was found by Mr. George Mann when searching the mountains around Smyrna for species of crocus, and to that great traveller gardeners of to-day are indebted for its introduction to this country. To those unacquainted with this charming White Snow Glory the illustration given here will convey much that is desirable. Its pure white, fragrant flowers are borne profusely on stems a foot in height, several stems appearing from a single bulb. It is here seen forming a broad edging to a bed of roses, and has been left undisturbed for several years.

The soil is on the heavy side, but with a free addition of sand and ashes has proved to be very suitable for the culture of this pretty plant.

I have often counted from ten to fifteen flowers on a single stem, and these, as they age, become suffused with pale blue.

Equally valuable as a cut flower as for garden decoration is this Snow Glory, and there should be a great demand for it as bulbs become more plentiful.

I would strongly commend this plant to lovers of alpine flowers for use among carpets of Viola gracilis in the rock garden.

THE DISTINCT AND INTERESTING HELLEBORUS CORSICUS.

THE CORSICAN HELLEBORE (HELLEBORUS CORSICUS).

Worthy of attention on the part of gardeners is this distinct and interesting hellebore, which is too rarely met with in present-day gardens. It is not fastidious, either as to soil or position, although a warm and sheltered site which does not become dust-dry at any time and is shaded from the midday sun is much to its liking. Established plants often attain from 2ft. to 3ft. in height and diameter and, even when not in bloom, are features of unusual interest.

The leaves are large, glossy green above, glaucous beneath, and armed like the holly, remaining upon the plants both winter and summer. Very pretty are the fresh young growths which spring from the base of the plants each year, both the young stems and leaves at that time being tinted with greenish blue. The charming flowers are of a soft pea green, and are borne in large clusters—often a foot in length.

The plant here shown has been growing in its present position—which is a cool and partially shaded slope, facing south—for nine years, and receives little attention.

E. MARKHAM.

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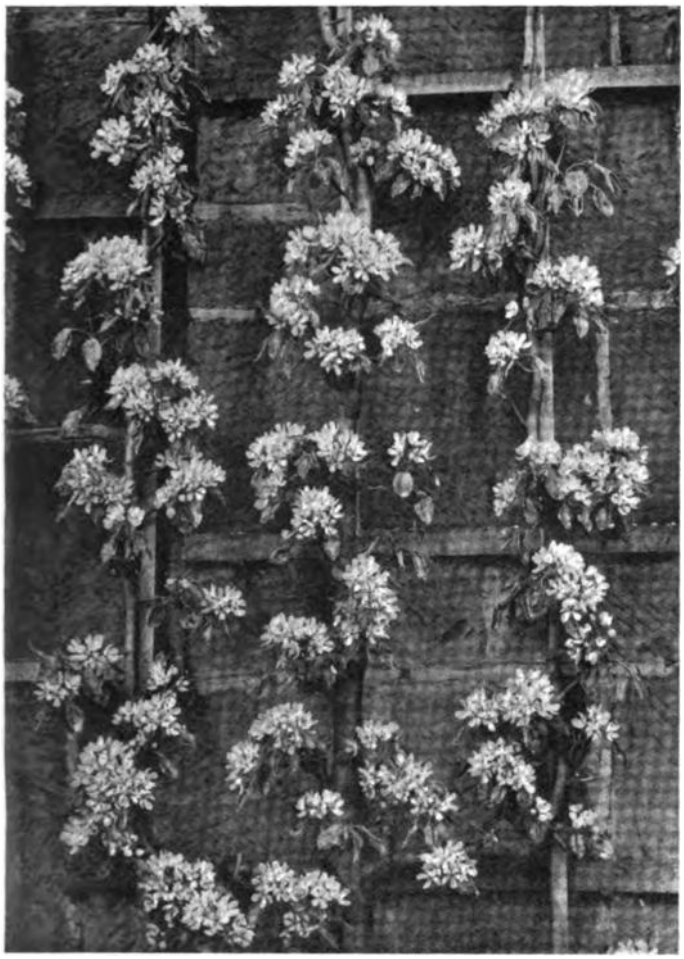

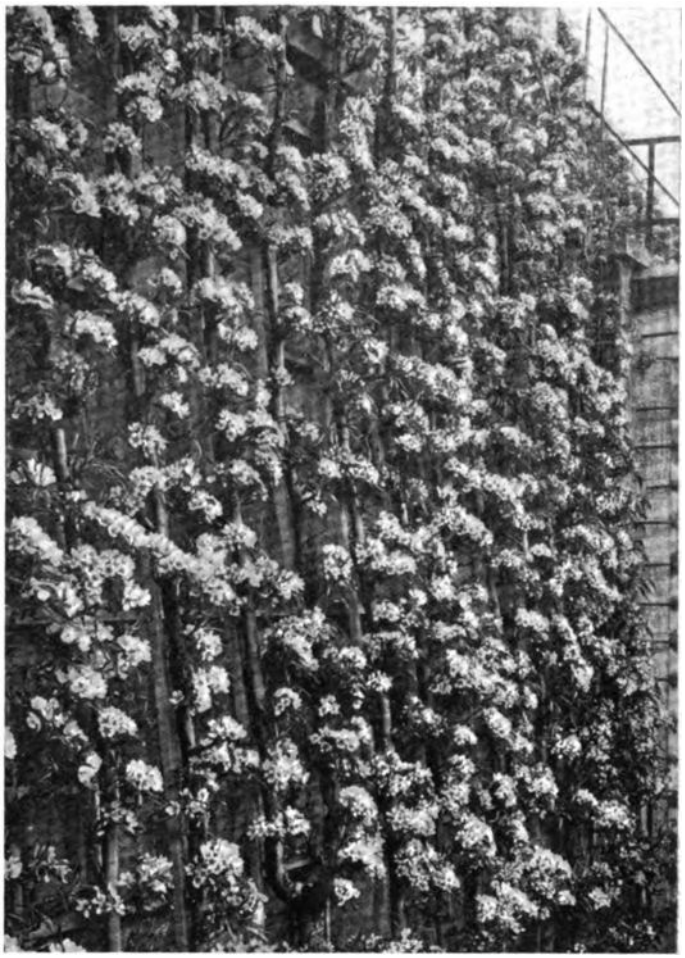

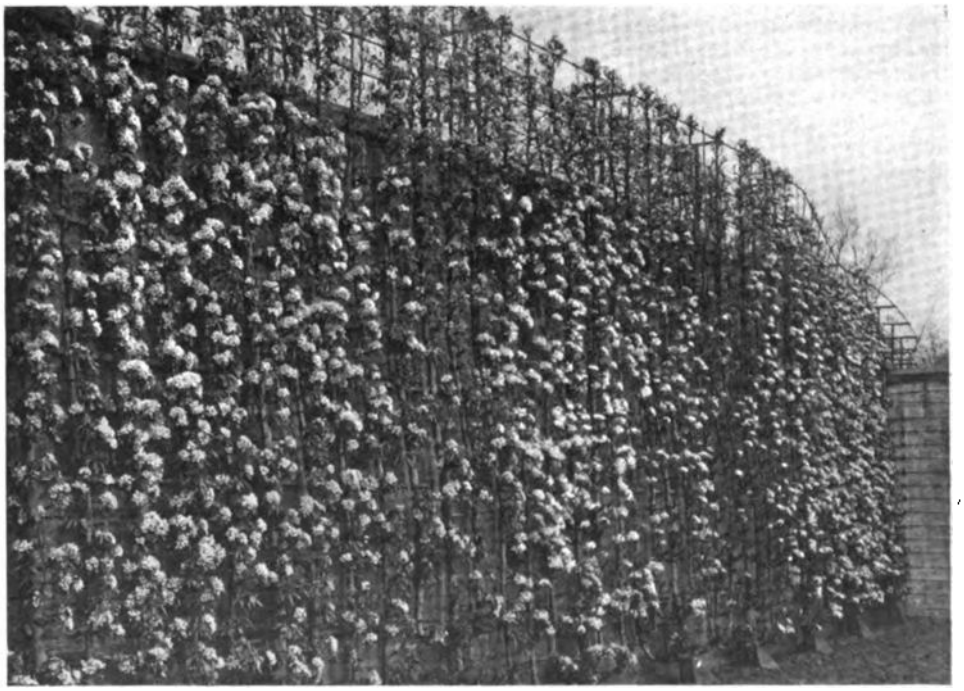

These three illustrations show better than any words how trained pear trees are grown by Mr. William Robinson. The portion of wall in the photograph is a segment of a large circle, and the pear trees are planted both inside and out. It is interesting to note that there is a variation of five degrees in the temperature between the inside and the outside. The blossom is particularly fine considering the present bad season.

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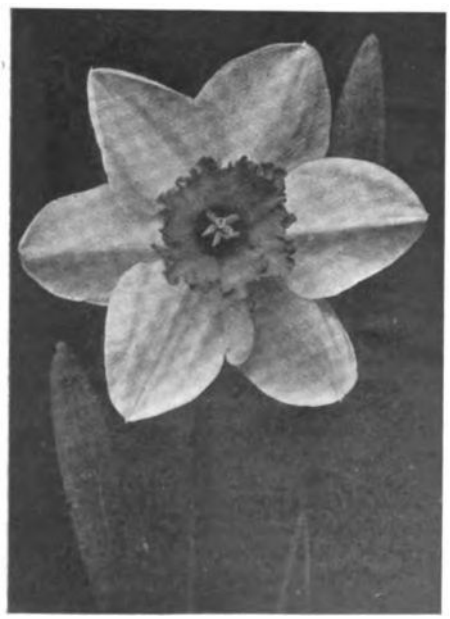
ON SOME FLOWERS SEEN AT BIRMINGHAM

THE large yellow perianthed incomps. Fortune and Helios were both there (see page 322). I had not seen them for a long time, so in a large degree they were both fresh to me. I was very disappointed with Fortune. When I remarked on its coarse appearance I was told, "Oh! it is so early," or "It's a grand flower for market." Well, it is not my taste. That is all. Take away the blinding red from the corona, and what is left?

Were I to be offered a bulb of either Fortune or Helios, it would be Helios every time. As a flower it is quite large enough to please me. Its corona has not the same redness, but it is of a sufficiently deep blood orange to be a foil to the round yellow perianth, while the gentle recurve of its edge is ample to impart a graceful appearance to the whole flower. Somebody told me that Helios was not a good grower, meaning, I expect, that it is a bit particular, like King Alfred. I should very much like to know if it is so. One swallow does not make a summer, or we would not have had the vile afternoons that we had recently—very cold, very stormy and very wet. We call it regular plum, that is, in our local lingo, damson, bloom weather.

In the class for the giant Leedsiis were two very lovely flowers, by name White Sentinel and Mitylene. They were raised by the Brodie of Brodie, whose output of A1 flowers is amazing. I think I was told that they were own brothers, in other words, that they came from the same seed pod. Anyhow, they might have done, there is such a strong family likeness between them. Mitylene has a flat, smooth, flawless perianth, round, white, overlapping, and *just* inclined to be hooded, with a diameter of 4ins. The cup is a very pale lemon, with a diameter of 1½ins. I put it down as one of the flowers of the Show, and with it I couple White Sentinel. This differs from its brother in having the edges of the perianth gracefully and yet symmetrically incurved; and it has rather a longer cup. It would be a puzzle, if I were judging them together, which to place first. It is the question of Almira or Horace over again.



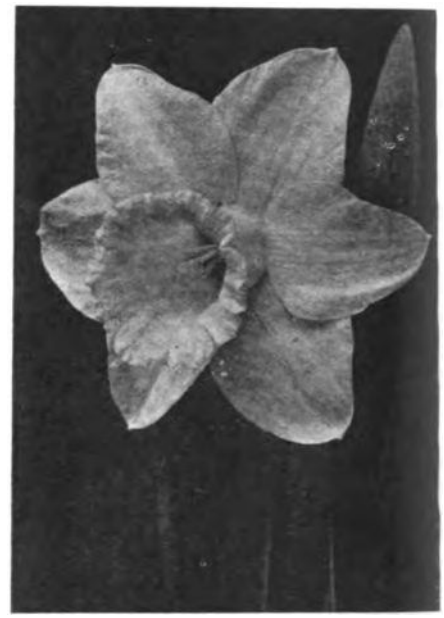
NARCISSUS CASCOB.

I was told the other day of a lady secretary of a daffodil show whose brilliant inspiration will solve the perplexities of all judges. The idea is on a par with the advice that the famous Curé d'Ars gave to the lady who, having had a bad carriage accident, asked him what she could do to avoid another. "Madame," said he, "the way is easy. Never ride in one."

So this lady seeretary had a show, the motto of which was "No prizes, no judges and no jealousy." I will leave White Sentinel and Mitylene there.

Who knows Cascob? Who knows what it is? Cascob is a very taking and vivacious flower which took my fancy immensely, but which will never, perhaps, be famous enough to confer immortality on the small village after which it is named. The flower was raised by Dr. Lower, and, in prosaic language, is an incomparabilis with a white perianth whose diameter is 4⅜ins. The large cup, in shape and colouring, features that of Festive, but both the yellow and orange-red are of intenser shades. Many people say the end of all highly coloured coronas is the market hall. I hope, however, that a thought will be given to their use for *gentle* forcing under glass. They are, many of them, admirably adapted for this purpose. This reminds me, I have two bits of news. A young man from Holland told me that the price of Lady Moore is advancing rapidly. There is quite a little flutter about it, as its splendid forcing qualities are being more and more recognised, and every trader must have some bulbs. He also told me that there are still some Queen of the West in the world. Nothing has given me greater pleasure to hear for a long time. Apart from its own intrinsic loveliness, it calls to mind my old Dutch friend who raised it, and my good English friend who distributed it. The unwelcome eelworm might have devoured many varieties without our being much worse off, but it was another matter when it was Queen of the West. But just think: Queen of the West *redivivus*.

Carmel, of which a picture is given, is a bloom built on strictly "show" lines. If my vote had not been given for Lower's Rewa (see last week's GARDEN) it might have been cast for Brodie's Carmel as the flower of the Show. Somehow, I would never get to love it as I did the charming Queen of the West, but I take off my hat to the "geometrical evenness," both of its pure white perianth and its clear yellow trumpet with its small neat brim. It is all right being a judge if all before you were Carmels, Royalists, White Emperors and White Knights. There is no difficulty then to exercise [illegible] cold neutrality of an impa[illegible] I must mention Fairy Circle; it is so unlike all that I have hitherto written about. It is a very small all-white flower, save for the narrow wire edge of pink round its perfectly flat corona. Several others occur to me as I write—Lavender of Mr. P. D. Williams and Sweet Seventeen of Messrs. Bath. Fairy Circle I think I like better than either. It really is fairy-like. It only measures 2ins. across. These tinies always attract me, but they do not seem quite in their place among the giants to which we are now accustomed. Classes for bantams have been dropped at Birmingham, as they were not very successful. Perhaps one day there will be enough good small fry to make it possible to resuscitate them. Need I say that the old White Knight was often to be seen on the tiers, but in varying degrees of excellence. One bloom measured a good 4ins. in diameter, while not far away there was a second which was only 3¾ins. This is a great difference. I mention it because of a point which was brought up at our Floral Committee meeting. A certain variety was put up for an award by two different people. The blooms of one (X) were distinctly better than those of (Y) the other. As a matter of fact, the variety got an award. The point was, should both X and Y be mentioned in connection with it, or only X, who had the best flowers? The Floral Committee and the Narcissus Committee of the Royal Horticultural Society only judge flowers *as flowers*; their duty is not to judge between the flowers of one grower or exhibitor and those of another. It is a bit of good luck for Y if he is carried on X's back, and I do not see how it can be helped. That these awards are given to the flower and not to the grower is a principle from which committees must not depart unless their functions are legally changed.



NARCISSUS CARMEL.

JOSEPH JACOB.

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THE TRURO SHOW

IT has been said that people who live in Cornwall, garden because they have nothing else to do. If this be true, the Truro Spring Flower Show, which was opened on May 6th, is witness to the fact that Cornishmen are, at any rate, not idle.

There are, of course, other flower shows, bigger flower shows, and flower shows of equal interest elsewhere, but there is no other which is quite like that at Truro. Originally started as a bulb show, it has become more a show for flowering shrubs, the date of the annual fixture having been altered to admit of this, and those who would see the rewards of gardening in the far West will be well repaid by a visit to the Spring Flower Show.

This is said to be an exceptionally bad year for rhododendrons and other shrubs, due, perhaps, to the drought of some two years ago, a heavy blooming year in 1923, followed by a winter exacting in its demands upon the plants and protracted in its duration. If, however, this year's show be 25 per cent. below standard, as is stated, the exhibits indicated the wealth of plants that the Cornish gardens must have, rather than the severity of the winter through which they have passed.

Rhododendrons are, of course, a feature of this annual display and the seemingly unending strain of new species still finding its way from China to this country finds expression in the exhibits from the gardens of Mr. J. C. Williams, Mr. E. J. P. Magor and others in Cornwall whose interests so far as the garden is concerned are chiefly centred on the cultivation and hybridisation of this genus.

Among the outstanding features of the show was an exhibit staged by Mr. J. C. Williams, but not entered for competition, consisting of a selection of rhododendrons, both species and hybrids, raised at Caerhays. These included neriiflorum which, for intensity of colour, was outshone by some sprays of hæmatodes, which in size of leaf testified to their exceptional cultivation, the daphne-like ledoides, mollecomum, leptothrium and orbicular—the last-named of which must rank among the best for form as well as for colour.

Another noticeable specimen included in this exhibit was a hybrid between Soulei and campylocarpum, which in its form bears resemblance to the former and in its pale sulphur colour claims relationship to campylocarpum.

Another exhibit, not staged for competition, which calls for special mention, was that sent from Tresco (Isles of Scilly). And what a pity it is that echiums at the end of a long journey in a basket retain so little of that intoxicating glory that they show before being cut. However, with the aid of Miss Dorien Smith's paint brush, those of us who have not seen these plants growing, were given an opportunity to judge of their lordly proportions, as well as the glory of their colour; for two pictures of the echiums in Tresco gardens made a delightful complement to a very exceptional exhibit —exceptional, not only in the rarity and beauty of the exhibits, but in the wide range from which they have been collected. Among them were included: Bomarea acutifolia from Guatemala, Diosma gracilis, Dryandra formosa, three arctotis from South Africa, Hibbertia montana from West Australia, and Beschorneria yuccoides from Mexico.

Of the classes staged for competition and dealing firstly with shrubs other than rhododendrons, which were judged by Lord Headfort and Mr. Armitage Moore, the first prize in Class I for a group of twelve outdoor shrubs or climbers rightly went to the Rev. A. T. Boscawen for an exhibit including Mutisia Clematis, Dracocephalum arboreum, Corokia Cotoneaster, Chorizema Lowii, Telopea oreades, Diosma uniflora and a remarkably fine vase of Erica melanthera.

Class II was won by Mr. R. Barclay Fox (Penjerrick), with Erica australis, Embothrium coccineum and Andromeda formosa. The last named was shown by several competitors and in each case to advantage, so that it stood out as one of the best plants grown in Cornwall.

Other exhibits among the shrubs calling for especial mention were Staphylea holocarpa, shown by Mr. P. D. Williams of Lanarth, which was awarded first prize in Class IX, and which was perhaps the most interesting exhibit in the show. Edwardsia tetraptera, staged by the Rev. A. T. Boscawen; Banksia verticilata (Mrs. Vereker), and so on.

Of rhododendrons probably the most discussed was a hybrid shown by Mr. E. J. P. Magor, under the name of Brachbooth, and, in passing, one is tempted to express the wish that this diligent hybridiser would christen the fruits of his labours on some other principle. This hybrid between brachyanthum and Boothi is of a bright lemon colour, which comes as something new. This exhibitor also staged a truss of Carneum in the class for three vases of highly scented types. This, though not among the most spectacular, is attractive both in shape of flower and leaf.

The big classes for twelve distinct species and twelve distinct hybrids were won by Mr. A. M. Williams (Warrington Park) and Mr. J. C. Williams (Caerhays) respectively; the former showing twelve of the mountain varieties. The Caerhays exhibit, including a wide range of colour in blooms which in size and shape show the skill and care with which the selection of parents has been made.

Mr. R. B. Fox staged a vase of Lindlyana in the sweet-scented class, which calls for special mention, while the class for a spray of any variety was won by Mr. P. D. Williams with a seedling of his own raising under the name of Garnet.

Perhaps one of the features of this year's show was the large number of mountain forms shown in the rhododendron classes. In these Mr. A. M. Williams was a prominent exhibitor, blooms calling for special mention shown by him included sphæranthum, cephalanthum, saluenense, Martinianum (is this a "mountain form"?) and rupicolum.

ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Growing Water Lilies in a Shallow Tank (D. M. H.).—Unless the water is changed very frequently, or there is a constant inflow and outflow, however small, of fresh water, in a tank 6ft. by 3ft., it would not remain sweet. Nor is there any other means of keeping stagnant water clean and clear. Water lilies, to thrive satisfactorily, require at least 18ins. of water above their roots. The water hawthorn, Aponogeton distachyon, a floating aquatic, would succeed as well as any in such shallow water. Some turfy loam should be laid at the bottom and the roots held in position by placing several bricks conveniently. The planting may be done this month.

The Treatment of Anemones (Mrs. G.).—The anemones requite a good soil that has been well prepared. It should be on the light side, with a richer sub-soil. If our correspondent lifts the corms in due course and uses some well rotted manure mixed with the portion of soil below the top 4ins., and re-plants in October, there may be another brilliant display of blossom, but from old corms there is a risk of partial failure. It is advisable to sow some seeds every year in a sunny position, in deeply dug ground with a fine surface. Rub the seeds in sand in the hand, cover with half an inch of soil, and be careful about watering. The young plants will flower in due course, and the best can be marked for future planting.

TREES AND SHRUBS.

Lonicera nitida Hedge (E. P.).—The value and treatment of this comparatively new introduction from China as a plant for permanent evergreen hedges is more or less experimental. In the early stages of growth the shrub is very promising, but whether it will stand the annual pruning to which we subject the privet, yew, holly and box has yet to be proved. At present the vigorous young growths will be best shortened back with secateurs to keep the plants in a formal shape for the hedge. As Lonicera nitida is a small-leaved evergreen, it should stand clipping twice or three times during the season with shears, as is done with privet. The shape should approximate the growth of a privet hedge, probably a little wider in proportion to the height, as the lonicera is naturally very bushy in growth. An article by Mr. H. Avray Tipping on Lonicera nitida as a hedge plant appeared in THE GARDEN, February 2, page 57.

Cuttings (S. M. L.).—Cupressus macrocarpa can be increased by cuttings during August and September. Dibble the cuttings in a prepared bed of sandy soil with the shelter of a west wall, fence or hedge in patches of a

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suitable size to cover with a cloche or hand-light. The large-leaved rhododendrons are seldom propagated by cuttings, the best means of increasing these is by layering and grafting. The small-leaved species and varieties can be propagated during the same period and in the same way as recommended for the cupressus.

FRUITS UNDER GLASS.

Vines Unsatisfactory (C. H. B.).—Undoubtedly our correspondent did wrong in using the soot, sulphur and paraffin solution. He should have applied Gishurst Compound as in previous years; it is a good remedy for mealy bug. The tar on the hot-water pipes would help to complete the damage. Paraffin is very penetrating, and some would reach the embryo buds, even if applied to the bark around them. New shoots may grow from the spurs and rods in a few weeks' time, but they will not bear bunches of grapes, and should be retained, stopped and trained for next year's crop.

THE FRUIT GARDEN.

Pear Foliage Attacked (F. L., Warminster).—The pear leaves are attacked by the pear leaf blister mite, but it is not this which is causing the leaves to turn black. Something in the cultivation, and possibly the spraying which our correspondent has given them, is the cause of the trouble. Bordeaux mixture is quite useless against the attacks of the pear leaf blister mite and, indeed, against any other mite. Bordeaux mixture is an excellent fungicide, but is useless against attacks of animals of any description. The only thing at all useful against the pear leaf blister mite is spraying the trees in November, while they are quite dormant with a caustic winter wash. A simple wash made with 1lb. of caustic soda in 10 gallons of water is useful, but the Oregon wash, lime-sulphur-salt-soda, is much better.

MISCELLANEOUS.

Leaf-soil and Its Use (J. R. S.).—Leaf-soil from birch and oak leaves is the best for use in a garden where leaf-soil generally is beneficial. For mixing with potting composts, for greenhouse plants, it is of great value.

How to Destroy Ants (J. W. C., South France).—The best way to deal with the ants is to trace them to their nests and after dusk, when they are at home, pour into the nest—having made a hole for the purpose—a teaspoonful of carbon bisulphide. This is a very inflammable and highly odoriferous substance, which must on no account be brought near a flame.

Locust Beans (Y. R. T.).—The locust or Carob bean, known also as St. John's Bread, is furnished by Ceratonia Siliqua, a tree of 15ft. to 25ft., native of the Mediterranean region. Large quantities of the pods are annually exported from Cyprus for use as a food for stock, being crushed and mixed with coarse fodder or other ingredients for the purpose. In Cyprus a kind of molasses and sugar-candy is also prepared from them, and upon distillation they will yield from 18 to 25 per cent. of spirit.

Ferns for Identification (Angus Coupar).—No. 1, Aspidium angulare var.—There are numerous named varieties of this fern in cultivation, but many are so much alike it is difficult to distinguish one from another. Although hardy in the British Isles, it may be grown successfully in a pot in a cool greenhouse, using a compost consisting of two parts sandy loam to one part of peat or leaf-soil. After repotting in March the plant should be kept in a moderately close atmosphere for a time. We do not know the name "Grimmondii." No. 2, Asplenium bulbiferum.—This is strictly a greenhouse fern, therefore the minimum temperature should not fall below 45° Fahr. during the winter months. A similar compost as recommended for the aspidium will suit its requirements. No. 3.—We are unable to name the other fern from our correspondent's description. Please send a frond.

Various Questions (T. W.).—Tubers of early potatoes planted in March would result in a crop ready for lifting in June and early July. Those of late varieties would not be mature enough to lift before August, September and October, even if planted on the same date as the early ones. Peas are very similar in the matter of maturing; but the seeds of late sorts often decay in the soil if sown when round-seeded early varieties are. The early varieties, too, fill their pods better late in summer. The branches of old fuchsias should be cut back so as to form a well balanced plant; those of younger ones only require to have the ends of shoots cut off. Forty-five degrees will not be too low for dahlia tubers when started. When growing, 50° to 55° Fahr. will be necessary. After the cuttings are taken the old stools may be planted in June. The chrysanthemum does not require a high temperature at any stage of growth.

THE VEGETABLE GARDEN IN MAY

THE second fortnight of last month we considered as the most busy two weeks of the whole year, and, having passed through that period with a greater, or lesser, measure of success, we have now arrived at the month which can certainly be designated the most worrying of the year. This sentiment all growers of vegetables will undoubtedly agree with, from the small cottage garden enthusiast to the professional private growers and the market raisers. Lengthening hours of daylight are bringing with them more sunshine and higher day temperatures, but what of the nights? Some quite sultry, perhaps several following, and then, when our senses have been lulled into false security, suddenly along comes a nasty little snap of late frost, and, where those proper precautions against such happenings have been neglected, who shall measure the damage that has probably occurred? Blackened young potato haulm or scorched young foliage of other things perhaps meets the eye, and what saddened feelings the careless one must experience, and what mental thrashings he administers to himself. The moral of this is, "Be prepared!" for those frosts have always to be reckoned on, even if they do not materialise.

Another point to watch carefully is the possibility of surface dryness of the soil through extra hot sunshine, which would probably cause distress to young crops. Thorough work with the Dutch hoe is what is required at this season, for that will help to conserve the necessary moisture, at the same time keeping the soil in fine tilth and defeating the aims of the various weed plants that are so anxious to prove a nuisance.

Watering, too, will require consideration, for even in this apparently simple task there is a right as well as a wrong way to set about it. Do not leave this to the last thing before nightfall, so that foliage is well wetted, perhaps, when the frost arrives, for it certainly will tend to harmful effect.

ASPARAGUS.—Though possibly all the seedlings are not yet "up," where sown as suggested in the last notes yet some thinning may be desirable. The final aim should be to have a bed of plants about a foot apart each way, so thin in stages until this is attained. Keep free from weeds, and let this same remark apply to the permanent beds.

BEANS, BROAD.—The previous sowings, the results of which will now be apparent, should be tended by hoe and watering-can, (when warm weather rules), and as height is attained, means of support should be provided. For maintaining succession a further sowing is required now.

BEANS, FRENCH.—If pot-sown plants were raised in April, as suggested, plant them in cold frames to grow on to pod-bearing for earlier supplies than will be got from the open. Early in the morning the lights of the frames should be propped up and the plants syringed. This question of ventilation is very important, especially in hot sunny spells. Shut early in the afternoon. Where 4ft. frames are used they can carry lengthwise two rows of the plants.

BEANS, RUNNER.—Nowadays it is considered best to raise scarlet runners in boxes under glass, sowing the seed early in May and putting the resulting plants into the open ground at the end of the month. More even and better results are thus obtained, and the seed can be germinated in a cool house or frame.

BEET.—When the main sowing of globe beet is well through, the thinning of the rows should be commenced, doing this in two or three operations rather than in one drastic thinning later on. Aim to leave the best and strongest plants in position, about 8ins. apart. After thinning operations, hoe well and carefully around the plants.

BROCCOLI.—Any plants raised in March should be planted out into position on a well prepared piece of ground. Seed can be sown in a skeleton frame, where protection from birds can be afforded, to give plants for later yield.

CARROTS.—If sown as suggested in the last notes they can now be thinned as advised above for beet, aiming to leave at the final thinning about 6ins. from plant to plant. The removed plants are generally welcomed by the housekeeper for flavouring, etc. A dressing of soot is an advantage to this crop. Where grown in pits and frames from earlier sowing the same idea should be utilised, and the plants thinned as required for use while still small.

CAULIFLOWERS.—After hoeing well through the beds of those previously

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planted, water well, and then apply a mulch to keep the ground properly moist, and feed occasionally with liquid manure. Any plants left over should be planted out as they attain sufficient size, and, to maintain the supplies, make a sowing during the first half of the month as noted for broccoli, carefully protecting with netting.

CELERY.—Plant another batch in hot-bed frames as detailed last time, and get the trenches ready for the reception of plants raised from a February sowing. Plant as soon as convenient thereafter, handling the plants carefully with as little root disturbance as possible in order to prevent any check to the growth. Give plenty of water, as celery can hardly have too much of this.

LETTUCE.—Carry on with successional sowings of sufficient size only to meet demands, and thin out as soon as large enough. The thinnings can be replanted yet awhile to yield supplies. Water well and hoe around the young plants. Watch out for slugs in damp weather and protect seed from birds as they are very fond of it.

MARROWS.—Those young plants of March raising, growing in frames as per previous recommendation, should now be fruiting and will want plenty of water. Hand-fertilise the flowers, ventilate freely, pegging down the vine to prevent it interfering with free air circulation, and remove any weak side growths towards the same end.

PEAS.—Here again crops should have commenced on the planted-out vines, and laterals should be taken off and the points stopped when stake-top is reached. To attain continuation of the supplies through August and September, three or four sowings, at intervals, of late varieties should be made. Once again, beware of mice and birds, or—result: no peas in autumn!

SPINACH.—The very useful New Zealand sort, which, though not a true spinach, acts as such a close substitute in very hot dry summers when the other item is unobtainable, can now be planted out in a sunny spot. One hint—afford it plenty to drink. It is a thirsty plant. Continue to sow the true kind in small quantities at intervals.

TURNIPS, too, can be frequently sown, and seedlings thinned to about 6ins. apart. If grass mowings of short length are available, spread this material over the seed, as it prevents the ravages of turnip fly. Growing crops will much benefit by dressings of wood ashes and soot occasionally, and they should be attended to with the Dutch hoe as freely as possible.

E. BECKETT.

SOME NOTES ON GROUPING AND COLOUR

IT often happens that the most delightful effects in grouping are the results of unconscious effort. The latter, it is true, may also lead to painful incongruities. Even so, one cannot be too sure that an entire absence of foresight and design in the disposition of plants is likely to end in effects that are more displeasing than those over which the most patient study has been expended.

The "colour scheme," the "colour sequence" and other departures of the sort on a grand scale may be as near perfection as the creative skill of the gardener can make them, but that does not imply that they are good gardening or universally admired. Billows of aubrietia in every conceivable shade of purple will produce a sea of colour which insists upon being noticed, but the appetite for such rich fare is liable to be cloyed more quickly than it is by the modest results of much more humble ambitions.

Aubrietia is a very beautiful and singularly useful rock garden and wall plant, but I must confess to liking it best in moderation, and especially in combination with other things. Here, for example, is a bit of low retaining wall which has for its *pièce de résistance* a flopping mass of Alyssum saxatile citrinum companioned by the lovely Aubrietia Lavender. There can be nothing much more delicate than that in kindred tones unless it be a quite informal and accidental little group near the margin of a path. This consists of a mat (no more than 2ins. deep) of Aubrietia aurea variegata, its few pale flowers in a cool lavender scarcely rising above the dainty yellow foliage, while close by are some half-dozen rosettes of Sedum spathulifolium purpureum, their fleshy leaves a plum-red, powdered with a blue-white meal and surrounded by chips of blue-grey granite. You may bring into the picture if you like the purple and red and sombre green of Veronica satureioides which carpets the shoulders of a sunken rock on one side and let your eye wander into a frosty drift of Sedum ternatum which sinks away on the other. But with or without these accessories, that little aubrietia and its stable companion, the purple stonecrop, have attracted more attention this season than has been enjoyed by much more showy things.

A GROUPING OF MOSSY SAXIFRAGES, ALPINE PHLOXES, ALYSSUMS AND IBERISES.

Nature bears witness in a hundred fields to the wisdom of combining blues or bluish purples with the paler yellows, and we have ample proof of this outside the rock garden. A pillar of Golden Hop, for example, entwined with Clematis Lady Northcliffe in smoke blue, is as restful to the eye as it is inspiring and refined. On the strength of this I am hoping some day to see the lovely blooms of C. Perle d'Azur garlanding the soft golden yellow of Spiræa opulifolia aurea.

The flowers of Solanum crispum and the subtle loveliness of Irises gracilipes, tectorum and others afford indisputable testimony as to the charm of blue-lavender and yellow in conjunction, and a notebook reminds me of a suggestion picked up somewhere that no more tasteful and effectual foil for flowers in a pale yellow could be desired than a background of Teucrium fruticans. An equally pleasing union of silver and gold you will find in Potentilla fruticosa var. Vilmoriniana, Elæagnus argentea, Ranunculus graminifolius, in several hypericums, alyssums, and many another. In Nature there are few associations of the kind much more delightful than a weathered roof overlaid with a mosaic of gold and silver lichen. In the garden we have a counterpart of this when the silver filigree of Raoulia australis is studded

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with countless little yellow knobs. Although the spotless ribbons of Magnolia stellata may flutter with denials on branches naked as pea-sticks, one feels that white flowers which are afforded no deep or full-toned green as a setting with which to emphasise their purity and express their beauty of form are always rather hardly dealt with. The blossoms of the hutchinsias, Cardamine trifolia, Erodium chamædryoides, Helianthemum umbellatum, Linaria pallida alba, to name but one or two, would lose half their individuality were it not for the sullen verdure of their foliage. Nor would Helichrysum bellidioides ever have made such a successful appeal to our affections had it not been for that trickery of bronze-purple which rescues the ermine of its pretty flowers from being engulfed in the neutral grey of its foliage.

That singularly gorgeous shrub, Berberis Darwinii, often appears to stand in need of a companion, something that will serve to emphasise the glow of its blossoms, as darkness aids a fire, and this without detracting from its splendour. Its own foliage is sober enough, but this is so often submerged by colour—and the same may be said of the more elegant stenophylla—that it becomes valueless as a contrasting factor. Grey-greens seem rather to mar the beauty of these shrubs and a yellowy-green is certainly not desirable. The heavy verdure of the common holly and Arbutus Unedo, which stand behind a specimen of B. Darwinii, gives perhaps the right note, but some funereal conifer would probably be even better.

Consider the fragrant, orange "lanterns" which illuminate the deep green leafage of B. buxifolia and compare them with the less fortunate blossoms of B. pruinosa, or B. vulgaris, and the high value of a suitable backing at once becomes manifest.

To say that we owe much to green at any season may be to state a commonplace. Even so the fact is one that may too often go unregarded. In itself green must always be one of the most telling and potent features of the garden, but it is never so essential a part as it is when, as May-time verdure, it pulses with the very essence of young life. But we are apt, especially later on, too lightly to ignore its uses; for is it not to the omission of its saving grace that we may to a great extent attribute not only that satiety which sometimes overwhelms one when confronted by vast masses of gorgeous blossom, but the discord which arises from the clashing of inharmonious colours?

It is in the entire absence of the moderating influence of green that hybrid azaleas so often strike one as being too violent in their flaming hues for that subtle harmony of tones which pervades the woodland garden. Yet some of the yellows, especially that fine old species, A. pontica, are admirable since their colour is a component part of green.

A. T. JOHNSON.

NOTES FROM CONTRIBUTORS

CLIANTHUS PUNICEUS IN SOUTH-WEST SCOTLAND.

SOME of us who have tried to retain in the open in Scotland the brilliant parrot's claw, Clianthus puniceus, have had to deplore its loss, even in what are not the least favoured parts of the country, and where it presented at least some chance of success—a chance we hoped might turn in our favour, but which, to our deep regret, passed us by and left us lamenting. But, happily, there are at least a few places where this clianthus is not only a success but a most delightful and satisfactory plant. The best Scottish plants known to me are those at Monreith and Logan, both in Wigtownshire, where there are some lovely gardens which can boast of plants denied to most Scottish gardeners. That at Monreith is a very fine one, reminding me of one I saw many years ago in the garden of the late Mrs. Lawrenson, of "St. Brigid" anemone fame, near Dublin. But the gifted owner of Monreith will not cavil at my remark that the specimen at Logan is an even finer one than his. A good deal of this is probably owing to the circumstance that, favoured as is Sir Herbert Maxwell's garden, that of Mr. Kenneth M'Doual is even more happily situated in the matter of climate and shelter. The plant at Logan is a truly magnificent one, growing against and overtopping a wall. If I am not mistaken, there is a good one at Culzean also. With its great clusters of brilliant scarlet flowers this is a truly magnificent wall plant where it flourishes.—S. ARNOTT.

THE EUPATORIUMS.

EUPATORIUMS macrophyllum, petiolare, grandiflorum, Raffillii, ianthinum and Weinmannianum are all very useful for flowering during the autumn, winter and spring in the conservatory and greenhouse. E. Weinmannianum makes large specimens when grown on from year to year. For this purpose the plants should be pruned hard back early in the year, potting them on if necessary when they have started into growth. During the summer months they should be stood outdoors on a bed of ashes. Young plants propagated from cuttings early in the year make useful plants for furnishing the stages. E. Raffillii may be propagated at this time, and if grown on into 6in. pots will give a fine show early in the year, while young plants raised at this time last year make fine specimens if potted on into 10in. pots. This plant also makes fine large bushes if planted out in a bed in the conservatory. E. macrophyllum should also be grown in the same way as the last named. E. ianthinum is a small and slower-growing plant, and is best in its second year. The three eupatoriums mentioned have large inflorescences of bluish purple flowers, while E. grandiflorum and E. riparium have white flowers. The sweet-scented E. petiolare has white flowers tinted with reddish pink. The latter is a quick-growing plant, and small plants for the stages may be propagated as late as August, while plants propagated at the present time make fine specimens when grown on into 10in. pots. They all grow in an ordinary greenhouse, with the exception of EE. Raffillii, macrophyllum and ianthinum, which are best in an intermediate temperature during their growing season.—C. J.

TULIP ZANY.

IF any tulip can revive the ancient vogue for broken or rectified blooms, in contradistinction to selfs, that tulip is Zany as grown in pots in a cold house. I do not know its history. It may have originated in England and then gone to Holland, or it may have been born and bred there. At all events, it came to me from Holland. For a very long time every bulb was ear-marked to go to America. Then something happened—what, I have no idea—and I was able to buy what I had for a long time wished to possess. Everything, the proverb says, comes to him who waits; and Zany came to me. It is a very beautiful bizarre, with pale bright crimson markings on a pale straw-yellow ground. Sometimes the red predominates, and sometimes the yellow. I like the flower in both states, but especially when the red is not too much in evidence. Then it is superb. It makes a taking pot plant, as it has good stems, and with cool treatment does not grow nearly as high as the Darwins. It is also very beautiful when used as a cut flower.

Although I was first attracted to it by seeing it in beds in the open air at Haarlem, now I know it from growing it myself I can confidently say it is greatly improved when grown under the friendly protection of a glass roof, but without being unduly enlarged by high feeding. Zany is not a gourmand, neither does it like strong drink.—JOSEPH JACOB.

A GOOD PERENNIAL CORNFLOWER.

FEW of the perennial cornflowers are popular plants, yet some of them are undeserving of the neglect they often experience from hardy plantsmen. As a rule, they are wonderfully distinct from other border plants. The taller species, such as Centaurea babylonica, may be cited as useful plants, as well as the varieties of C. montana, although many consider the latter coarse. The one called C. dealbata is quite unlike most of its allies, and is better suited for a position nearer the front of the border than is C. babylonica. It is only about 2ft. high at the most, and in poor, rather dry soil may not be more than a foot in height. It has pleasing divided foliage and neat flowers of rose or rose-purple. It is quoted fairly frequently in nursery catalogues, but is not a plant which is much purchased nowadays. It grows well in ordinary loam, and apparently likes sun. Propagation is effected by division or by seeds.—S. A.

A RARE TRAILING ERIGERON.

THERE is a little trailing erigeron which is a real rarity in gardens, but which has attractions for many, although it has a distinct failing which operates seriously against its greater favour. It is called Erigeron flagellaris. It grows only some 3ins. high, and has numerous small white flowers on trailing stems. The great barrier to its extended growth is that it requires to be kept well in bounds or it will trail over and root among its neighbours—a consummation not to be desired where choice plants are grown. It is a capital little plant for a rough bank or a spot in the rock garden it is desired to cover with a subject of its character which will bloom from June to September. It is far from plentiful in nurseries, but is offered by a few dealers in hardy flowers.—DUMFRIES.

A PLEA FOR RICH COLOUR IN DAFFODILS.

EACH year sees new daffodils being sent out into commerce in increasing variety. During the past two decades there has been evolved a very great number of new types of the flower. Some of the more recent "breaks" are really magnificent. Apart from these, however, an inspection of the many beautiful exhibits put up at a number

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of the recent Royal Horticultural Society's meetings reveals the fact that there is, in some sections, an increasing quantity of too-much-alike varieties—at least, so far as the ordinary person who is not a specialist is concerned. There is no doubt that there are many subtle differences to be detected—and by the expert probably easily detected—between varieties that, to the uninitiated, are not at once apparent. Such a condition of affairs is, of course, bound to arise sooner or later, as has already arisen in the case of other specialised flowers, such as the sweet pea, the chrysanthemum and the rose.

This close similarity appears to be emphasised particularly in the case of the paler-coloured varieties of daffodils, both selfs and bicolors. Varieties of varying tints of cream have, too, been in preponderance in most of the recent exhibits above referred to. I do not know whether this indicates that more work is being done in the raising of pale-coloured sorts. It would be a pity if work in connection with the raising of richer-coloured varieties were allowed to drop in any way. Is it an indication that something approaching finality has been reached in connection with the raising of new and distinct yellow varieties?

There is no question whatever that, as individual flowers, these pale-coloured varieties of daffodils are indeed very beautiful. I believe, however, that it is not a mere question of personal taste only that makes me think that the pale varieties are not so effective as are those varieties in which some part of the flower at least is of a bright yellow colour. In my experience, for massing purposes and naturalising in grass the yellow sorts are far more useful than the paler sorts.—HOWARD H. CRANE, *Eastcote, Middlesex*.

BELLADONNA LILIES IN TASMANIA.

I AM a regular reader of THE GARDEN, and some little time ago noticed a picture of some belladonna lilies. I thought it might interest you to have the enclosed photograph of belladonnas growing at my home in Launceston, Tasmania. They have no attention whatever, and come up every year and flower profusely. The bulbs from which this particular bed of flowers sprung I brought from Port Sorell, which is on the coast. They were in an old garden which had been neglected for years, and the bulbs had kept on growing on top of one another, so that there were piles standing up quite 2ft. 6ins. above the ground. We just pulled one of these piles to pieces, put them in a sack, brought them home and planted them out, with the above result. The flowers in front, which are really just a little out of focus and hide the belladonnas to a certain extent are blue agapanthuses, and the combination of the two colours is very effective.—A. LAWRENCE GREEN, *Launceston, Tasmania*.

FRITILLARIA IMPERIALIS.

CLUMPS of this early-flowering plant are now, the third week of April, fast approaching their best condition—this date being, with us, rather later than usual, owing, of course, to the backwardness of the season. Because of the unpleasant smell of the bulbs and any broken part of the plant, the opprobrious epithet of "stink lily" has been cast upon the plant, but in spite of this small drawback the Crown Imperial is a most welcome hardy spring flower, making a truly noble show when there is so little else beside bulbs in flower in the shrubbery or border. Concerning its position in the latter place, it may be well to add that this fritillary should be given a backward site, because it blooms early and is ripening off when one wishes to see the oncoming flowers in their best dress, and this would be marred were the dying foliage of our early friend to be too conspicuous.

In the past there has been some difference of opinion about disturbing and replanting this plant; but it is now generally accepted to be in the best interests of success not to meddle too often with groups that are doing satisfactorily, and a period of from five to seven years or more need not be thought too long for such to remain undisturbed—assuming, of course, growth and flower to be healthy and proportionate. The groups here, with one exception, have not been touched for over seven years, and they are good to-day, though not so full of spikes this year as last, I readily grant: this applying likewise to the excepted clump, which was divided and replanted three years ago.

Crown Imperials flourish in most soils, in sun and in shade, but they flower more freely in open soil than in heavy ground and their blooming is a little later and more prolonged in a shady situation than when in full sun. There are yellow and red forms of this species. Anyone thinking their plants really require a removal should attend to such very soon after the foliage has died down.

The fritillaria family is widely distributed, many kinds hailing from Persia, such as the subject of this note, others from parts of Russia, some from North and South America India, Spain, and at least one species is native of Britain, namely, Fritillaria Meleagris, so called on account of its likeness to the guinea-fowl.—C. T., *Ampthill*.

BELLADONNA LILIES, WITH AGAPANTHUSES IN THE FOREGROUND, GROWING IN A READER'S GARDEN IN TASMANIA.

MISTLETOE ON A ROSE TREE.

I BEG to enclose a photograph, the interest of which is greater than its beauty; but I never saw another case, nor have I been able to find anyone else who did. The

A NEW HOST FOR MISTLETOE?

subject is a bunch of mistletoe growing out of the stem of a climbing rambler rose in the middle of our kitchen garden. There is no other mistletoe within a very considerable distance, and certainly none in the kitchen garden, which is a large one, over an acre in extent. The nearest mistletoe I know is a small bunch about 300yds. from the edge of the garden. We have all seen mistletoe on various trees, but never on a rose tree before.—W. O. E. MEADE-KING, *Taunton, Somerset*.

WISTARIA BRACHYBOTRYS.

AMATEURS of the wistaria, or glycine as the French usually call this beautiful climber—they object to the German "wistar"—will, I think, be grateful to be told or reminded that there are other beautiful forms which flower ten days or a fortnight later than the commonly planted W. chinensis, and W. brachybotrys has been so particularly beautiful this season on the Riviera, where it is sadly rare, that I feel it a duty to urge its being reintroduced into England. The colour of the large flowers is so much richer in tone, and its yellow eye at the base of the standard petal so effective that it is positively startling in its beauty as seen this season. I suppose it is known and grown at Kew, but never being in England at its season of flower I have never seen it. At any rate, it should be sought out and given a trial! If it succeeds, I am sure I shall reap some thanks.

It flowers at the same time as the late white forms of Wistaria multijuga and makes a most effective contrast with it. Like W. multijuga, W. brachybotrys thrives on calcareous soil, where W. sinensis is not happy. —E. H. WOODALL.

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CORRESPONDENCE

NOTES FROM THE ISLE OF WIGHT.

IN response to your invitation in THE GARDEN of the 19th ult., I send you a few notes on a small garden in the Western Wight which may be of interest to some of your readers. I preface them by saying this is by no means one of the proverbial "favoured" gardens, being 250ft. altitude and one mile inland in the face of the Atlantic gales. I begin with the—at present—much-discussed daffodil King Alfred. Four large bulbs planted autumn, 1922, gave in 1923 about two flowers apiece on the top of a retaining wall facing north-west, sheltered by slightly rising ground to the south-east, soil made up (on the yellow clay) of burnt garden refuse and sand. In the autumn all the bulbs were top-dressed with basic slag, and the flowers are (if possible) finer than last year and more of them. In spite of long-continued frosts and blighting east winds the freesias in the open are not far behind those in a cold greenhouse. This is their second year out of doors, and notwithstanding the severe weather we had for so long they are quite six weeks earlier than last year—an early year for most things, and this a *very* late one! Surely a puzzling problem. They ripened seed last year, so they must be hardy. Lachenalias have stood the winter in the open, too, and are pushing up their flower-stems.—C. M. B.

WHITE CYCLAMENS.

IN your issue of April 26th under the heading "White Cyclamens," an illustration appears of a seedling white cyclamen sent in by Mrs. Wright of Lapworth, Warwickshire, and she brings to notice that phrase that appeared in your issue dated March 22nd, "There is a distinct need for a really good strain of white cyclamen." Surely she does not mean by the photograph sent of a seedling white cyclamen that she has now procured that long-looked-for strain, for, judging by the habit of the plant, it is far short of the true type of cyclamen that is wanted. The true type of cyclamen is a plant with sturdy foliage, with the flowers just appearing above it on good stiff stems, not falling all around the pot on 12in. flowering stems, as it appears in the illustration. Surely if Mrs. Wright had seen the strain of White Wonder cyclamen that Mr. Forsyth staged at the Royal Horticultural Society's Hall she would admit that at last the cyclamen world had got that true giant white strain, with flowers measuring 8ins. across when fully opened on strong, stiff stems just above sturdy foliage. If she was not fortunate enough to see that exhibit, I am sure if she wrote to Mr. Forsyth, Putteridge, Luton, Beds, he would be only too pleased to send her a photograph of his White Wonder strain, when she would see a really true type of white cyclamen. I am a cyclamen lover myself, and grow over 400 plants every year, and have the honour of a gold medal award for my strain, which consists of eight distinct varieties, including a white, which has flowers of the purest white, measuring 7ins. across, on foliage nicely silvered like the silver-leaved varieties, but I am proud to take off my hat to Mr. Forsyth.—G. S. LONDON, *Forfarshire*.

DUTCH CROCUSES.

I AM glad to see that Mr. Jacob puts the variety Maximilian at the head of his list (see page 309). I rather think I told him a year or two ago that it was the finest of all from my point of view. Dorothea is considered by some to be the same variety. Bleu Celeste is another very like it.

Will Mr. Jacob tell me which is the darkest purple—a black purple? Something far deeper than purpurea grandiflora.

I always understood that crocuses should be planted very shallow, yet Mr. Jacob writes about mice finding crocuses planted 4ins. or 5ins. below the surface. I should have thought this was too deep.—CROCUS.

GENTIANA VERNA.

"FORMAKIN," in THE GARDEN of May 3rd (page 309), asks "if there is any garden in the British Isles where the plant does really grow and look happy and contented?" My answer is, Yes, in the Botanic Gardens, Victoria Park, Bath, there is at present a good-sized patch in full flower, which looks perfectly at home and attracts the attention of all flower lovers by the brilliancy of its colouring. It has been in the same place all the winter, unprotected. I have watched it with much interest.

These gardens are very attractive at all times. The Lent hellebores have been very good, also Tulipa Kaufmanniana, Anemone Pulsatilla and many other favourites.—W. DUGGAN.

I WONDER if this photograph would interest your contributor, "Formakin." We raise Gentiana verna regularly from our own seed and use it as a carpeting plant for other alpines.

In about seven days' time (or longer) our patches should be almost at their best,

GENTIANA VERNA IN DR. JENKIN'S GARDEN.

and I should be delighted to welcome "Formakin" if he would care to see them.—N. W. JENKIN, *Hindhead*.

I HAVE just read with great interest "Formakin's" remarks on Gentiana verna (page 309), and would like to point out that if he cares to visit the nursery of Mr. Clarence Elliott, Six Hills, Stevenage, I should be pleased to show him established tufts of Gentiana verna, which I feel sure would prove of interest. The plants in question (about twenty) were shown last year at the Royal Horticultural Society's Hall, when the blooms, some two hundred, were greatly admired. The plants are about five or six years old, and the tufts are now averaging 3ins. across. It may be interesting to know they were grown from cuttings, and that since they were tiny plants they have been grown in limestone chips, leaf-mould and silver sand, with occasional top-dressings.—F. BARKER.

SOLDANELLA ALPINA.

REFERRING to the illustration of soldanella on page 303, is this S. alpina? It looks unlike the lovely illustration of S. alpina in Farrer's "English Rock Garden." The way in which the flower stems all appear to spring from a common centre, and the larger leaves than alpina usually has, make it look more like S. montana as described by Farrer.

This year S. alpina has been a failure here, for nearly all the flower buds that were standing up above the leaves at the end of February, and gave promise of a finer display than usual, were destroyed by the cold spell early in March. It seems curious that a high alpine like this should be damaged by sixteen degrees of frost, but perhaps it was the biting wind that accompanied the frost that did the harm.—R. B. C.

THE PROPAGATION OF CHOISYA TERNATA BY CUTTINGS.

I HAVE had a similar experience to that referred to on page 309, issue May 3rd of THE GARDEN, by Mr. H. Stewart Wacher. I inserted a number of cuttings in a sandy compost in small pots. Some were of young wood with a small heel of old attached; others were of older wood with old wood heel portions. The former rooted in due course, one of the resultant plants forming a bush 7ft. high and 7ft. across about fifteen years afterwards. For the past fifteen years it has been cut back hard, as it outgrew its allotted space. The hard-wood cuttings callused and lived—retained fresh leaves—for several years, but never made satisfactory plants. They absorbed moisture through the callused stump. Hard wood cuttings of roses have struggled for life in this way, but eventually died.—G. G.

I WAS very interested to read the contribution in THE GARDEN, May 3rd, page 309, by Mr. H. Stewart Wacher, under the above heading, as about three years ago I had a similar experience, although, unfortunately, I am unable to state definite dates. I inserted a dozen cuttings of half-ripened wood in a "sand frame" built against a pit facing north, the average temperature of which was about 48° Fahr., and I fully expected the cuttings to root in two months; but over a year passed and still no roots developed, although I had periodically taken the cuttings out and pared the callus. At the end of sixteen months the cuttings looked as fresh as when inserted, retaining every leaf, so I shifted them into a frame containing coconut fibre in a temperature maintained for rooting tropical cuttings, with the result that they rooted within ten days and, after hardening off, formed good plants.

With regard to the question as to how long cuttings will remain green with an ultimate chance of rooting, I should like to add that during a few years' experimental propagating with Mr. L. B. Stewart at Edinburgh I noticed cuttings of Eurya japonica, Umbellularia californica and Buxus balearica retained their leaves in good condition for over three years and have then rooted and formed good plants.

More recently I have seen a cutting of Buxus Wallichiana which still retains its leaves, although it was inserted in July, 1921. Whether it will root is uncertain, as many people consider it difficult to root from cuttings.—F. P. KNIGHT.

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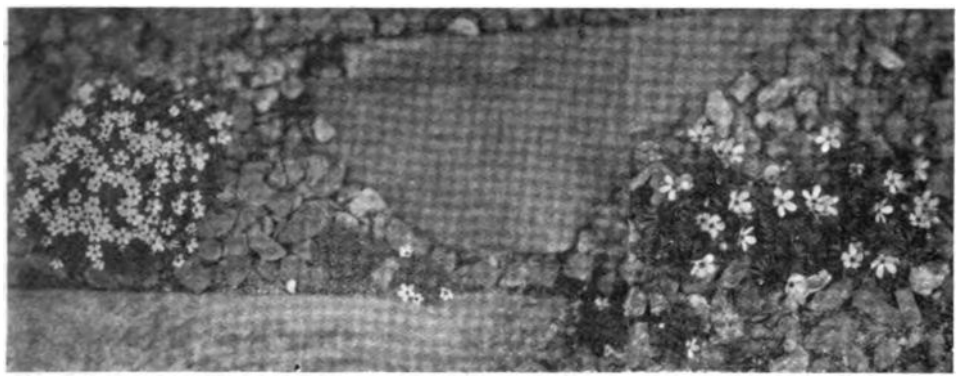
A READER'S ANDROSACES.

I ENCLOSE a photograph I have just taken of Androsace pyrenaica and A. Wulfeniana, both flowering profusely on my granite moraine. The former, you will see, has successfully seeded itself, some of the seedlings also being in flower. The parent plant is just beginning to bloom, but since the photograph was taken the foliage has been almost completely covered with blooms. As these are notoriously difficult plants to flower well under cultivation at low altitudes, I thought the pictures might be of interest to your readers.

The tuft of A. pyrenaica has been established for two and a half years, and forms a dome 1in. high and about 2½ins. in diameter. It is grown in sandy leaf-mould and granite chips in a cemented moraine tank, which is full of water all the summer and drained dry in the winter. A pane of glass is also supported over it in the winter to protect it from the excessive moisture.—H. STEWART WACHER, *Canterbury*.



ANDROSACES PYRENAICA AND WULFENIANA GROWING ON A GRANITE MORAINE.

POTATOES FOR EXHIBITION.

I WAS rather surprised to see some of the sorts of potatoes mentioned by Mr. E. T. Ellis in THE GARDEN, April 19th, page 266, and should have thought he would have met with better and more up-to-date varieties in his experience of judging at various shows. Edzell Blue is certainly too ugly for show purposes and not at all a taking colour. Arran Rose (an early coloured kidney), Witch Hill Early and Midlothian Early all produce excellent shaped tubers and a good size, too, for exhibition. Arran Comrade and Katie Glover for mid-season varieties; Great Scot is too deep in the eyes for exhibition, The Bishop is the most perfect kidney main-crop variety in commerce, faultless in form and comes very even in size, whereas White City often comes all sizes, although with a large quantity to dig from a good dish could be procured. In coloured varieties King Edward VII we know is indispensable, but the new round, Catriona, will be found on most exhibition tables in the future; a good coloured kidney is Mr. Breese, of a pleasing pink colour. Rhoderick Dhu and Arran Comrade I consider the best of all rounds for exhibition. Majestic very often produces a very fine dish for exhibition, but I do not care for the deep set eyes and this is where The Bishop scores over it on the show bench.—W. J. S.

PULMONARIAS.

ALTHOUGH one often sees the Munstead variety of P. angustifolia azurea mentioned in THE GARDEN, yet no one seems to have particularly noted a form or variety which may be either P. saccharata mollis or the true P. angustifolia azurea. The one I am thinking of blooms a little later than its deep blue relative with the plain unspotted leaves and makes quite a wonderful mass of colour and is a far better plant for distance effect in the spring border. Its individual blossoms may not be so pure in colour, and in some years and *some soils* have a considerable admixture of pink; but the general effect, when viewed from several yards away, is usually a fairly good purple.

I cannot think that the Munstead form can have any affinity with it, in so far as the former is usually listed as a variation of P. angustifolia. It is not nearly so effective in a mass, has a much shorter period of bloom, and the flower scapes are (at any rate, in the particular plant I received under that name) somewhat sparse in the number of flowers open at the same time, which are inclined to hang down and therefore do not show themselves so well. The plain unspotted foliage is, in my opinion, most uninteresting, and leaves the impression of a more or less weedy mass for the remainder of the summer.

The other lungwort has beautifully marbled leaves, equalling, if not surpassing, the wonderful veining of some erythroniums. These do not appear in any great force until the flowers are over, when they make an attractive feature of pretty variegated greenery all through the summer and may act as a foil to some autumn blossoms such as Gladiolus primulinus or Schizostylis coccinea.

Even if alone, the unusual elongated shape of the leaves is bound to attract attention. Other good lungworts are the early form of P. saccharata known as "Mrs. Moon," and PP. rubra arvernensis and its white form and styriaca, without forgetting the old P. officinalis or P. saccharata officinalis, which, although comparatively dull, has many uses in the wild garden. I have it as a background to Tulipa Kaufmanniana, and in such company it ceases to be dull and borrows from its neighbour some of the wonderful sunshine that lives in the tulips' orange cups.—EDWARD SHOOSMITH.

THE HARDY SEDUMS.

IN his excellent contribution under the above title (page 260), Dr. Lloyd Praeger omits from his "thirty best" sedums one which I should certainly have included, viz., S. ternatum, and I can only imagine the omission to be one of those slips which are apt to await the ablest authorities. This species is absolutely hardy and its widely-branching cymes of white flowers, born on 4in. to 6in. stems, are very beautiful. With the exception of two or three Mexican species this is always the first of the stonecrops to flower here. That is to say, the blooms open about mid-April and when they go off, some six weeks later, those of S. Nevii, which might be described as a miniature ternatum, break into their frosty radiance. Both of these are American species and both prefer rather cooler soil than one usually allots such things. They spread into a mat of fibrous roots after the manner of the familiar S. spurium, but are far from being aggressive. "Tastes differ," as Dr. Praeger says, but I would certainly include S. ternatum (if not S. Nevii as well) in a shorter list than that alluded to.—A. T. JOHNSON, *N. Wales*.

THE USE OF GARDEN LABELS FOR ALPINES.

I MUST say I entirely agree with the Rev. E. S. Lyttel in his objection to labels in a rock garden (page 308), except in a public institution, where, I suppose, they are still necessary. In fact, I should go further and should not advocate even numbers. A series of little white labels, reminding one of a miniature graveyard, surely cannot improve any landscape, and for me, personally, destroy all pleasure in a garden which primarily aims at imitating Nature. I think most people's ambition when designing such a garden is to arrange the stones so as to avoid all artificiality, and any device liable to destroy this illusion should be omitted. Most true garden lovers do not require any assistance to their memories, but if such is needed may I suggest a rough sketch of the plan be made with numbers written in, with a list of plants to tally at the side, which can be rearranged at will. The old idea that carved pieces of stone from old ruins, woodwork and even broken statuary improved a rockery, as it was then called, has disappeared, and I am afraid I also hope that labels may follow in their wake.—E. B. PALMES, *York*.

"G. G.," in your issue of May 3rd, repudiates numbered labels, and he is, of course, perfectly entitled to his personal opinion. He is even entitled, if he thinks fit, to dismiss as "weak and pointless" any arguments in favour of a system he rejects; but he is not entitled to denounce my system as "laborious," for it is the very opposite.

With written labels it is necessary, when a new plant comes along, either to put in a temporary label and later replace it with a bought or home-made stamped label, or, if wooden or celluloid labels are used, to write one carefully with a special pencil or waterproof ink and also to varnish it if it is to last.

When I get a new plant I simply go to my label box, take an unoccupied number, stick it behind the plant, scribble the name in my book, and the whole thing is done in a minute. Later, at my ease in my study, I ink in the names, adding the date and place of acquisition and, in some cases, the natural order and native habitat, helpful details which would overload a written label.

Above all, "G. G." is not entitled to denounce numbered labels as "eyesores," for that, at least, they are not. If small and buried up to the numbers behind the plants, they are practically invisible, and it is precisely because they are of all labels the least eyesores that, after trying most other kinds, I have adopted these as the best for a rock garden like mine, where a large number of species and varieties are collected into a comparatively small space. For big rock gardens, where the proportion of labels to the number of plants is smaller, the matter is, perhaps, different, and, of course, it is altogether different for public rock gardens where information as to names is sought by large numbers of unaccompanied visitors, who cannot be supplied with number records or be trusted off the paths.—EDWARD S. LYTTEL.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Broad Beans.—Any of the longpod varieties may be sown in good ground with a view to prolonging the supply as far as possible. A cool part of the garden is necessary, and a watch should be kept for black fly. An occasional spraying with quassia extract will hold this pest in check.

Parsley.—A liberal sowing of parsley should be made in lines 1ft. apart, and, directly they are large enough, thin the seedlings to 3ins. or 4ins.

Onions.—This crop should be frequently hoed to keep down weeds, and an occasional dusting of soot will be beneficial. The spring-sown onions will need thinning, but unless large bulbs are required there is no necessity to thin them severely. Medium-sized bulbs are best for general use, and, moreover, they often keep better when placed in store.

Peas.—Further sowings should be made and now it is advisable to sow in prepared trenches, so that the roots can be afforded copious waterings should the weather prove dry. A liberal quantity of well decayed manure should be placed at the bottom of the trench, and the soil be just below the ordinary level. If we experience a dry period, other rows of peas should be mulched, and if manure is not available use grass mowings from the lawn.

Lettuce.—During hot, dry weather it if often difficult to maintain a supply of good lettuces; but at this season there are usually a few empty frames which can be used for this crop. Place the frames near a water tap, and after filling them with good soil to the depth of several inches, prick out the plants 6ins. or 8ins. apart. The lights will not be needed, but plenty of water is essential. Sow a little seed every fortnight.

THE HARDY FRUIT GARDEN.

Strawberries.—When the weather is favourable use the hoe freely to destroy small weeds in readiness for placing straw between the rows. If slugs are numerous, give the soil a sprinkling of lime or soot, and then place the straw in position to keep the fruit off the soil. Nets and supports will be needed in the near future.

Morello Cherries have flowered fairly well, and when the fruit is set growth will make considerable headway, hence it will be necessary to attend to disbudding. This should be done gradually, and it should be borne in mind that these cherries require much the same treatment as peaches. Tie in the shoots when ready, and prevent overcrowding. If green or black fly appears, spray the trees at once with an insecticide, washing the trees with clear water the following morning.

Hardy Vines.—In some gardens these are grown on old buildings or walls, and now it will be advisable to begin disbudding, leaving one strong shoot on each spur. Apart from an occasional crop of fruit, the plant is very ornamental, especially in the autumn.

THE FLOWER GARDEN.

Cuttings and Division.—Many of the spring-flowering plants may be increased during the next few weeks, and preparations made for next season's display. Arabis, aubrietia, the spring-flowering phloxes and iberis can be increased by means of cuttings, which will readily form roots if placed in a cold frame and kept shaded for a few days. Clumps of polyanthuses, especially good varieties, and daisies can be divided; while Alyssum saxatile and myosotis are best raised from seeds.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Brussels Sprouts.—Plants that were set out early should be sufficiently advanced to have the soil drawn up on either side of the stems. This will help to keep the plants in an upright position especially when grown in exposed places. The extra soil around the stems will also tend to encourage the formation of stem roots.

Tomatoes, when in good health, soon become overgrown. Therefore constant attention should be given to pinching out all side growths before they become too large and the tying of the main stems to strings, stakes or wires as the case may be.

THE FLOWER GARDEN.

Bedding Plants.—Antirrhinums should be planted from 8ins. to 12ins. apart in their flowering quarters. Calceolarias should also be planted in beds or borders. When fairly hardy plants of this description are got out early it relieves the pressure of work, when numbers of more tender plants have to be planted later on. All boxes and pots containing ageratum, begonias, centaureas, dahlias, geraniums, heliotrope, lobelia and Salvia patens, etc., should be removed to cold frames. If these plants have been grown under the shade of peach trees or vines, they should be shaded from bright sunshine for a few days, when first placed in the frames, otherwise the tender foliage will get scorched and burned.

Nasturtium Empress of India, which is a dwarf growing variety, may be used as a front line plant on long borders and the seed sown now without fear of having the plants killed by frosts. Shallow holes should be made with a small dibber about 6ins. apart and a seed placed in each hole and covered over. But on no account place nasturtiums on rich loose soil.

General Work.—On herbaceous borders, centaureas, delphiniums, lupins, peonies and pyrethrums should be staked and tied as it is of the utmost importance to have this work done before the plants get out of shape or blown about and broken. Lawns should be frequently mown. Verges should be kept cut with the shears and walks swept and raked. Grass should be cut with the scythe in places where the machine is not used. Roses should be kept trained to arbours and trellises.

THE HARDY FRUIT GARDEN.

Apricots.—The nets used as a protection when the trees were in flower should be taken down now, and where the young fruits are crowded they should be well thinned out. Frequent applications of diluted farmyard liquid manure should be given to the roots of the trees.

Gooseberries.—The berries on bushes bearing large crops should be well thinned at intervals, and the green fruit made use of in the kitchen.

Strawberries.—Plantations coming into flower should have the hoe run between the lines, and all cleaning done forthwith. Then place straw between the lines, taking care to push it well underneath the leaves and close to and around the plant stems, as the object in strawing the plants is to keep the fruits clean. Sometimes lawn mowings are used between the lines, but where straw can be procured it is very much better.

FRUITS UNDER GLASS.

Fruits Colouring.—In the early vinery and the early peach house the fruits should be showing colour. Syringing among the peaches should cease and less damping in the vinery should be done. Air should be freely admitted to these houses when the weather is warm and bright, and although the top ventilators should never be closed down the pipes should be kept warm.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Winter-flowering Begonias, as represented by such fine varieties as Optima, Exquisite, Fascination and Mrs. Heal, should now be propagated as cuttings are available. The cuttings should be secured when they are about 3ins. or 4ins. in length. These are best inserted singly into thumb pots containing light sandy soil. The pots should then be plunged in a warm propagating case, in which the cuttings will root readily. Their subsequent cultivation presents little difficulty if they are grown in a house with an intermediate temperature of about 55°, rising to 60°. Strong-growing varieties, such as Mrs. Heal and Exquisite, will require 6in. pots in which to flower, while the weaker-growing varieties as represented by Elatior and Ideal should be confined to 48-sized pots. These begonias grow quite well in a good medium loam with the addition of a little leaf-soil and enough clean coarse sand to keep the whole open and porous. A little lime should also be added, as it helps to prevent attacks from eelworm. However, where this pest has proved troublesome, it is wise to sterilise the soil by steam or some other means. Begonia mite should also be guarded against by an occasional use of the sulphur vaporiser. The pots should be well drained and water at the root carefully afforded at all times. The earlier propagated plants of Begonia Gloire de Lorraine should be potted on as they require it, while cuttings may still be secured for raising smaller plants, which are so useful for decorative work indoors.

Primula sinensis and its many varieties are general favourites for greenhouse decoration, the stellata varieties being specially graceful and useful for decorative work. Seed should be sown now in pots or pans containing light soil, arranging them thinly on the surface, as they are usually irregular in germination. By sowing thinly the more forward plants may be easily removed without unduly disturbing the more backward ones. Later sowings may, of course, be made according to requirements. During the summer months these plants may be grown in cold frames or, better still, in low pits, where they are under closer observation.

Cestrums elegans, Newellii and aurantiacum are all excellent plants for the conservatory, being seen at their best when they can be planted out and trained up pillars or rafters. In such positions they continue in flower for a long time. They are easily propagated at any time, cuttings rooting readily in a close case. C. Smithii with pink flowers makes a pretty plant when grown in 6in. pots. C. aurantiacum also flowers freely when treated in the same way. Cestrums are all subject to attacks by mealy bug, aphis and white fly, and such attacks should be guarded against.

Ficus macrophylla has smaller leaves than Ficus elastica, and altogether is a much more graceful and useful plant for decorative purposes. Old plants branch freely, thus affording a ready means of propagation, cuttings rooting readily at any time in a close case with slight bottom heat.

J. COUTTS.
Royal Botanic Gardens, Kew.

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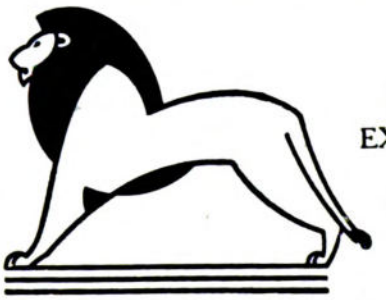

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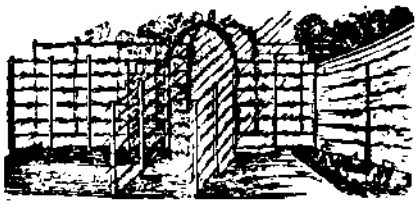

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THE GARDEN

VOL. LXXXVIII.—No. 2740. MAY 24, 1924

POLYANTHUSES ARE IDEAL FOR CARPETING A STRETCH OF THIN WOODLAND IN SPRING. THIS ILLUSTRATION SHOWS THEIR LUXURIANCE IN MISS JEKYLL'S GARDEN AT MUNSTEAD WOOD.

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THE GARDEN

MAY 24, 1924.

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A CATALOGUE

I AM much interested by the catalogue of Alpine and Herbaceous Plants, 1924, issued by Clarence Elliott, Limited, Six Hills Nursery, Stevenage, Herts, which has just come to hand. After considerable experience in cataloguing in another trade I can safely say that it is one of the most difficult of all tasks to accomplish successfully. Just put yourself for a moment in the position of a cataloguer. To begin with, you must have a profound knowledge of the subject, you must differentiate and describe items which may only vary in some slight degree, you must be fair in your descriptions and remember your clients as well as the fact that a catalogue is produced to bring grist to your mill; above all, a catalogue must be interesting. This is the most important point, for you must carry the prospective customer's interest right through to the bitter end, otherwise the attention flags and procrastination steps in. "Let us make out our list another day," says the customer, and ten to one he or she forgets, for, after all a catalogue is often a bait sent out to catch regular clients. Once they are safely hooked, they do not wait for catalogues; they write and ask.

Those are a few of the points in a catalogue, and Mr. Clarence Elliott passes these tests of a good cataloguer with flying colours. One of the most successful methods which he uses is that of describing only a few species or varieties of each genus. This simplifies matters for everyone concerned. The issue for the beginner is not fogged by having to wade through countless names of plants, some of which are bound to be very similar, while even the most advanced gardener will find varieties to interest him. Another item of great interest to many gardeners is the number of our rare native plants found in this list. Among them are Cypripedium calceolus, the true Cheddar Pink (Dianthus cæsius), Gentiana Pneumonanthe, Geranium sanguineum lancastriense, Linnæa borealis, Maianthemum convallaria, and so on. Largely owing to Mr. F. J. Hanbury and a few other devoted adherents to our native plants, they are becoming more and more popular in our gardens, and it is pleasant to see them holding their own in Mr. Elliott's catalogue.

The notes and descriptions are short, sharp and to the point. Here are a few taken at random:

Achillea Lewisii. Charming dwarf hybrid, soft sulphur-yellow flower heads, seldom out of flower. Exquisite when grown with Campanula pusilla Miss Willmott. 3 to 4 inches.

Androsace glacialis. We sometimes have live plants of this. (What more could be implied in such few words?)

Arabis albida. Common White Arabis. Pretty but too common to sell. Best begged from a neighbour. (Mr. Elliott might have added that slugs consider the undersurface of a tuft the Ritz of their hotel accommodation.)

Campanula Zoysii. One of the most distinct and fascinating of all the dwarf campanulas, habit of a compact pusilla, flowers of a delicate lavender blue, tube shaped and curiously puckered together at the mouth like a Kalmia. Limestone scree and an occasional sprinkle of Sanitas powder to discourage slugs. Good also for Alpine House.

Phygelius capensis coccinea. We have discarded the old brick-red flowered Phygelius capensis, excellent plant though it was, in favour of this variety, which came to us from a famous Scottish garden. It is certainly an enormous improvement, the flower being brilliant vermilion-scarlet. 2 to 3 feet. On a wall it becomes a climber.

I could continue quoting *ad infinitum*, but I have extracted sufficient to show how the reader's interest is catered for, a secret of a good catalogue. There is one criticism, however, which I can make, and that is that there are not sufficient cultural directions. Every beginner has a rock garden either in being or in process of formation. As a rule a successful rock garden with a percentage of rare plants is not an easy undertaking either to start or to keep up to standard. Such beginners are voracious readers of catalogues and dream night and day of conquests to be made in the plant world. They make up lists innumerable—several of my friends make up a daily one in their bath for their own amusement—but the wise beginner, and most of them are not carried away entirely, weeds out his list until it contains what he supposes are the easiest plants to grow, so as to make a comfortable background on which to form his collection. This information is usually difficult to obtain from a catalogue, and a few lines here and there would be of great assistance. E. H. M. C.

NOTE

MANY who are interested in gardens will be glad to know that Lady Loder is opening the gardens at Leonardslee, Horsham, to the public on Saturday, May 24, Thursday, May 29, and Saturday, May 31, from 12 noon to 7 p.m., admission, 1s. The proceeds will be given to the Sussex hospitals. These are the only days on which the public will be admitted to the grounds, and no doubt many people will be glad to avail themselves of the opportunity of seeing the famous rhododendrons, including Loderi, which will be in full bloom at this time.

Our next issue will contain a fully illustrated report of the Great Spring Show at Chelsea, and will be on sale during the Show.

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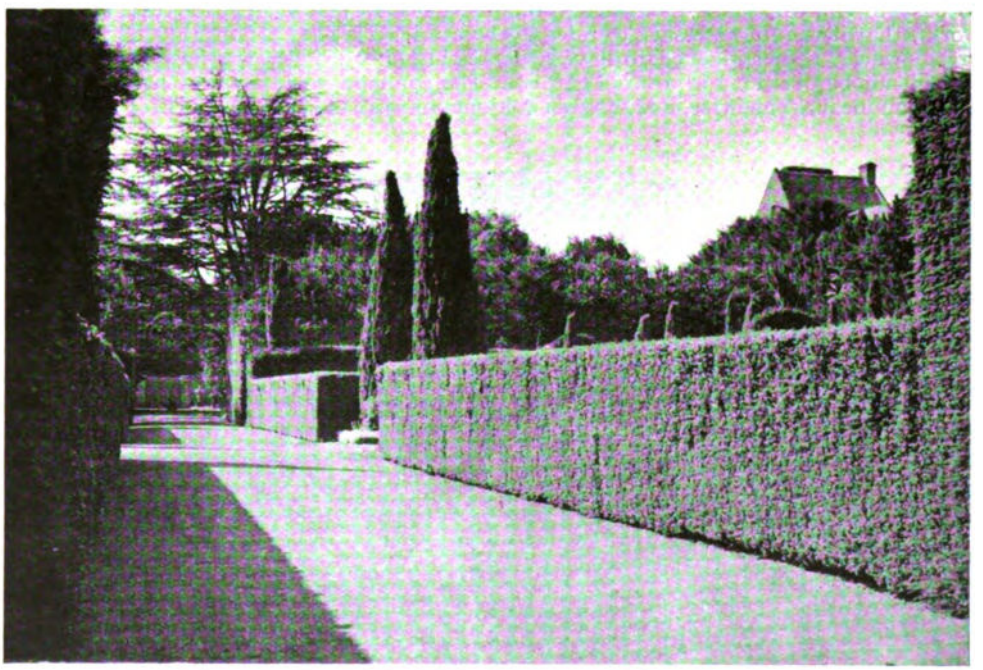
HEDGES

BY EDWIN BECKETT.

IF a visitor from abroad were to ask a native of the British Isles to name one of the most distinctive features of English horticulture, it is probable that the native mind would almost instinctively turn to the hedgerows, with which the countryside is picked out. The hedges which are found in nine out of ten gardens to-day, from the suburban villa to the beautiful grounds surrounding an old mansion, and, unquestionably, the arrangement of hedgerows as boundary lines to our fields, impress the Colonial as quickly as any point he observes wherein this country differs from his own. Often is the expression used, "What tiny fields you folk have, but I must say I like them, especially with their hedges, for we do not see those in our country, only miles of open land, divided off by posts and wires for fences." There is little doubt that a hedge is a native idea, and one that can lend great beauty in unobtrusive fashion to an old world garden, as evidenced by some of the fine old yew and other hedges that may be seen utilised in such fashion. As yet, little knowledge really exists of what plants can be employed for the formation of hedges, and we still have to break away from the old idea that it is essential to form hedges out of that most ordinary plant, the privet. It is true that privets have their use, but a good idea can easily be overdone, and one would feel rather depressed by daily contact with miles of privet hedges; there would really be no excuse for constant repetition, as many other plants can be allotted to the task of serving as hedges. In addition, privet is short lived in comparison with many other plants. These notes will endeavour to attract attention to some of them, but only the surface of the subject can be scratched.

USES OF HEDGES.—Before considering the various items it would be well for a moment or two to examine the purpose of hedges. While primarily they are intended for demarkation of boundaries either between fields or gardens, they are also employed for protection from encroachment, for which purpose impenetrable plants are required, or for shelter from winds and sun for both plant life and animals, or a third idea is to employ a hedge, ornamental in character, to separate one feature of a garden from another, or to screen off an unsightly view. For the first purpose plants armed by Nature for their own protection against cattle, etc., are the ideal, such as the quick or hawthorn, and hollies; for shelter construction, those which make good thick leafage are best, as examples of which we may take beech and hornbeam; while for the third idea, that of decorative effect, there are many fine plants that can be employed, and these will appear farther on in this article. One point should be referred to here. In planting a hedge, it is just as essential that the ground along the position should be carefully prepared and cleaned of weeds, as would be the case in getting ready the site for a good shrubbery, and the planting also should be done as carefully. These factors are most important towards success. After planting, the ground along the hedge should be kept clean and finely broken, the necessary pruning carried out in due season, barriers devised to protect the plants from damage until they are of sufficient size to protect themselves, and, above all, the plants forming a hedge should not be allowed to ramp heavenwards, unrestricted, or it will soon be a case of all top and no bottom, necessitating drastic cutting down in order to close in the bottom again.

A GREAT BEECH HEDGE AT IGHTHAM MOAT.



THE OLDEST OF ENGLISH HEDGEPLANTS, A FINE STRETCH OF YEW.

SUITABLE PLANTS FOR HEDGES.—There are many plants that will make good hedges. Hollies, where they will grow successfully, would, I think, be my first choice: for a well planted, tended, and grown holly hedge is a goodly sight, and satisfactory

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in appearance at all seasons. It can be used to form low, medium, or tall hedges, making in the last mentioned case a complete and wall-like screen, 10ft. or more in height. To get the best effect, they should be trimmed slightly convex, so that the distance through the top part of the hedge is less than at the base. Being evergreen, careful attention should be given in planting, and I am inclined to prefer late spring for the work, using plants of a suitable height and properly grown by nurserymen for the purpose. Choose plants that are well furnished with growths down to ground level, as a fault with hollies is at times the scanty furnishing low down; also, the plants should have been frequently transplanted. Trim the hedge by clipping, for preference in July, as this tends to aid the proper growth.

Laurel can be used, but generally spreads too much, and becomes untidy, besides having a very scratchy appearance if trimmed with shears, owing to the large leaves being cut across, and not entirely removed. It is a plant that starves its surrounding soil and is not generally to be recommended, especially as it is most undependable as to its length of life.

Privet, spoken of rather disparagingly earlier in the article, does prove useful, and either the common (Ligustrum vulgare) or the oval-leaved (L. ovalifolium) forms may be used, the first for preference; alternated with six times the number of quick, it makes a fast-growing and charming hedge. For low hedges the Chinese Ligustrum Prattii is most useful, and there are a number of other interesting introductions of the genus from the same country that will yet prove their worth for the same work, notably such as the very tiny-leaved, fascinating-looking L. ionandrum, L. Quihoui (which carries enormous panicles of flower, sometimes 15ins. long), and L. Delavayanum, to mention a few of them. Golden privet, too, is frequently employed, but the use of this is preferable in conjunction with the ordinary green forms, provided they are both properly controlled, so as not to mingle with each other, to the detriment of the appearance of the whole hedge.

Quick has been referred to, and this hawthorn is exceedingly useful owing to its sharp thorns. It can be used in conjunction with other plants, such as beech, wild crab, myrobalan or cherry plum (Prunus cerasifera), or briar, but in such combinations care must be exercised not to allow the stronger-growing allies to overcome the quick with too close attention.

Box and yew hedges are so typically English in appearance, so easy to control, shape, trim and train (matters of topiary work), that it is only necessary to refer to them briefly. They are, however, rather inclined to have a depressing effect, and should not be overdone in a large garden. The common yew is also an ideal avenue tree, and, used in conjunction with silver birch, is excellent for the purpose of ornamental avenue work, for short vistas. Both box and yew are greedy feeding plants, and can be much aided by occasional applications of artificial manure, or fresh soil of good class. The golden yew is a beautiful plant for employing for hedge formation. Box must not be pruned in too hard in an attempt to control its growth, or restore lost vigour, for it takes some years to replenish its covering, breaking very reluctantly from the older wood.

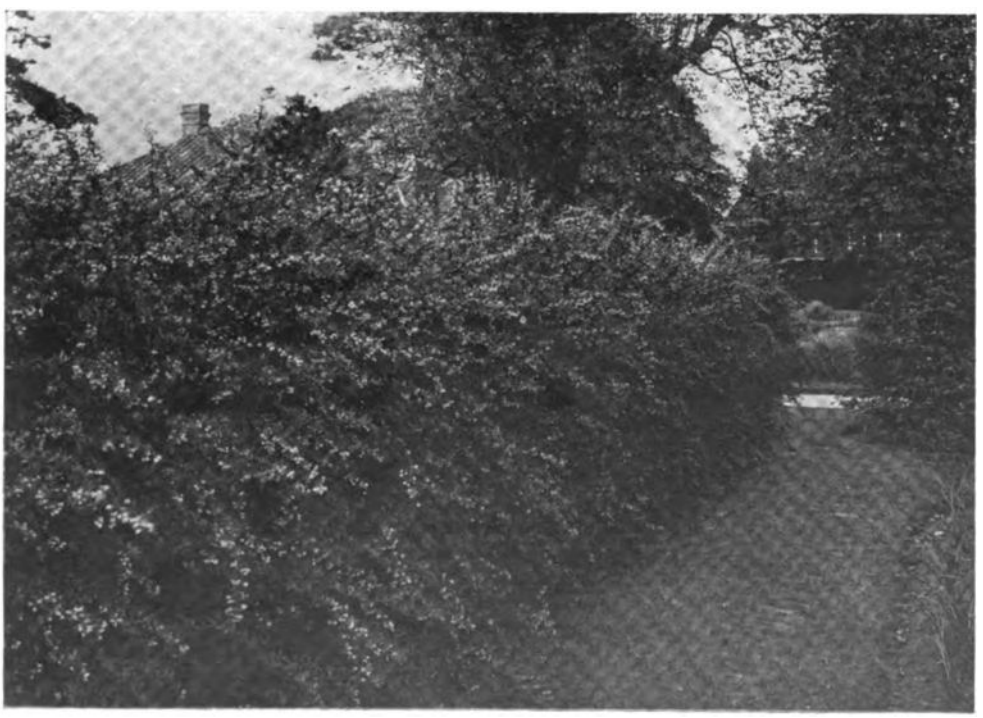
Evergreen or holme oak can be employed for tall screening hedges, but is a difficult plant to move successfully to a new site. Other evergreen subjects forming good shelter, and screens, can be found among the coniferæ, in such families as the cupressus (such as C. Lawsoniana, C. nootkatensis), and thuyas (T. plicata, etc.).

Now for a few of the more interesting ornamental subjects. Americans employ two very formidable plants for protective hedging in Maclura aurantiaca and Ægle sepiaria, the last with its big barbs of growth should be more employed in this country for medium-sized hedges, being very pretty with its white flowers and it is hardy. Cratægus macrantha, too, an American thorn, with spikes 4ins. to 5ins. long, would defy boy, man, or beast in their efforts to break through, besides being most beautiful in flower and fruit; there are many others of the same group that should be tried owing to their possibilities as hedge plants.

Evergreen berberises, other than the Mahonia, should all make fine hedges, and particularly so in the cases of Berberis Darwinii and B. stenophylla. One of the most beautiful hedges I have ever seen was composed of holly and Berberis Darwinii in the proportion of one berberis to six hollies; in the spring this was indeed a lovely sight. Chinese introductions, such as Berberis Sargentiana, B. Julianæ, B. Gapnepainii, to mention only a few of them, should make charming effect, with their foliage and fruit, while B. Hookerii, B. candidula and B. verruculosa, although of slower growth, should prove efficient for medium heights.

Roses, such as those of the Wichuraiana group could well be utilised for the purpose of hedges, where they prove to be at home, and the dwarf Polyantha group make beautiful edging plants for big beds.

In the milder parts of the country hedges can be formed with such plants as olearias, pittosporums and elæagnus, while by the sea the silvery Atriplex halimus, and the beautiful flowering Escallonia species and hybrids are lovely. Cydonia japonica is another instance of a marked success in an ornamental hedge, and we must not overlook the claims of the loniceras of the Xylosteum or bush group, in particular that charming and dainty evergreen, with its small shiny foliage, Lonicera nitida, which assuredly has a great future as a hedge plant.



A HEDGE OF BERBERIS STENOPHYLLA.

Before leaving this section I should like to refer to a matter, which though not strictly hedge work, approximates very closely to it—the question of boundary demarkation. At Aldenham, from which I write, we have employed clipped limes for the purposes of a short avenue, a subject that was illustrated in a contemporary of THE GARDEN—*Country Life*. This idea of clipped trees, where they are cut to straight sides, and tops, in rows, is utilised on the Continent for the demarcation of city squares, and could well be employed for similar uses in this country in the place of uninteresting hedges, such as some of our towns possess, or in the place of posts and chains. This would form a welcome addition as a horticultural feature to some of our public parks and gardens.

I must also dwell on one or two planting details. Double rows of quick are generally planted in the course of hedge formation. I have done this myself occasionally, but have now ceased to

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employ this method, and only use one single row in close formation. I believe the old method to be faulty, for in the course of time single rows apparently make a far more efficient hedge, doubtless owing to the lower growths getting more air and light.

For damp ground, inclined to get water-logged, hornbeam will be found a most useful medium, as it does not resent this disadvantage so much as many other plants do; while for shallow soils, and especially those of limy nature, beech will be found suitable.

It has only been possible to mention a few of the plants that can be employed for hedges, but they should be sufficient to call attention to the fact that there is a great variety which can be so employed. There is ample scope for enterprising hedge planters to work out and use many more highly useful and ornamental plants than at present.

ALPINES ON THE MONTE MORO PASS

ON my way homewards from the Maritime Alps a few days were spent in and about Lugano, one of the loveliest of the Italian lakes. Although for the most part situate within the Swiss frontier the atmosphere (excepting the recent Frenchified hotels and buildings fronting the lake) is entirely that of Italy: lovely little villages with their typical churches and dainty campaniles—graceful, unobtrusive, and an integral part of the picturesqueness. The presence of buzzards floating about above the lake further enhanced the interest.

After being in the higher Alps, Lugano was found very hot and enervating and not conducive to activity. The very pretty pink-flowered Dianthus Caryophyllus, the parent of the innumerable carnations of the present day, was seen about Lugano, also at Baveno on Maggiore and at Monte Generoso. At Bellagio on Lake Como what appeared to be Erigeron mucronatus (a New Zealand plant) was flowering freely in the walls by the side of the lake. On a track leading up from Bellagio the little yellow-flowered Oxalis corniculata was plentiful in the joints of the cobble paving; a dangerous plant to introduce into the garden, where it is liable to take complete possession.

A visit to Monte Generoso proved interesting; although hot and sunny down by the lake, the top of the mountain, some 5,600ft. up, was, unfortunately, enveloped in a cold mist; the distant views, usually very fine, being for the most part obliterated. On the walk up from Bella Vista, the first halting station of the mountain railway, a few plants of interest were noted, including Astrantia minor, Campanula barbata and Dianthus plumarius (white and pink flowered). Nearer the summit, part of which is in Italy and had the usual Italian sentries to protect their rights, Campanula pusilla was very pretty running along in the rock crevices and quite a quantity of Saxifraga Aizoon was in flower on the shady side of the rocks. On the way down by a very steep path to the Lake level the pretty Cyclamen europæum was in flower along with Astrantia major, the Willow Gentian (Gentiana asclepiadia) Dianthus Caryophyllus, besides Corydalis lutea, a beautiful weed difficult to localise if it once gets established in the garden. These cliffs are evidently breeding places of the buzzards, as they were seen sailing gracefully about and their characteristic "mewing" was frequently heard.

Leaving Lugano for Macugnaga on August 3rd by way of Lake Maggiore and Baveno to Vogogna, I motored up the beautiful Val Anzasca to Macugnaga, where the night was spent previous to going over the Monte Moro Pass into Switzerland. Interesting plants noticed *en route* were Dianthus Caryophyllus, Saxifraga stellaris, S. aizoides and S. Cotyledon, the fine rosettes of the last named in the crevices of the rocks along a portion of the road. In a book obtained since my return, entitled "Sketches in Italy, etc.," by J. Addington Symonds, is the following beautiful reference to S. Cotyledon, which he would probably have seen in or near this locality over fifty years ago. "I think that botanists have called it Saxifraga Cotyledon; yet in spite of its long name, it is beautiful and poetic. London Pride is the commonest of all the saxifrages; but the one of which I speak is as different from London Pride as a Plantagenet upon his throne from that last Plantagenet who died obscure and penniless some years ago. It is a great majestic flower, which plumes the granite rocks of Monte Rosa in the spring. At other times you see a little tuft of fleshy leaves set like a cushion on cold ledges and dark places of dripping cliffs. .... But about June it puts forth its power, and from the cushion of pale leaves there springs a strong pink stem, which rises upwards for a while, and then curves down and breaks into a shower of snow-white blossoms. Far away the splendour gleams, hanging like a plume of ostrich feathers from the roof of the rock, waving to the wind, or stooping down to touch the water of the mountain stream that dashes it with dew. The snow at evening glowing with a sunset flush, is not more rosy-pure than this cascade of pendent blossoms. It loves to be alone, inaccessible ledges, chasms where winds combat, or moist caverns overarched near thundering falls, are the places it seeks. I will not compare it to a spirit of the mountains or to a proud lonely soul, for such comparisons desecrate the simplicity of nature, and no simile can add a glory to the flower. It seems to have a conscious life of its own, so large and glorious it is, so sensitive to every breath of air, so nobly placed upon its bending stem, so royal in its solitude. . . . The other day we cut an armful—and then felt like murderers; it was so sad to hold in our hands the triumph of those many patient months, the full expansive life of the flower, the splendour visible from valleys and hill sides, the defenceless creature which had done its best to make the gloomy places of the Alps most beautiful."

After a night's rest in the upper regions of an hotel "dependence," an early start was made on a lovely exhilarating morning in one of the most romantic corners of the Alps, an amphitheatre including the majestic precipitous faces of Monte Rosa with high mountain buttresses on either side, snow capped and lovely in the sunny clear atmosphere.

MATTMARK SEE AND MONTE MORO PASS.

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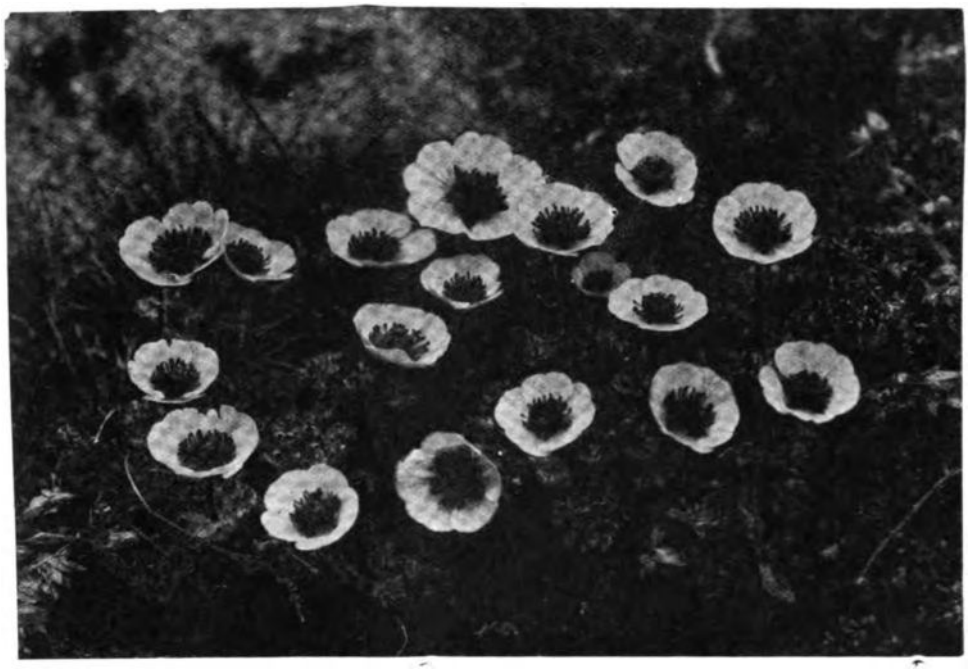

THE SILKY-LEAVED VARIETY OF RANUNCULUS GLACIALIS.

The climb up the pass from the Macugnaga side is very steep and rough. On the way up the pretty flowers of Campanula barbata were fairly frequent and Asperula cynanchica was seen in the earliest part of the ascent; but, having a guide to the top of the pass, not much time was allowed for investigation. Fortunately, he was a bit out of condition and required a rest about 7,000ft. up, which gave me an opportunity of looking round a little. It was a pleasant surprise to come across a fine lot of Androsace imbricata in some rock crevices in full sun—a specially welcome find as it was one of the plants in Farrer's list that I had failed to find on the Maritimes. The pretty and very local Campanula excisa also inhabited this level. Primula hirsuta in rocky crevices in seed, and quantities of Campanula pusilla were noted a little earlier, together with Dianthus sylvestris and Dianthus carthusianorum. Pushing on we arrived in a stony basin almost at the top of the Pass between 9 and 10 o'clock. The Pass was snow covered with snow-capped mountain ridges on either side. At this point we came up against the Italian sentries who, on examining my pasport, refused to allow us to proceed owing to it not having been signed by the Brigadier-General in Macugnaga. As the sentries persisted, and had stopped other travellers for the same reason, I had to send the guide down to obtain the required signature. This entailed a wait of over six hours in a stony waste. The snow had quite recently left this level and laid about in patches immediately above. Plant life was just awakening, including Silene acaulis, mostly excarpa, about 9,000ft. up, Gentiana imbricata just coming into flower, Ranunculus glacialis, Saxifraga obtusifolia, S. moschata with yellowish green flowers, Chrysanthemum alpinum and Cherleria sedoides. The guide returned about 4 o'clock, having obtained the required signature. After a rather sharp altercation with the sentries—as far as I could make out from the guide's German-Swiss the sentries had no right to stop us, as he had been told that the signature was unnecessary—we at last got on the way again and were on the top of the Monte Moro Pass, about 9,400ft. high, in a few minutes. For a short time the track was over the snow. A little lower, where the snow was melting rapidly in the hot sun, the water was streaming over the rocks which were carpeted for a considerable distance with Ranunculus glacialis showing its lovely flowers in thousands—white, rose and red, large and small, in bud and fully opened, magnificent, a sight of a lifetime.

T. ASHTON LOFTHOUSE.

(To be continued).

ILLUSTRATED FORECAST of the CHELSEA SHOW

ON Tuesday, May 27th, and the two following days, the great Spring Show of the Royal Horticultural Society will be held in the Chelsea Hospital grounds. It is opportune that this, the world's greatest horticultural show, should be held at this date. The British Empire Exhibition, which was recently opened, has attracted thousands of visitors from distant lands, and it will give them an opportunity of seeing this wonderful flower show at Chelsea.

It is doubtful what particular exhibits are the most popular. However, it does not matter in which direction one's tastes lie, because one will find every conceivable phase of horticulture represented. The rock and water gardens outside always attract a great deal of attention, and the same applies to the formal and informal gardens. Orchids are also a great feature of this Show.

This year Messrs. Sutton and Sons are exhibiting sixty-one beds, each containing a different subject. These beds will consist of greenhouse flowers, hardy and half-hardy annuals. Some of the outstanding greenhouse plants will be begonias, gloxinias, calceolarias, cinerarias, streptocarpuses and the brilliant Clerodendron fallax. Among the annuals will be clarkias, schizanthuses, nemesias, Phlox Drummondii, dimorphotheca, tobacco plants (nicotiana), lobelias and lavateras. The Reading firm are famous for the excellence of their exhibits, and this one promises to be exceptionally attractive.

Messrs. Carter and Co. are putting up a large group of greenhouse plants and hardy and half-hardy annuals. The exhibit will be somewhat rectangular in shape, and round the large bed in the centre will be many other beds of various shapes and sizes. Like the Reading firm, Messrs. Carter will fill each bed with one kind of flower. Ferns will divide each bed, and interspersed throughout the exhibit will be sweet peas and antirrhinums. The exhibit will be surrounded by an edging of grass, the back of this being fringed with a ribbon of myosotis and the front edged with ageratum and small ferns.

Outside, near the Embankment, Messrs. Carter are to construct a fountain garden. Seasonable flowers and shrubs will be employed in this garden, which is to be of simple design.

Florist flowers raised from seed and annuals in pots will comprise the exhibit of Messrs. Edward Webb and Sons. Here will be seen calceolarias, cinerarias, begonias, gloxinias, schizanthuses, nemesias, Dimorphotheca aurantiaca and Rhodanthe maculata.

Messrs. Blackmore and Langdon will stage an exhibit of double begonias, including Hilda Langdon, Lord Lambourne, Mrs. H. Moncrieff and Lady Cory.

Among basket begonias will be seen such varieties as Stella, Venus and Lena. Messrs. Blackmore and Langdon will also stage a large variety of their well known delphiniums, including such as Rev. E. Lascelles, Mrs. Shirley, Millicent Blackmore, Walter T. Ware, and their 1924 novelty Fairy Queen.

Messrs. Allwood Brothers will stage an extensive exhibit of perpetual-flowering carnations, comprising 600 dozen blooms. The flowers will be arranged in four large bays, and the background will consist of palms and ferns. Such well known sorts as George Allwood (pink), White Pearl, Wivelsfield Apricot, Laddie (pink) and the yellow malmaison, Jessie Allwood.

Adjacent to this exhibit Messrs. Allwoods will construct a carnation garden, consisting of their well known Dianthus Allwoodii and new perpetual-flowering border carnations. Among the new Allwoodii will be Beatrice (deep salmon), Elizabeth (blush salmon), Freda (pale mauve). The new perpetual border carnations include Sussex Beauty (heliotrope), Sussex Supreme (blush salmon), Sussex Purple and Sussex Pink.

Mr. C. H. Herbert of Dianthus Herbertii fame will stage some of his beautiful pinks.

Messrs. Andrew Ireland and Hitchcock will exhibit over 5,000 sweet pea blooms, including many new varieties and some unnamed seedlings. They will also show Dianthus Mascott, which is a hybrid between the Sweet William Scarlet Beauty and the single carnation. This plant has the scent of a carnation and in habit is similar to a sweet william. The large flowers are borne in trusses and are pink in colour.

Messrs. Keith Luxford and Co. will exhibit perpetual-flowering carnations in many varieties.

Mr. James Douglas is showing his famous cloves and auriculas. The cloves are noted for their dwarf habit, stout stems and perfect calyces. Among the sorts to be shown will be Wonder Clove, Kelso, White Clove, Scarlet Clove, Viceroy and Bookham Belle.

Messrs. Reamsbottom and Co. are exhibiting the popular St. Brigid anemones in many hues.

Lupinus polyphyllus in many varieties will be staged by Mr. G. R. Downer.

Messrs. Jarman and Co. will stage zonal pelargoniums, including their new Edward Hockey, Cedric and Adonis. They will, in addition, show rock violas in many varieties, including Velvet Queen, Golden Spur (yellow), Moonlight (pale lavender) and Heavenly Blue. Centaureas The Bride, The Bridegroom, Bridesmaid and Honeymoon will also form part of this exhibit.

Roses are always in evidence at Chelsea. Messrs. B. R. Cant and Sons will show their new roses, including Lady Roundway (Pern., deep coppery chrome), Phœbe (H.T., cream white), Rev. F. Page-Roberts (H.T., yellow), Mrs. Oakley Fisher (H.T., orange yellow) and Padre (H.T., coppery scarlet).

Messrs. Chaplin Brothers are showing a large group of roses in pots, consisting of tall pillar roses, standards and bush trees. Many new and popular varieties will be exhibited, as well as some of the older and well tried kinds.

Mr. Elisha Hicks will stage, among many of the old and new varieties, such sorts as America, Clovelly, Dorothy Dix, and Double Orleans, also many of the newer ramblers. Altogether, Mr. Hicks will be staging about 1,000 pot roses.

Messrs. Frank Cant and Co. will exhibit several seedling roses, together with well known varieties. This firm will include in their exhibit Capt. F. S. Harvey-Cant (H.T., rich salmon pink veined with scarlet and suffused with yellow), Henry Nevard (H.T., crimson scarlet) and Mrs. Alfred West (H.T., shrimp pink).

Pyrethrums and new hybrid lupins will be staged by Messrs. Kelway and Son. Such varieties as Langport Scarlet, Aphrodite, James Kelway and Agnes Mary Kelway will be shown. These plants are absolutely hardy, and invaluable for cutting purposes.

Messrs. Kelway's hybrid lupins are the result of crosses of L. polyphyllus with L. arboreus. These plants are wonderfully fragrant.

WEBB'S EXHIBITION GLOXINIA.

From the Orpington Nurseries will come a large number of flowering shrubs, consisting of rhododendrons, azaleas, acers, cytisuses, etc. They also hope to stage an exhibit of irises. It is rather doubtful whether irises will be numerous this year owing to the unfavourable weather experienced in this country of late.

Rock plants are always popular at Chelsea. Messrs. Maxwell and Beale will show Primulas Bulleyana, Aileen Aroon and luteola. Other noteworthy plants will include Dryas Sundermanii, Saxifraga cochlearis lingulata, S. bronchialis and their new S. hybrida Esther (S. cochlearis lingulata × S. Aizoon lutea). This plant has the habit of the former and the colour of the latter, and it is very free flowering.

Dr. Macwatt is exhibiting many new and rare primulas, such as PP. anisodora, cyanantha, chrysopa and the excellent hybrid, Linda Pope. Dr. Macwatt also hopes to stage alpine, show and double auriculas.

Messrs. Storrie and Storrie will show long-spurred columbines, auriculas, cowslips and polyanthuses in colour groups. They will also exhibit their Excelsior Iceland Poppies in new shades.

Messrs. William Cutbush and Son, Limited, are putting up a large group of roses, comprising polyanthas, ramblers grown as tall bushes and standard weepers. The principal sorts will be Orange King (new), Salmon Queen, Baby Faraulx, Girlie, Mrs. Cutbush and Orleans. In close proximity to the roses will be a group of flowering plants mainly composed of hydrangeas.

Outside in the grounds Messrs. Cutbush will have an exhibit of choice rock plants, including shrubs and ferns suitable for the rock garden. They will also have an extensive exhibit of clipped trees, including bays.

A FINE HOUSEFUL OF SCHIZANTHUS (MESSRS. SUTTON'S STRAIN).

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Strawberries growing in pots as well as gathered fruit will be staged by Messrs. Laxton Brothers. In their exhibit Messrs. Laxtons will show their new Strawberry Majestic, which is a main-crop variety with large, firm fruits. They will also stage their last year's novelty, Abundance, together with such well known sorts as The Duke, Sir Douglas Haig, Lord Beatty and King George.

Violas of the show, bedding and gracilis types are to be shown by Mr. William Yandell in trays. Among the show varieties will be George MacDonald (primrose), William Barr (white), Annie Hamilton (glossy black, shaded lavender). Bedding varieties will consist of such sorts as Bridal Morn, Mauve Queen, the popular Maggie Mott, Moseley Perfection and Queen of Whites. The gracilis varieties will comprise Leonard Marshall, Purple Robe and Clarence Elliott.

About seventy-five dishes of apples and pears will be exhibited by Messrs. George Bunyard and Co. These fruits have not been kept in cold storage, and no artificial means have been employed to keep this fruit, beyond a thatched fruit store with an earthen floor.

Messrs. Bunyard will also show an exhibit of irises, including many of the newer varieties, such as Ambassadeur, Mme. Gaudichau, Magnifica, Raffet, Vanessa, Viking, Rotuna and the beautiful Hoogiana.

Irises, tulips (including a few novelties) and pyrethrums will be staged by Messrs. R. H. Bath, Limited.

A large group of pot and cut roses will be shown by Messrs. A. J. and C. Allen. The exhibit will have a background consisting of large specimen ramblers of Romeo, Chatillon Rambler and White Dorothy, also standards on rugosa stock of Golden Emblem, Golden Ophelia, etc. The groundwork will comprise polyantha roses, including Reine Elizabeth and Orange King, the latter being a sport from Jessie. The new Wichuraiana Albertini will also be shown. It is dark vermilion in bud, opening to shaded copper. Mrs. Beckwith, which is a lemon yellow Pernettiana, will be shown in quantity.

Messrs. John Waterer, Sons and Crisp, Limited, will show herbaceous plants, conspicuous among which will be their hybrid lupins, including Mayflower (porcelain and pale blue), Dresden China (soft French grey) and Fascination (rosy violet and lavender).

Irises and delphiniums will also be shown by this firm, besides rhododendrons; among the latter will be the popular Pink Pearl, Alice, Sweet Simplicity, Corona and Diphole Pink.

A formal walled garden will be constructed by Messrs. R. Tucker and Sons, outdoors. This firm will also put up a small rockery in one of the tents and a representative collection of alpines and herbaceous plants will be on view.

Messrs. Pulham and Sons will endeavour to depict a piece of old Westmorland scenery. Westmorland water-worn limestone will be employed, and a streamlet will run from the highest point over a miniature fall, finally discharging into a small pool in the lowest part.

Features of the exhibit are to be turf glades with outcrops of stone in the foreground. The background of the exhibit will comprise various evergreen and flowering shrubs, and the rocks will be clothed in the crevices and pockets with alpines and shrubs.

Messrs. Pulham will also have in one of the tents an exhibit of rock plants and shrubs.

Irises, lilies, rhododendrons, azaleas and Japanese maples are to be shown by Messrs. Wallace and Co. Among the irises will be the new Pioneer (a red purple), Duke of Bedford, Citronella, Bruno and many older forms. Among the lilies the Backhouse hybrids promise to be conspicuous.

May-flowering tulips in great variety will be shown by Messrs. Barr and Sons. This firm will also have a very representative exhibit of herbaceous plants, rock and alpine plants.

A small sunken formal garden, constructed of Yorkshire stone and planted with alpine plants and flowering shrubs, will be exhibited by Messrs. Kent and Brydon.

Mr. J. C. Allgrove will show flowering shrubs, herbaceous and alpine plants in great variety.

A large collection of hydrangeas is to be shown by Mr. H. J. Jones.

Alpines and dwarf shrubs will be exhibited by Messrs. Bowell and Skarratt.

Fruit trees in pots will be exhibited by Messrs. Rivers and Son. These will comprise peaches and nectarines.

Pot-grown dahlias and a large selection of violas and alpines will be shown by Messrs. Carter Page and Co.

East Lothian stocks, auriculas, pansies and dahlias will be exhibited by Messrs. John Forbes and Co.

Himalayan and other rhododendrons, new and rare shrubs and giant poppy anemones will be exhibited by Messrs. R. Gill and Son.

A FIELD OF MR. DOWNER'S HYBRID LUPINS.

A vast collection of orchids, including innumerable odontoglossums, odontiodas, cymbidiums, cattleyas and læliocattleyas will be shown by Messrs. Charlesworth and Co. Messrs. Cypher and Sons will also show orchids.

Messrs. Gaze, of Kingston-on-Thames, are exhibiting a garden planned on original and distinctly formal lines investing it with an attractiveness peculiarly its own. A pool in a sunken section of the garden is to be a feature and will be surrounded by a floral terrace. On one side the garden is to be enclosed by yew hedges. Entered through a flower walk with a path of stepping stones, at the extreme end will be seen an old iron gate set between stone piers, and the whole should form a garden of unusual beauty combined with a restful simplicity.

A formal garden will be arranged by Messrs. J. Cheal and Sons. At one end a kitchen garden is to be constructed, in which trained fruit trees will be placed. This will, of course, be screened from the other part of the formal garden, which promises to be very attractive. Apart from this garden, Messrs. Cheals are to exhibit dahlias, plants for which they are justly famed. It was this firm who introduced the now very popular Star section. Representative groups of alpines and shrubs will also be shown.

Mr. Wood, of Ashtead, is to construct a rock garden; on tabling in it he will exhibit numerous alpines. Mr. Wood also hopes to exhibit a large batch of Pentstemon Scouleri.

Apart from the floral side there will be an enormous number of horticultural sundries, such as insecticides, ladders, spraying machines, mowing machines, etc.

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NOTES ON PRIMULAS

BY DR. MACWATT.

(*Continued from page 332.*)

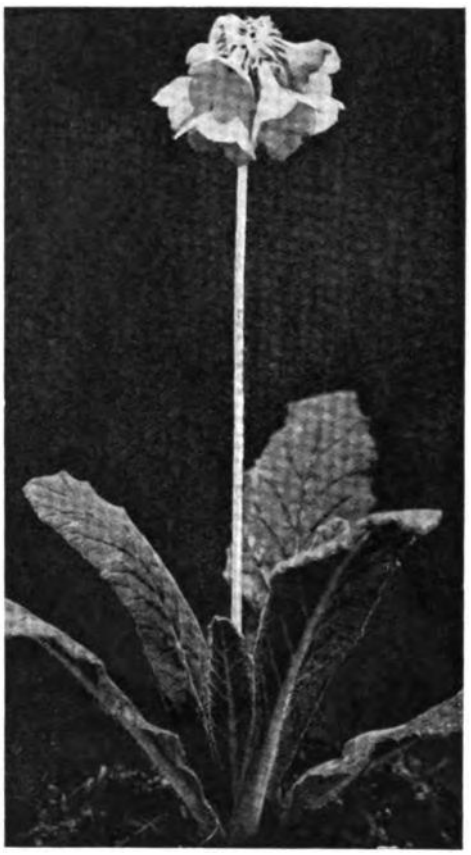
PRIMULA Giraldiana, sent out under the name of P. muscaroides, makes a nice plant with purple flowers in drooping heads. P. conica bears a strong resemblance to it, but has a hairy scape, and flowers that range in colour from lilac to pure white. P. deflexa is a beautiful and fragrant species with flowers of a particularly pleasing shade of blue.

P. pinnatifida, although it comes from the limit of perpetual snow, is not hardy in our climate. It produces, on stems about 6ins. in height fragrant, pendent flowers of a lavender colour. Its foliage is sometimes so much laciniated as to render the plant almost unrecognisable; it is a remarkable fact that it does not display this characteristic in the cultivated state.

P. nutans has large lavender flowers in dense heads on white mealy stems, the flowers being also covered with meal. It is best to grow this variety under glass.

A group of primulas characterised by rounded heads of blue flowers includes PP. capitata, cristata, Mooreana, pseudo-capitata, and sphærocephala. The two last named are natives of China; the others are natives of the Himalaya mountains. PP. pseudo-capitata and sphærocephala while displaying minor differences may be distinguished from the Himalayan forms by their smaller coralla-limb and more globular heads of flowers. Of the group, P. Mooreana is much the best as a garden plant. It has fine foliage, bright green above and covered with white meal on the under surface. P. sphærocephala has rather larger flowers than its sister species, P. pseudo-capitata.

P. rupicola.—I had the pleasure of exhibiting this fine primula at Chelsea in 1923, when it was greatly admired by everyone and a good illustration of it appeared in THE GARDEN the same year. Its native place in Yunnan, where it grows at an altitude of 12,000ft. on boulders and stony pastures. It grows from 3ins. to 8ins. in height and its colour has been described as rose with a yellow eye, but the plant which I exhibited and which, unfortunately, I have since lost had very beautiful mauve flowers. It is one of the extremely mealy primulas. This very fine species is, unhappily, not in commerce.



PRIMULA NUTANS, IDEAL FOR THE ALPINE HOUSE.

P. pseudo-sikkimensis is the Chinese dwarf limestone form of the well known Himalayan primula, P. sikkimensis. It bears fine yellow drooping flowers with a white centre. P. flexilipes may be described as a miniature sikkimensis and may therefore be of value to those who prefer a smaller plant. Its leaves are short, almost rounded, while the leaves of sikkimensis are winged practically to the base.

P. pulchella was introduced from Western China and sent out by Messrs. Bees in 1911. It has denticulated, leathery leaves 4ins. to 6ins. long covered with golden meal below. The flower stem carries a truss of six or more large beautiful deep blue flowers. It is a superior plant in every way to P. pulchelloides, introduced in the same year and from the same district, and which has smaller leaves and flowers which are more lilac than blue.

P. chionantha.—While the two varieties just described are difficult to keep in this country, we have in P. chionantha a species which promises to become quite a popular garden plant. I have seen it growing and flowering in great perfection on the open rockery of Miss Brown at Longformacus in one of the coldest of situations in the Lammermoors. It bears stout stems from 12ins. to 20ins. in height, on which are carried whorls of lovely fragrant ivory-white flowers, each about 1in. across.

P. sino-purpurea, a native of Yunnan, where it was found by Forrest growing at an altitude of 12,000ft., is another very fine species. It has large dark green leaves coated beneath with yellow meal, as is the flower stem, which may attain the height of 18ins. to 20ins. The flowers are rosy-purple with a grey eye, and about 1in. across, and as they are produced in large trusses, the plant when in bloom has a most striking appearance.

P. Maximowiczii.—The flowers of this North China species are small and of a brownish-red colour, and it cannot be said to be a particularly attractive plant. Moreover, it has the disadvantage of requiring to be grown under protection.

P. vincæflora.—I have had the pleasure of exhibiting this species at Chelsea on several occasions. It is distinguished by the possession of one solitary flower carried directed obliquely downward on a stout scape which gradually lengthens till it becomes double its original length. The flower is violet with a deeply tinted eye and stamens with long filaments.

P. membranifolia and P. yunnanensis much resemble each other, but the leaves of the latter are smaller and more finely cut. Both are said to be delightfully fragrant in a state of nature, but in cultivation I found no trace of this. Both produce flowers of a pleasing shade of lilac-purple with a white eye, in small umbels. The flowers of P. membranifolia are quite small when they open, but gradually enlarge until they almost double their size.

P. glycosma.—This primula is much like P. Poisonii and is strongly scented of aniseed. It is only moderately hardy. The flowers are crimson with a golden eye.

P. helodoxa.—One of the best of recent introductions. Much of the plant is covered with golden farina and its stately scapes attain the height of from 2ft. to 3ft. The flowers which are produced in whorls are sulphur yellow in colour and pendent. It bears a strong resemblance to P. Smithiana, a Himalayan species, but in some ways is quite distinct. P. Smithiana is a smaller plant. In P. helodoxa the calyx is more reflexed, the corolla much longer and the flowers of a deeper yellow. The young flowers of P. Smithiana are deeply tinged green, a feature absent in P. helodoxa.

P. chungensis is closely related to P. Cockburniana and P. Bulleyana, two very well known primulas. It produces whorls of beautiful deep orange-yellow flowers which are sweetly scented. It has been called a yellow Cockburniana on account of the resemblance of its foliage to that plant, and many of the plants sent out under the designation of P. chungensis are simply P. Cockburniana. I question very much if the genuine plant is in commerce at the present time.

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P. serratifolia.—The coloration of the flowers of this plant is most remarkable, the outside being pale yellow, while the centre has a dark blotch. If an ordinary photograph of the flower is taken, this characteristic is even better seen, as the dark patch shows up like a black band.

P. anisidora, as the name implies, has a strong odour of aniseed which is emitted by all its parts and is much more pronounced than in the case of P. glycosma. Its flowers are deep plum purple, almost black and have been likened to a brown auricula with a yellow eye.

JAPANESE PRIMULAS.

Eleven species of primula come to us from Japan, or including microforms, fourteen. It is noteworthy that none of these is found in China. We are so accustomed to link China and Japan together that it is difficult for us sometimes to realise that their floras are so completely dissimilar as they are.

At the head of the list must be put P. japonica. This well known garden plant was introduced at least fifty years ago by Mr. William Bull and is so familiar as to require no description here. It is deservedly popular on account of the beautiful colours of many of the garden forms and lends itself readily to naturalisation, making a magnificent show when grouped. The colours range from deep purple to rose-pink and almost to white; but even in the purest whites there is always a coloured ring round the eye.

P. Sieboldii is not quite so hardy as P. japonica, and one is apt to lose it in winter. The cultivated forms range in colour from white to rose and purple.

P. Reinii, possibly introduced to cultivation by the Yokohama Nursery Co., is a good little plant with soft pink flowers which are large for its size. Unfortunately, it is not quite hardy, but can be kept well under protection.

AMERICAN PRIMULAS.

The Western Hemisphere is not rich in primulas. The three American species which are of interest from the gardeners' point of view are P. Parryi, P. Rusbyi and P. suffrutescens.

THE VIOLET COLOURED P. VINCÆFLORA.

The first named is a native of brook-sides in the Rocky mountains. Coming from such an elevation one would anticipate that it would be easy to grow, but most cultivators find that the contrary is the case. Personally, I have it growing in a rose border not exposed to the direct rays of the sun and in good rich soil, where it bears attractive umbels of bright purple flowers on long scapes.

P. Rusbyi.—I find that I cannot grow this plant in the open air, but it succeeds with me plunged in pots among ashes in a cool house. Its flowers are crimson purple nodding to one side, and have a deep, irregular line round the yellow throat of the corolla, while the calyx is prettily striped with white meal.

P. suffrutescens, from the Sierra Nevada, is a sub-shrubby species and fairly hardy in sheltered, well drained places on a rockery. It is quite like a dwarf shrub, with dark foliage and pink flowers. Apparently owing to the way in which its branches rest on the ground they are apt to rot off in the winter. It can be readily raised from seed or propagated by layers or cuttings. In its peculiar habit it is most distinct from any other member of the group.

A USEFUL AND HARDY SPECIES, P. INVOLUCRATA.

HIMALAYAN PRIMULAS.

Returning to the Eastern Hemisphere, we find that the Himalayas yield us quite a few fine species of primulas. One cannot deal with the primulas from this region without mentioning P. Reidii and P. Wattii.

The first named comes from the Western Himalayas and bears beautiful fragrant creamy-white flowers, carried on short mealy stems well above the densely hairy leaves. It is quite a gem, one of the most delightful of primroses, and seeds easily.

P. Wattii is another very fine primula with bright green leaves, bronzy-hued scapes, and clusters of drooping purple flowers. The

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unopened flowers are the same colour as the scapes. The flowers have a broad eye of white meal which is not visible unless looked at from below. It was introduced under the name of P. Gilli. Both this species and the last named are sensitive to our damp climate in winter and I am afraid that P. Wattii at the present time is not in commerce.

P. mollis, a Himalayan primula with small flowers, is chiefly grown for its attractive foliage. Its large lobed heart-shaped leaves have their margins watered, notched and roughly toothed; their soft texture and rich green ribs densely covered with hairs give the plant a most striking appearance. The calyx is an intense red colour; the corola is rose.

P. Menziesiana keeps green the memory of a member of the staff of the Royal Botanic Gardens, Edinburgh, who fell in the Great War. It is found in sandy crevices and rocky ledges in Bhutan. It has hairy leaves and light blue, sweetly scented flowers and in cultivation will be found to resent surface moisture in winter.

Mention may also be made of P. burmanica, which as its name indicates. is a native of Burmah, where it was collected by Mr. Kingdon Ward. Its flowers are reddish-purple. Coming from a warm climate it can only be expected to be moderately hardy and it is not of much value as a garden plant.

Some members of the section which includes the well known P. involucrata may also be noted. P. involucrata is a most useful and hardy species and where conditions are favourable increases rapidly. It is a native of the Himalayas and bears umbels of white flowers, produced very early in the year. P. Wardii is its West China form, differing principally in the colour of its flowers, which are light mauve. Being quite hardy it is a valuable garden plant. Equally robust, and, indeed difficult to differentiate, is P. sibirica, the flowers of which are rose or bluish.

P. chrysopa resembles the two foregoing in habit, and though quite hardy is seen to most advantage when flowered under glass, as the farina does not then get washed off by rain. Its flowers are of a fine lilac colour and delightfully fragrant.

P. conspersa, discovered by Mr. Purdom in the Chinese province of Kansu and sent out by Messrs. Veitch and Son in 1913, I consider a primula of great merit. It bears whorls of pale lilac flowers on stems about a foot high and seems thoroughly hardy.

P. REIDII WHICH BEARS BEAUTIFUL FRAGRANT CREAMY WHITE FLOWERS.

THE HARDINESS OF SHRUBS

SO many doubts have of late been cast on the hardiness of some of the flowering shrubs introduced in recent years that the results after the past winter may be of some interest.

Although not so severe as the winters of some record years, the past six months have been remarkable for the continuity of the cold weather. There have been no periods of genial warmth, and in this part of the country we had in the early part of this year as many as forty-two nights during which frost of 5° to over 20° was registered. In some respects this continuity of frost was an advantage, the plants showing no inclination to start into early growth, as often happens after a longish spell of mild weather. Another advantage during the past winter was the absence of rain during the cold weather; the plants therefore did not have to suffer from ice on their stems and foliage. On the other hand, the winds were very cold, mostly from the north or east and often very strong. These gardens have important advantages in the shape of high walls and a light soil. Many plants which survived would probably have been killed if they had been grown in the open and been exposed to the full wind. Although most of the plants mentioned below were quite young and had not yet had an opportunity of making much hard wood, they were all carefully planted in prepared leaf-mould and sand. I am a great believer in this compost for young plants, and find that they make many more fibrous roots in it and are thus much more resistant than when planted in ordinary soil.

Among the older shrubs Choisya ternata on east as well as on west walls was hardly touched, only the tips of some of the youngest growths being killed. Escallonia montevidensis on a south wall lost many leaves, but the plant is quite sound. Buddleia Colvilei is uninjured, but Ceanothus rigidus, very small, on a west wall has been killed. On the other hand, Acacia dealbata on the same wall, only protected by a little straw on the main stems, is practically uninjured and has even had a few flowers; this plant is a seedling of my own, three years old and 14ft. high. Acacia Baileyana on an east wall, also three years old, was killed outright, as was Grevillea rosmarinifolia on a south wall, while its neighbour, Grevillea sulphurea, shows no sign of injury. The other losses on the same south wall were Jasminum primulinum and Fremontia californica, both of which continued to grow (and the latter to flower) till the frosts killed the youngest shoots and eventually the whole plant. In the open I lost Correa alba, Olearia Gunniana, Veronica Balfouriana, and on a south wall Pittosporum Tobira. The following among the less hardy were untouched. In the open:

Eucryphia cordifolia
Corokia buddleioides
Corokia virgata
Corokia Cotoneaster
Coriaria japonica
Notospartium Carmichaeliæ
Olearia nummularifolia
Olearia nitida
Olearia myrsinoides Erubescens
Magnolia Wilsonii
Helichrysum antennarium
Veronica epacridea
VV. Colensoi, monticola, Godefroyæ and glaucescens
Viburnum Davidii
Viburnum propinquum
Raphiolepsis ovata and R. japonica
Caryopteris tangutica

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Caryopteris Mastacanthus
Indigofera decora alba
Halesia tetraptera.
Ceratostigma Griffithii, cut to the ground but growing again from the base.

The following on a south wall came through the winter practically uninjured :

Indigofera Gerardiana
Indigofera Potanii
Lonicera etrusca superba
Punica Granatum fl. pl.
Carpenteria californica
Escallonia organensis
Sophora tetraptera
Lippia chamædryfolia
Billardiera longifolia
Styrax Wilsonii
Cæsalpinia japonica
Hoheria populnea lanceolata
Akebia quinata fl. pl.
Coronilla glauca
Leptospermum scoparium Nicholii

Dendromecon rigidum, however, lost its shoots, although the plant is alive and is beginning to show new growths from the base. On an east wall Tricuspidaria dependens is untouched, and T. lanceolata has had a few of its growths killed, while Desfontainea spinosa and Lomatia ferruginea look as healthy and strong as ever.

Some of my older shrubs, such as Dipelta floribunda, Exochorda Giraldii and E. Alberti on a west wall are really quite hardy and need no protection. Anyhow, the two former show flowers on nearly every shoot and should be a fine sight within the next fortnight.

On balance, I consider that most of the shrubs have passed through the ordeal very satisfactorily and much better than I expected at one time. If the plants had been older I think that the losses would have been even less, but last summer was very cold till July and the new growths had not really ripened before the frosts came early in November.

Herts. ALBERT PAM.

FRUIT CULTIVATION IN SCOTLAND

THERE is no doubt that gardeners in the past—say up to a quarter of a century ago—were past-masters in the art of training fruit trees. We of the younger generation should therefore study with steady eye the beautifully trained trees, especially pears, the branches of which are placed almost with perfect precision at regular distances apart, both in horizontal and fan-trained fashion, on the high brick walls which enclose many of the fine old gardens of our honoured country's lairds. I feel delighted not only at having seen such fine old trained trees, but also in having had the privilege to have worked in gardens where such trees were grown. We might hear a murmur among the present generation of horticulturists that such training of trees now is out of date. That may be so, but let us give honour to the past—and older—members of our craft for the firm foundations they have left us to build upon.

By planting cordon trees to clothe the walls we might be termed up to date, and no doubt there is a great deal to be said in favour of such a practice. The benefits to be had in planting cordons are many. The walls can be clad in less time, with a greater number of varieties—which if judiciously chosen is rather to be commended—as observant practical and scientific men tell us that certain varieties of fruit trees are self-sterile with their own pollen, while others are self-fertile. It is obvious therefore if we grow a fair number of varieties we shall get fruit crops, provided other conditions are favourable.

In an apple flower there are from fifteen to nineteen stamens and five styles, and from one to three anthers are ready to shed pollen at the same time. I once applied pollen of Irish Peach—given as a self-fertile variety—to a James Grieve flower. Fertilisation seemed to have been successful, as the embryo fruit did swell between May 27th—the date of pollination—and June 10th, a period of fourteen days, but afterwards the tiny fruit fell off.

It is said that "apples can be grown upon soil capable of producing agricultural crops, and if the situation is under 300ft. above sea level with full exposure to the sun the prospects of success would be assured."

In my experience I have seen good crops of fine-sized fruits produced on apple and pear trees, and on all small fruits, growing on a situation well over 500ft. above sea level. The soil was of a heavy nature overlying a cold boulder clay, and the situation somewhat exposed.

The old standard apple and pear trees —somewhere I should say between thirty and fifty years old—bore heavy crops of fruit. Lamb Abbey Pearmain was one of the apple trees. This variety is mentioned by the famous McIntosh, at one time gardener at Dalkeith Palace, in his "Practical Gardener," published over eighty years ago. He states that it originated in this country from a seed of Newton Pippin. Cockle Pippin was another of the trees which produced large numbers of medium-sized nicely coloured apples. This variety is also mentioned by McIntosh. The small fruit plantations contained mostly all old plants, which did well, and especially the black currant bushes—over thirty years old. They produced large crops of fine fruit.

The three year old strawberry plants of Royal Sovereign gave a good crop, and fruits were ready for picking on July 8th, and the variety Keen's Seedling produced large berries, which were ready for pulling ten days later. Raspberries did not grow tall or produce robust canes, but they fruited well. The following varieties of apples grown and trained to the west wall fruited splendidly : Cox's Orange Pippin, James Grieve, Stamford Pippin, Winter Peach and Yellow Ingestre, dessert ; Ecklinville, Loddington Seedling, Lord Grosvenor and Lord Suffield, culinary. On the same wall were a cherry tree which fruited well, and a plum tree which flowered splendidly, but seemed to need an affinity, as only an occasional fruit was produced. There is no doubt that very fine fruits of both culinary and dessert apples are grown in Midlothian.

Colour and flavour must be to a certain extent inherent characters, as one can prove by growing different varieties. Irish Peach, Mr. Gladstone, Winter Peach, Worcester Pearmain, Beauty of Kent and Mère de Ménage take on bright colours, while other varieties are yellowish or some shade of green, and all kinds may be grown, and indeed are grown quite near each other, in the same garden.

However, if Worcester Pearmain is grown in heavy soil and on grassland and in a partially shaded situation over 500ft. above sea level, it certainly lacks the nice red colour and does not seem to have quite the same flavour as those grown in a sunny aspect and in better soil.

In this garden, which is several miles nearer the east coast and situated somewhere between 300ft. and 400ft. above sea level, apples, apricots, cherries, pears, plums and all small fruits do well.

The soil is medium heavy overlying clay. Pear trees on the walls, both cordon and other trained forms, produce good crops. Beurré d'Amanlis, Doyenne Bussock, Dr. Jules Guyot, Jargonelle, Louise Bonne of Jersey, Pitmaston Duchess and Williams' Bon Chrétien are among the free-bearing varieties. Strawberries I find do splendidly for two and three years. One year old plants produce the largest fruits, and from them as a rule we pick the first ripe fruit. In 1921 the first ripe fruits were picked on June 27th. In 1922 not until July 10th, while last year none was ready for picking until July 20th, which is only a few days behind the first picking in 1920.

Our one year old plants did not prove so successful last year as in the two previous years mentioned, *e.g.*, 1921 and 1922, and we had to rely on the two and three year old plantations, which were white with flowers on June 14th. The variety on which these observations were made is called Cropper.

It may interest readers to know about our cultural details. Early in July we select and sever from the plantations the runners we require. These are set out in lines fairly close together in a cold frame and receive a thorough good watering. The frame is kept closed and the runners occasionally sprayed and kept shaded from bright sunshine for two or three weeks. After that time they are gradually aired until they are fairly hardened, then we remove the lights entirely. About the end of August the young plants are taken from the frame and set out in the open ground.

Midlothian. DAVID ARMSTRONG.

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THE PRE-CHELSEA SHOW

THERE was a slight feeling of uncertainty at the Fortnightly Show of the Royal Horticultural Society at Vincent Square held on May 13th and 14th. What with bad weather behind them and Chelsea in front of them, it is surprising that the exhibits were so good. After all in this most uncertain year a great deal of ingenuity has had to be exercised in order to make flowering time coincide with the shows, and with a constant eye on Chelsea it must have been extraordinarily difficult to arrange good exhibits at this fortnightly meeting. Although the stands were as bright as usual, there was a slight monotony about the exhibits.

There was one exception and that was the magnificent exhibit of Hippeastrums shown by Sir George Holford, which well deserved the gold medal presented by the Society. There are no flowers which give such rich shades of crimson and vermilions. The size of the flowers shown can be judged from the accompanying illustration and their cultivation in this instance is beyond all praise. It does infinite credit to Sir George Holford and his gardener, Mr. Clark. The most notable strains among them were the crimsons and vermilions and we noticed particularly Macbeth, vermilion-scarlet; Dick Turpin, scarlet, with a peculiar satin sheen; Brian Boru, brilliant scarlet; Cardinal Buton, Couleur Cardinal, and so on. The whites were also excellent, but it is a pity that it is so difficult to get away from the diffused green around the throat.

The Hon. Vicary Gibbs had a most enticing exhibit of Gardenia floribunda and the shapely bushes were a great credit to Mr. Beckett. The bushes were symmetrical and filled with buds. This old favourite is not so often seen as it might be, for few flowers have such a scent or perfection of form as a well grown gardenia.

A WELL FLOWERED PLANT OF PHLOX DOUGLASI.

Another attractive exhibit was that of Mr. William Yandell's violas. These were exceptionally well shown, among them being such favourites as Moseley Perfection, bright yellow; W. H. Woodgate, blue-grey; and Admiration, purple. They all showed purity of strain and are invaluable plants for summer borders. Admiration is a great favourite for planting in beds containing white or yellow roses.

Messrs. Bunyard had some excellent vases of Regelio-Cyclus irises on their stand. We are told that these were cut from plants whose bulbs had not been lifted for four years, so it appears that in some soils lifting is not a necessity. The two best of this form of iris are undoubtedly Osiris and its darker form, Isis.

Messrs. Stuart Low Company. showed perpetual-flowering carnations, acacias and their new rose, Roselandia, which is a yellow sport from Golden Ophelia.

Perpetual-flowering carnations and Dianthus Allwoodii were exhibited by Messrs. Allwood Bros. Mr. Englemann also showed perpetual-flowering carnations.

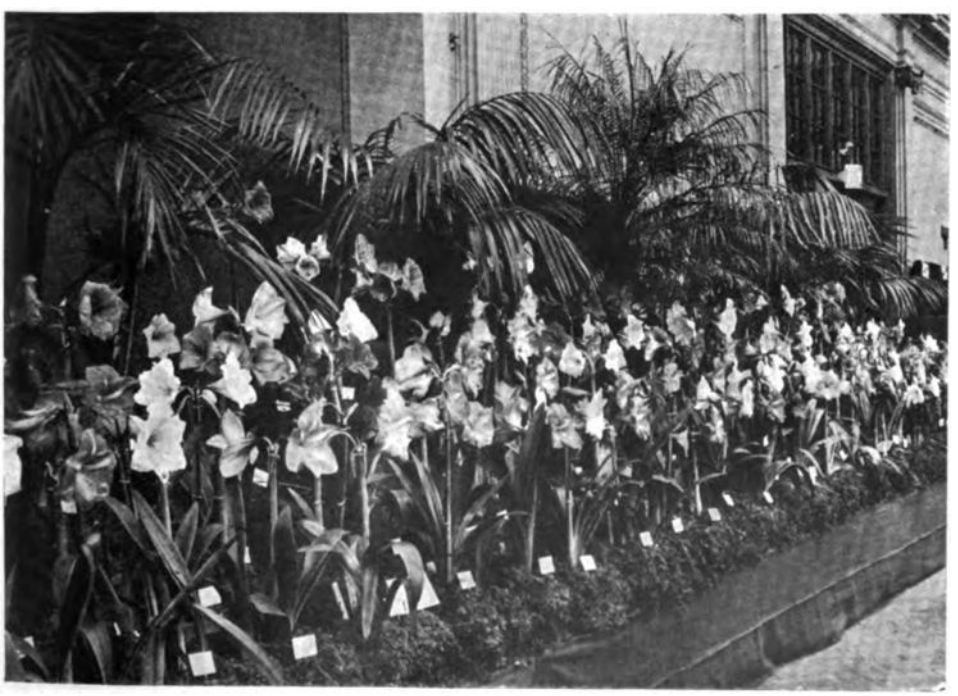
Alpines were numerous and Mr. Clarence Elliott included in his exhibit a brilliant patch of Gentiana Gentianella and a good pan of that little gem Androsace arachnoidea. Messrs. Gavin Jones and Ingwersen also had a good lot of the Gentianella.

Alpines, dahlias and flowering shrubs were staged by Messrs. J. Cheal and Sons, Messrs. Skelton and Kirby, Messrs. Maxwell and Beale and Messrs. Bunyard and Co.

Messrs. Carter Page and Co., Messrs. R. Tucker and Sons, Messrs. Prichard and Co. of Dorset, Messrs. Bakers, Mr. F. G. Wood, Messrs. Waterer Sons and Crisp, Limited, and Mr. Maurice Prichard all showed alpines.

Besides alpines Messrs. Waterer, Son and Crisp showed Strawberries Royal Sovereign and The Duke, also rhododendrons.

Roses were exhibited by several firms and Messrs. Laxton Bros. showed their



PART OF SIR GEORGE HOLFORD'S WONDERFUL EXHIBIT OF HIPPEASTRUMS.

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new rose Laxton's Bedford, which is a fragrant crimson hybrid tea.

Messrs. B. Cant, Messrs. F. Cant, the Rev. Pemberton and Messrs. Silvester also showed roses.

Mr. Douglas again showed his fine auriculas and Messrs. Reamsbottom and Co. their St. Brigid anemones.

Daffodils, including many seedlings, were shown by Messrs. Barr and Sons and Messrs. J. R. Pearson and Sons. In addition to daffodils Messrs. Barrs staged Cottage, Darwin and Rembrandt tulips. Besides tulips, Messrs. R. H. Bath staged violas.

Gold-laced polyanthuses and the vivid Muscari Heavenly Blue were exhibited by Mr. G. A. Miller. Messrs. J. A. H. Crook brought some seedling polyanthuses.

Flowering shrubs were shown by Mr. R. C. Notcutt. In Messrs. Russell and Co.'s exhibit Rhododendron fragrantissima was prominent. Azaleas and conifers were exhibited by Messrs. R. and G. Cuthbert.

Kalmia latifolia was conspicuous on Mr. Whitelegg's exhibit, and also some charming seedling Kurume azaleas. It seems a pity, however, that these have been christened. The Japanese raisers are accustomed to name every tiny variety in form and shade and if this plan is to be continued in England, it will only complicate the issue by multiplicity of names.

Sprays of flowering shrubs were to be seen on Mr. Chas. Turner's stand. While Mr. G. Reuthe showed azaleas, rhododendrons and alpines.

Mr. E. H. Watson of Mill Hill had an interesting exhibit of calceolarias, and a pretty little unnamed schizanthus.

From the Mental Hospital, Napsbury, came a bright display of miscellaneous plants. There were such plants as carnations, calceolarias Campanula persicifolia and its white variety, pelargoniums and Saxifraga pyramidalis.

A few hybrid echiums were shown by Lady Rayleigh.

NEW AND RARE PLANTS.

DAPHNE RUPESTRIS GRANDIFLORA.—A small evergreen shrub. It is a fine, well flowered form of a somewhat rare plant. Flowers rich pink. First-class certificate. Shown by Messrs. R. Tucker and Sons.

GEUM REPTANS, KESTON TYPE.—A brilliant little plant with large golden flowers. The foliage appears smaller than we are accustomed to. Award of merit. Shown by Mr. G. Reuthe.

IRIS TURKOMAN.—The general colour effect of this is a rosy purple, but on closer inspection blue tones manifest themselves and the whole flower is iridescent. First-class certificate. Shown by Mr. W. R. Dykes.

CERASUS SERRULATA OJOCHIN.—A blush white form of good substance, very free-flowering. Award of merit. Shown by Mr. R. C. Notcutt.

PRIMULA HYBRIDA LADY THURSBY.—A rich salmon pink form. From our observation it shows no evidence of being a cross. In appearance it looks to be a good pink form of P. pulverulenta. Award of merit. Shown by Mr. G. H. Dalrymple.

PYRUS WISLEY CRAB.—A bright rose form, apparently of very free flowering character. Award of merit. Shown by The Director of R.H.S. Gardens, Wisley.

ORCHIDS

LÆLIO-CATTLEYA IMPERATRIX REGINA. First-class certificate. Shown by Sir George Holford.

The only group of orchids was that staged by Messrs. Stuart Low Company. This contained many odontoglossums, odontiodas, cattleyas, lælio-cattleyas and brasso-cattleyas. Orchids are always a great feature at Chelsea, and no doubt other growers kept their plants back for this forthcoming great Show.

TWO MECONOPSIS

BY R. L. HARROW.

MECONOPSIS latifolia, perhaps more generally known as M. sinciata latifolia, the Kashmir poppy, is deservedly one of the most popular of this genus, and at the same time among the easiest to cultivate. When seen at its best, with stems 2ft. or more in height, bearing numerous flowers of a light Cambridge blue colour which continue to expand over a long period, it is certainly one of the most interesting and admired plants for the rockery or an open position in the wild garden. At Edinburgh, this species reproduces itself naturally and seedlings appear in late autumn in large numbers, often in what might be considered unlikely places, such as in gravel paths. Some strong plants have lately flowered in company with Eryngium prostratum, with a background of Cistus formosus. To secure a good crop of seedlings the ground round about them should not be disturbed, as they apparently germinate best on a firm surface. When sowing the seeds in boxes or pans this should be deferred until early spring, sowing on the surface and scattering a little sand over them, but not sufficient entirely to cover them. A rich soil should be used, in frames or boxes, for pricking the seedlings into when large enough to handle. Transplant the young plants, when nice crowns of leaves are produced, into their permanent positions early enough for them to become established before frosts occur.

THE KASHMIR POPPY, MECONOPSIS LATIFOLIA.

Unlike the Sikkim poppy, this species persists for more than one flowering season, forming thick, fleshy roots an inch or so in diameter, and if a layer of thoroughly rotted manure is placed well beneath the plants when they are planted in their permanent positions a moist subsoil is formed into which these roots delight to penetrate.

Meconopsis simplicifolia Bailey's form is really monocarpic, and a yearly sowing must be made to ensure an annual supply of flowering plants. If this trouble is taken it will amply repay by the beauty of the petals of the flowers, which are borne singly on pedicels about 1ft. to 18ins. in height. They are of the most exquisite blue, especially on the back surface of the petals, the flowers are 2ins. or more across, and a good group is always admired. The foliage and habit suggest the fine yellow relative M. integrifolia in its density, but the foliage shorter and more recurved, with brownish hairs. Colonel Bailey collected this form some years ago on the Tibetan frontiers. The cultivation is very similar to that required by M. latifolia, but the colour is better maintained in a rather more shaded aspect.

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NOTES FROM CONTRIBUTORS

THE HERBACEOUS CALCEOLARIA.

THE herbaceous calceolaria is a flower universally beloved. It would be difficult to imagine a flower of greater merit for greenhouse display. The problem of cultivation is not difficult to solve. There are leading principles, of course, and I wish to express them briefly in these notes. The seed may be sown during the last week in May or the first half of June. A cool greenhouse will afford amiable conditions for germination. Seed-pans or boxes should be well drained and filled to within an inch of the rim with a compost consisting of two parts loam, one part leaf-mould and one part sand. The compost should be passed through a ¼in. sieve to give it the requisite degree of fineness. As soon as the seedlings can be safely handled they will benefit by being pricked out into boxes filled with a similar soil mixture. If the seedlings are partially shaded and given cool and moist conditions, they will soon be ready for removal into clean thumb pots. The above compost, with the addition of half a part of partially decayed cow manure, will prove suitable, I believe in rather firm potting, because it induces a sturdy growth. Syringing morning and evening will now help the plants to show healthy progress, and every gardener knows the importance of scrupulous care in watering. Removal into 5in. pots will soon be necessary; it should, by all means, take place before pot-bound conditions obtain. A somewhat richer medium should be used at this stage. Experience has taught me that the following is very satisfactory: Three parts loam, one part leaf-mould, one part of cow manure and one part of sand. When the shock of repotting is over the plants may be transferred to a cold frame with an ash foundation. Each specimen should have the growing point removed while in the frame, to induce a branching habit. When the danger of autumn frosts appears the time has arrived to remove the calceolarias to a shelf in a cool light greenhouse. Here they may remain throughout the winter. Only sufficient water should be given to keep the leaves turgid, and decaying leaves should be removed. The growing weather of March will herald the time of final potting into 7in. or 8in. pots. The compost used at the previous operation will be found suitable if enriched by the addition of a 5in. pot of bone-meal to the barrowful of soil. It is advisable to shade the plants from bright spring sunshine, or the leaves will scorch. When the growths are unable to support themselves, neat bamboo canes may be inserted. I find that herbaceous calceolarias derive much benefit from feeding when their roots reach the final pot sides. Diluted farmyard manure water is the stimulant preferred, and it is given twice a week until colour can be seen in the flowers. There are many strains of this beautiful plant.—GEO. H. COPLEY.

GLADIOLI AT THE SHOWS, 1924.

IT would seem from the schedules of the shows which have reached me that the gladiolus will receive a lift up this summer. In the first schedule (Northampton) in order of date (August 6th) there are two classes for local growers only; but at the Shropshire Society's show (August 20th) there is an open class the prizes for which are £7, £5 and £3, and also a class for cottagers and allotment holders. The floral fête to be held at Southport on August 27th and the two following days should prove to be *the* gladiolus show of the year. Here the gladioli are separated into classes for primulinus only and large-flowered varieties only. The post of honour is given to the Primulinus section, for the first prize is a silver challenge trophy, value £25, and £12, with a second of £10 and a third of £8, the flowers to be arranged for effect on staging in a space 30ft. by 4ft. In another Primulinus class the flowers are to be arranged on staging in a space of 6ft. by 4ft. to show suitability for decorative purposes, the prizes being £3, £2 and £1. This ought to prove an attractive class. Another class (15) is no doubt set for the purpose of showing the garden value of the large-flowered section, as the collection is to be arranged on a ground space of 100 sq. ft., no part to be higher than 7ft. from the ground. Here, again, the prizes are generous, being £10, £6 and £3. The gladiolus may also figure in other classes of both mixed pot and cut flowers, where the prizes are in two cases £20, £15 and £10. There are also classes for the amateur, both for primulinus and large-flowering varieties. Altogether there are seven classes for gladioli alone, the value of the prizes being no less than £67 4s. 6d.

At the Glasgow Show on September 2nd the classes for gladioli have been divided and increased in number. Here also the prizes are on the generous side.

The end of the season will come with the competition for the Foremarke Cup at the Royal Horticultural Society's meeting on September 9th.

As I was about to close this note I received a copy of the schedule of the Canadian Gladiolus Society's third annual exhibition, to be held on August 20th and 21st. It contains over 140 classes!—SMILAX.

CORRESPONDENCE

THE PROPAGATION OF CHOISYA TERNATA.

YOUR correspondent, Mr. H. Stewart Wacher (see page 309), has experienced what has occurred to many when attempting to propagate Choisya ternata and other fleshy evergreen shrubs; the more remarkable thing is that such cuttings do not always behave in this way even when they are expected to do so.

I have on several occasions had Choisya ternata and also skimmias remain perfectly fresh and green for over two years, but, as my patience or the need of the pots for something else could not hold out for a longer period, I am not able to answer the question of how long the cuttings will remain alive in that unrooted state. Sometimes, when the callus is injured either in the process of turning the pot out for examination or by deliberately doing so with a knife, roots may be induced to form by a second attempt by the callus.

From experience, I am inclined to think that the reason for this remarkable behaviour of some types of cuttings is partly due to (*a*) the time of year and condition of growth, and (*b*) the type of cutting selected. If the cuttings are taken early in the growing season, such as in May, the wood is scarcely developed enough to form a set of roots, although it may have enough energy to form a callus; this callus in time gets hard and is unable to send out roots at a later period. Growth of the types of shrubs under notice is comparatively slow, and therefore the cuttings cannot be treated as a soft-wooded growth—such as fuchsias, for example—unless, of course, some special method, such as a plunging bed in a propagating case, is employed. If the cuttings are carefully selected so as to be only 3ins. long and slipped out with a heel—which, by the way, need not be dressed with a knife—there is a smaller and more natural wound to be healed, and the energy of the cutting can be given almost entirely to root formation instead of a large callus. If the cuttings are taken later in the season, and carefully selected, rooting may be surprisingly rapid, as it may, in other circumstances, be remarkably slow. This I have proved in the case of Choisya ternata.

Last July we had cuttings of skimmias given us; fairly large branches were sent, but by good luck these were terminated by a bunch of small shoots, generally three or four arising from about the same level at the terminal point. These shoots were merely stripped off, no other preparation given, and the cuttings inserted in ordinary soil in 5in. pots; the latter afterwards were plunged in the soil of a cold frame along with other cuttings. In March, these cuttings, well rooted, were planted out in the nursery and are growing well.

Similar treatment was given to the common and small-leaved types of myrtle with equally good results. We had similar good fortune with the Choisya two years ago.

There is a great deal of pleasure and satisfaction to be derived from propagating one's own shrubs and all good gardeners soon learn the way to solicit the offer of cuttings from a neighbour. As a general tip to amateur propagators, the best time to take cuttings of shrubs is when they are offered you, but ask to be allowed to select the cuttings yourself. Select short sturdy shoots which can be inserted without too much use of the knife. If a heel can be obtained, so much the better. Such cuttings can generally be found low down, at the back or even in the centre of the bush. Vigorous growing tips should be avoided, if possible.

I have seen cottagers root cuttings of the lemon-scented verbena (aloysia) as easily as one would pentstemons, by merely sticking them in their garden; while I have also seen noted gardeners driven almost to desperation in their attempts to produce the same result. It is probably all a matter of selection of the cuttings, although both parties may not be aware of that.—A. D. TURNER, *Bridgwater, Somerset*.

THE EARLY-FLOWERING CHRYSANTHEMUMS

I READ with interest the article on early-flowering chrysanthemums by your able correspondent, Mr. Norman Lambert, and trust that the remarks made by him will widen the interest in these deservedly popular flowers. I find that articles such as that referred to do a lot of good by reason of the fact that they draw the attention of the gardening public to the newer and better varieties. I must confess to disappointment at finding that Mr. Lambert only makes a short reference to singles. During the last few years this nursery and many others have raised many splendid varieties, and I am confident that they have only to be more widely known to have the appreciation they deserve. They certainly are unsurpassed f-

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table decoration and suffer much less in a rainy season. They can be had in a great variety of colours and do not need disbudding. —A. S. (*Sydenham's Gayborder Nursery*).

PLANTS WITH LEGENDS.

ALTHOUGH it is rather late in the day, I should like to call the attention of that lady who was planting a garden of legendary flowers, and who asked for advice in the columns of THE GARDEN, to the books written by the Rev. H. Friend, "Flowers and Flower-lore"; Elizabeth Haig, "Floral Symbolism of the Great Masters"; T. F. Thiselton-Dyer, "Folklore of Plants"; and the various books mentioned in the bibliographies therein. Very little has escaped these authors. I am interested in the same way myself, and will be glad if anyone can tell me whether "Paris daisies" were sold in Italy in honour of Queen Margarita, as roses are on Alexandra Day, and, if so, for what purpose? I understand that Alexandra Day was patterned after the Italian *fête* on St. Margharita's Day. I am also curious to know whether the Prime Minister's house, Chequers, was named after mountain ashes growing there? I believe that is one name for the rowan.

I am enclosing some photographs of American shrubs of the littoral which may interest those seeking for something which will stand sea air and drought. One is the beach plum (Prunus maritima), which grows in thickets in arid soil near the Atlantic, spreading itself in low domes most exquisitely adorned in early spring, with countless small snowy blossoms on dark twigs, nearly leafless. In late summer the branches are equally crowded with green and purple small fruit, too thin-fleshed and puckery for eating raw, but very satisfactory for jam. Transplanted into good soil, this beach plum is apt to become a sizeable and shapely tree.

Grouped with the beach plums are the bayberries (Myrica) and groundsel-shrubs. The former are rather massive in effect: rounded clusters of heavy, dark-coloured, aromatic foliage, frequented by orange-and-black myrtle warblers when the fruit is ripe. This fruit consists of myriads of tiny, hard, wrinkled nutlets thickly covered with white wax, clinging to the bases of twig and branch. These bayberries were of economic importance to the early settlers. Jesuits and colonists boiled the fruit by the bushel to get the "tallow," which they made into candles, deliciously fragrant at the moment of their expiring. Laws had to be made to prevent gathering them before they were ripe. The twigs studded with waxy fruits are charming for a winter bouquet, and permanent. The groundsel-shrub rather likes swampy shores. It is Baccharis halimifolia, a composite, throwing up tall stems in a group, plentifully furnished with fleshy, deeply toothed leaves richly green against the yellow sands. It is not very conspicuous until autumn, when every stem is topped by huge paniculate heads, forming pyramids of gleaming white tufts of pappus.

Since writing the above I have been grieved by the very cursory treatment awarded our national fruit, or vegetable, or bread-stuff, whichever you like, which the erudite call maize, but which in America is known simply as "corn." Ruth amid the golden corn is visualised by American youth as a flapper wandering through autumnal fields of rustling, ripening maize with huge stalks towering above her head.

Some wit cruelly said of the early English colonists in New England that—

"First they fell upon their knees
And then upon the aborigines."

However that may have been, they certainly pounced upon the Indian's corn, as they promptly dubbed the golden kernels which the pitying red men offered, sometimes involuntarily, since the half-starved adventurers gathered up the stores hidden in caches wherever they could find them. The Plymouth folk, at least, paid for the corn. They used much of it for seed, being shown by the Indians how to plant, manure with fish, and cultivate this most important crop, which saved these reckless innocents.

Most of the Eastern tribes halted long enough in their nomadic life roughly to clear ground and scratch it with their rude implements so that they could plant the "three sisters," corn, squash and beans. With a delightful economy of labour they made one shallow hole and deposited therein a rotting fish, on top of which were dropped the seeds of the above. The corn would shoot up, carrying the bean-vine, and the squash would scramble about in the warm shade of the heavily foliaged stalks, and all would grow obligingly among the stumps, with but little attention.

To this day we are apt to put in corn as a first hoed crop among the stumps of newly cleared land, and still plant squash and pumpkins in the little mounds around the corn, the golden fruit being disclosed when the corn is shocked. The earth must be banked around the shallowly rooted stalks, for roots spring out at the surface, and besides, one has to brace the stalk against the wind. It is not at all unusual to go out after a squall and find one's entire cornfield lying down in windrows. In the garden one props up the top-heavy stalks; but in the field it somehow rights itself.

But there is corn and corn—a circumstance which your correspondent has overlooked. There is fodder corn, grown in rows to be

MYRICA CERIFERA. THE FRUIT IS COATED WITH WAX.

THE BEACH PLUM. PRUNUS MARITIMA.

cut green for cattle while young and succulent; and there is the field corn of gigantic stature, grown only for the ripened kernels, carried in enormous ears (we do not call them cobs, reserving that term for the hard cylinder on which they sit). When frost nears, these stalks will be cut and leaned together in shocks, ears and all, leaving exposed the golden pumpkins and squash that have been growing in the moist heat and shade below the corn. Later in the autumn, all available men gather about these shocks and devote themselves to ridding the ears—crowded to the tips with the hard, plump, golden kernels—of their withered husks. This is the modern "corn-husking," but there are no more of the cheerful neighbourhood "bees" when man and maid pitched in and turned the laborious and hand-rasping work into a frolic.

"The laws of husking every wight can tell,
And sure no laws he ever keeps so well,
For each red ear a gen'ral kiss he gains,
With each smut ear she smuts the luckless swains,
But when to some sweet maid a prize is cast,
Red as her lips and taper as her waist,
She walks around, and culls one favored beau,
Who leaps, the luscious tribute to bestow."

Later, the huge ears are stripped of their kernels by a corn-shelling machine, for poultry, cattle, and for human food.

Now we come to the vegetable "corn on the cob." Presumably, immature field corn, baked in ashes while still in its enwrapping husks, was first used; but as time has gone on, more and more tenderness and sweetness have been demanded, so that there are all kinds of "sweet corn" on the market, early and late, tall and short, and these are the only varieties to be chosen if one wants a satisfactory edible. The seed of these is translucent, wrinkled and generally pale, although a favourite dwarf, Golden Bantam, is yellow, and my pet variety, Black Mexican, which I suspect to have originated in the *pueblos* of the West, where the Indians were great fanciers of maize, is purple-black when mature. The dwarf varieties are often grown in rows, as your correspondent suggests, but the larger ones are usually planted in hills of from five to seven stalks—a reminiscence of the Indian. These stalks bear quickly. It is a ticklish job to pluck the corn at the exact stage when it is most delicious. We first examine the "tassel." If the silk is rusty brown and withering, it is worth looking into, and we cautiously tear down the husk a bit. Alas! half of the ear is still too small—the kernels are not filled out and the silk is bright green among them; the next shows threads of bright sienna silk all the way down and the kernels are tough to the nail—too old; the next is just right, all kernels filled out, milky juice flowing from the cut kernel, the silk still pale and fresh.

Then comes the cooking. There must be plenty of water and boiling hard, so that after husking and silking the pretty ears we can drop them in to dance around for ten minutes, with a dash of salt. Then they are whisked out and buried in a napkin, and served as quickly as possible. Ultra-refinement has tried to introduce machinery for holding the hot ear without touching it with the fingers, but the ordinary creature reverts to savagery and, spreading the rows with butter and salt, grasps the ear by its end boldly, and proceeds to gnaw down its length, squirrel fashion, as gracefully as he may.

There is material for a book on the treatment of corn by the Indians, from its planting to its harvesting, and onward through its culinary preparation. Countless ceremonies were evolved for its protection and for the encouragement of the crop, and for the propitiation of their gods in reference to it, and there are many stories of its origin; but this would probably interest but few—HELEN INGERSOLL, *East Setauket, New York.*

GENTIANA VERNA.

IN reference to "Formakin's" notes on this species (p. 309), suggesting that it is possibly only a short-lived plant, it may be of interest to know of two plants that have been in my garden for fourteen years or so. Originally part of half a dozen received from the Emerald Isle, and owing partly to the rough and ready way they are sent out and also to my being just a beginner, most of them went the usual way. However, the two plants referred to were in sufficiently good condition to be moved on to an island moraine that I had constructed in 1913. They have flourished and flowered there annually ever since. In 1917 the two plants had over seventy flowers, foliage and flowers being large enough for G. angulosa, which probably is only G. verna in richer soil and better conditions, such as plants seem to luxuriate in near Mont Cenis. In 1922 the plants had only about thirty flowers, and in 1923 the same. Owing to the moraine bed, which is about 3ft. 6ins. deep, not having been properly consolidated, some subsidence took place where the plants were situated, involving remaking, and in doing this the thread-like roots of the gentians, which I found about 3ft. long and partially suspended, were considerably interfered with, and the reduction in the size of the plants and number of flowers is no doubt due to this. This year the two plants only have twenty flowers, but this is probably due to the very dry April and May of 1923, which evidently checked the setting of the flowers. The plant is very healthy, with large flowers just opening out, fully a month later than last year. Another plant in somewhat similar conditions, which had seventeen flowers on last year, has only nine this year.

G. verna usually ripens seeds with me if allowed, but I make a practice of cutting the dead flowers off so as to strengthen the plant, and this probably ensures more flowers. I have a good number of seedlings from my own seeds at present, which I am putting out in groups instead of single plants, which are very fragile and slow-growing.

Plants in a wild state growing in grass usually seem to have very few flowers to a plant, and, so far as my observations go, the finer flowered plants are those that are more or less isolated from the grass. I have seen odd plants or plant groups in a very small area with probably twenty flowers, but this is a much more rare occurrence in Nature, where the plant has to compete for its existence.—T. ASHTON LOFTHOUSE, *Middlesbrough.*

THE MIDLAND DAFFODIL SHOW.

IN my report of the above-named show (page 323), all the daffodils appearing under the heading "New Daffodils" received awards.—JOSEPH JACOB.

LYSICHITUM CAMTSCHATCENSE.

ON page 347, and again on pages 374 and 468 of THE GARDEN, 1922, are various references to this plant. The first of those notes concerned some I had recently received from Vancouver. They grew at Milnes Landing, near Victoria. These same plants have now commenced to flower. They appear to do quite well in an ordinary border without any shade or protection on rather high ground in this Sussex garden. I suggest, however, that the place where they are planted be slightly sunk below the surrounding level with a good depth (I think from 18ins. to 2ft.) of leaf-mould and well decayed leaves and bits of decayed wood around them, mixed with rich garden soil, where the roots may have access to constant moisture at that depth. The recent rains have, no doubt, helped them considerably in a position that is far removed from what one would suppose to be most congenial to them. For the first two seasons they did nothing but throw up a few small leaves, and I was thinking of moving them to the edge of a pond, but during the last few weeks they have made great strides. Now one or two of the leaves look as if they will grow to the size of a dinner-plate. They are of a beautiful healthy green, closely resembling those of a colewort. I send you a small bloom, as I am leaving the largest one for seed. The latter is nearly half as large again as the one sent.—EDWARD SHOOSMITH.

[Even this bloom was excellent.—ED.]

ANSWERS TO CORRESPONDENTS

TREES AND SHRUBS.

Lichen on Azaleas (R. D.).—The moss and lichens on hardy azaleas can be destroyed by spraying the bushes during the winter with a caustic wash. This may be made by taking 2lb. of caustic soda (98 per cent.), half a pound of soft soap, five pints of paraffin and ten gallons of soft water, mixing them as follows: Dissolve the soft soap in one gallon of boiling water, and while hot add the paraffin and stir into a creamy liquid. Dissolve the caustic soda in nine gallons of soft water, and into the solution pour the paraffin emulsion and stir thoroughly. The mixture may only be used when the bushes are dormant, as the soda will burn expanding buds and leaves. India-rubber or leather gloves should be worn while the wash is being applied, and a calm day should be selected for the work.

FRUIT GARDEN.

Pear Trees and Insect Pests (L. P.).—Many pests attack pear trees. Caterpillars of winter moth, March moth and other lepidoptera, and grubs of pear and cherry sawfly and other sawflies, and weevils of several kinds all bite foliage, the pear midge grubs feed in the fruits and the leaf-curling midge in the rolled leaves; aphides of two or three species and occasionally capsid bugs attack the tree; the larvæ of the wood leopard moth burrow into the wood. Canker sometimes attacks the branches, pear scab the leaves, shoots and fruits, one or two other fungi the foliage, and the pear mite burrows into and blisters the leaves. All these need dealing with in their own special way, and unless they are recognised before attempts are made to deal with them waste may easily arise. It would be better to send us specimens of the pests met with for identification and advice as they arise.

MISCELLANEOUS.

Raising Seedlings under Cloches (C. E. O.).—Until the seedlings appear it is not necessary to ventilate the cloches, but rather to shade them during the warmest part of the day. As soon as the seedlings are above the ground, air must be admitted on warm days. This is done by tilting the glasses on one side, raising them about an inch by placing a stone under them. Remove the stone about three or four o'clock in the afternoon. It is not necessary to ventilate on cold, dull days. The cloches must be taken off while watering the seeds or seedlings.

Names of Plants.—(H. B.).—1, Primula farinosa; 2, P. Juliæ; 3, Saxifraga bathonensis; 4, Veronica filiformis; 5, Phlox lilacina; 6, Lamium maculatum.——(J. A. E.)—1, Helleborus orientalis; 2, Daphne Laureola.

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BOOK REVIEW

A New Book on Irises.—When Mr. Dykes gave us "The Genus Iris" some years ago we realised that he had done rather more than publish the most complete and authoritative work on the iris. He had, in fact, produced what was, in many respects, the finest monograph on any genus hitherto published in the English language. A small popular work that preceded it soon went out of print and is now unobtainable, except an occasional copy, at a premium, from second-hand booksellers.

The present work, "A Handbook of Garden Irises," by W. R. Dykes, M.A., L-ès-L., Secretary of the Royal Horticultural Society (published by Martin Hopkinson and Co., Limited, price 12s. 6d. net), is something between those two, being less ambitious than the greater and dealing much more fully with the subject than the smaller. Every iris lover, and most gardeners, will be with me when I disagree with the author on one point, and that is the opening remark of his preface. "Some apology is needed for the production of a third book on irises." No apology will ever be necessary when Mr. Dykes has anything to write or say on this subject. Primarily this is due to the fact that his every word is penned from an experience gained at first hand, and from his own personal and intimate knowledge of the things he writes of. Hearsay, or the theories of others carry little weight with him, and when he quotes them it is either to substantiate them, and give us his reason for so doing, or to disagree with them, and prove his case where possible. If it is not possible he states the pros and cons and leaves it to time to decide, or the reader to form his own conclusions. Thus, he "speaks as one having authority," and no one will have the temerity to doubt his pre-eminent ability to do so, or that he of all living men has the most complete knowledge of the genus, both from the scientific, and also the cultural sides. For this reason it is devoutly to be hoped that at no distant date means may be found to place under his control a really representative and in a sense "national" collection of the irises of the world. This is by the way, but it will interest iris lovers to know that such an effort is to be made, and to assist in its consummation every garden lover can help by joining the Iris Society of England which has now opened its membership to all interested.

The book contains some 250 pages of well and clearly printed matter, and a careful perusal fails to find a single paragraph that one could wish omitted, indeed, there is not a line of "padding" between the two covers. Every section of the genus is discussed and although from the purely gardening point of view, some sections may appear to have received an undue proportion of attention, in comparison with that bestowed on others that are, and always will be, more popular as garden plants, this is perfectly excusable, denoting as it does the author's personal preferences. After all Mr. Dykes is essentially a "species" gardener, and one often suspects him of having at least as much of the collector as gardener in his composition. Nevertheless the peculiarities of every section are lucidly explained, often in the most minute detail. The table at the end of the book, giving names of species, heights, time of flowering, and the best time to plant each is invaluable. Every chapter is crammed with information, useful, not only to the ordinary gardener, but also to those whose acquaintance with irises generally has, by experience, become more advanced. In fact, the garden lover who wants the most reliable and concise information obtainable cannot afford to be without this book, and it will meet more of his requirements than any other work on the subject.

It belongs essentially to that class of book that is practical rather than poetic, technical than pictorial. Even the illustrations conform to this description. Every plate is a careful drawing which emphasises the principal characteristics of the species it portrays, and for this purpose drawings are often much more explicit than photographs. It is within the power of the delineator to bring out salient features in a way that photography sometimes fails to achieve. True, such illustrations are analytical rather than beautiful, botanical than horticultural, and the interest in them lies in the fact that they tell us more of what things are than what they will do for us in the garden. This indeed is characteristic of the whole book, perhaps a little also of its writer.

On his magic carpet Mr. Dykes sweeps us across continents and drops us down here and there, selects a species, and pulls it apart, almost with the ruthlessness of a boy stripping the legs and wings from a fly. Then, having told us all that is known of it, even to such details as "the ripe seeds rattle when the capsules of I. xiphioides are shaken. This is impossible in the narrower capsules of I. Xiphium," and, before we have had time to apply his theories regarding the identification of the sequence of origin of certain sections by their seeds, he whisks us off a few thousands of miles to repeat the operation on another species. But his information extends further than this, for he not only tells us what they are, but how, and where we can grow them, and how to increase them. Such information as the following is decisive and valuable. After pointing out that I. lævigata and I. Kæmpferi are quite distinct species, he says, "I. lævigata is a true bog plant, and will flourish where it is wet all through the year. I. Kæmpferi on the other hand is not really a bog plant, and should be kept comparatively dry except when growth is active," a statement by the way that has been fully borne out by experience; but I think he intends the "comparatively" in this case to mean exactly what he says, and to apply as between these two species, and not as between I. Kæmpferi and other sections of the genus. He would not advise, for instance, that I. Kæmpferi will stand the dry conditions that can be applied to the bearded section generally.

As I have already said, and despite Mr. Dyke's assurance that the book is "intended for gardeners," it is still rather botanical than horticultural. This in no sense detracts from its value, but there are two distinct types among the garden lovers of to-day. The one is interested in the plant for what it is, and conceives no more desirable achievement than its successful cultivation. To this class the book will prove ideal. The other section (by far the larger one, too), regards the plant rather from the standpoint of what it will do in the general garden scheme, and to this class the book may prove slightly disappointing. The author's knowledge of the genus is so intimate and vast, that one is inclined to suspect that he rather loses sight of the æsthetic value for garden picture making of the plants he describes. Under his cold, scientific analyses the frail beauties of the plant sometimes disappear. Where the plants come from, what they are, and how to grow them, is not quite enough for the great multitude of gardeners (of both sexes) of to-day. There is abroad the ardent desire "to so use our plants that they shall form beautiful pictures in our gardens." Much of this may be the result of feminine influence on which has been particularly strong in gardening. Combinations of form and colour, the gratification of that sense of composition that makes for true art in the garden, as elsewhere, is the keynote of the development of beauty. The disposition of plants in such a way that they shall borrow from their surroundings some harmony of association, and lend to their environments their own individual charms is the laudable desire of every true gardener. In this Mr. Dykes does not help us much. In this he does himself less than justice. He is too good and true a gardener for it to be said of him that "his botany is all names, not powers. poets and romancers talk of herbs of grace and healing, but what does the botanist know of the virtues of his weeds?" Perhaps some day he will give us a book in which he will tell us of the exquisite beauty of the plants and their potentialities for garden picture making, rather than of their bones, sinews, muscles, blood and intestines.

The book is such a perfect example of its kind that adverse criticism would be absurd and impossible, but it does just leave an impression of a music lover sitting among the dismembered components of a magnificent organ, revelling in the perfection of the individual parts, and in so doing forgetting its soul of music, and the power of those parts in unison.

In all his varied experience he must have come across innumerable pictures that thrilled him, not so much because of what they were, as where they were, and with what conditions of beauty they were associated: some happy combination of circumstances that made the plants themselves more beautiful. For the moment he forgot to split his butterfly's wing to see if the colour went right through. If he would tell us of such circumstances, even if he confined his remarks to the species he loves so much, he would do a great deal towards realising his own desire, "that attempts will be made to get into cultivation more of the wild forms and species" than anything or anyone else could possibly do.—GEO. DILLISTONE.

The Horticultural Club.—The Club has decided to contribute towards the entertaining of the members of the Federation Horticole Professionnelle Internationale who are meeting for their annual conference on May 28th and 29th. The entertaining will be done in conjunction with the Chamber of Horticulture, the Horticultural Trades' Association and the British Florists' Federation and is to take the form of a luncheon on Thursday, May 29th, also a dinner on the same evening, followed by a cabaret show. Donations are invited from members of this club to the Entertainment Fund and may be sent either to the Treasurer, Mr. Peter R. Barr, 11, King Street, Covent Garden, W.C.2, or to the Hon. Secretary, G. F. Tinley, 855, London Road, Westcliff-on-Sea, Essex. It is not expected that members who are contributing through the other organisations mentioned will contribute through the Club, unless they desire to do so.

FORTHCOMING EVENTS.

May 24.—Wakefield Tulip Society's Exhibition (four days).

May 27.—Royal Horticultural Society's Great Spring Show at Chelsea (three days).—Bath and West and Southern Counties Society's Exhibition (five days).

May 28.—Annual General Meeting of the Kew Guild, to be held at the Imperial Hotel, Russell Square, London, W.C.1, at 6 p.m. The Annual Dinner will take place after the Meeting at 7.15 p.m.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

VEGETABLES UNDER GLASS.

Tomatoes.—With more congenial weather these are making considerable progress, and ripe fruit may be soon gathered from the early plants. No fire heat is needed and plenty of ventilation may be allowed. Later batches are growing freely, and whether they are planted out on the stages or in large pots, the roots should be fed with liquid manure or some reliable fertiliser when the first truss of blossom is set. Never allow the plants to become really dry, and continue to tie the main growth to the supports, at the same time removing all the side shoots. The plants intended for putting out in the open should be hardened off by placing them in a cold frame, drawing off the lights during the day and eventually at night. Select a sheltered sunny position and set them out about 2ft. apart. White fly will, no doubt, make its appearance in the houses, and only consistent warfare will hold it in check. A white fly fumigant should be used before this pest has made much headway. Spraying the plants, especially the undersides of the leaves, with an insecticide is also beneficial, but not when the fruit is ripening. A non-poisonous insecticide is recommended.

THE HARDY FRUIT GARDEN.

Gooseberries.—Where the bushes have not been ruined by birds, a fairly good crop of fruit is assured, and if the ground did not receive a dressing of manure in the autumn, it is a good plan to give them a sprinkling of Thomson's manure at this period, choosing showery weather if possible. A dusting of soot is also recommended. Where the bushes are producing a heavy crop, the thinning of the fruits should begin as soon as possible. Birds have played havoc with fruit buds this season.

General Work.—Keep down weeds by using the hoe freely. Insect pests are liable to be troublesome and should be dealt with early, while disbudding and tying of wall trees will require attention.

THE FLOWER GARDEN.

Summer Bedding Plants.—The time has arrived for making preparations for summer bedding, and now such plants as pelargoniums, begonias, heliotrope, etc., should be in cold frames and fully exposed when the weather is favourable. In the meantime such plants as violas, pansies, verbenas, pentstemons, calceolarias, stocks, asters, Phlox Drummondii and antirrhinums may be planted where they are intended to flower. Beds that have been filled with wallflowers may be dug over, at the same time incorporating a small quantity of decayed manure. See that pot plants are well soaked with water before they are placed in the beds, and for a week or two it will be necessary to keep the soil in a moist condition until the roots are established.

Annuals.—These are now large enough for thinning, and in many gardens these plants are spoilt because of overcrowding. Blank spaces may be filled by transplanting, and it will be advisable to keep the plants well supplied with water.

Roses.—A watch should be kept for the grub that gets between the leaves and destroys the flower bud. Pick off all affected leaves and burn them. Weeds and suckers should be held in check by periodical hoeings. Greenfly may be present and will become troublesome unless the bushes are sprayed before this pest has made much headway.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Brassicas.—We have now approached what might be termed the great planting-out time, and so, within the next fortnight, garden ground should be studded with sturdy vegetable plants. All vegetables which are to be in use in autumn and throughout the winter and spring should be planted now, such as borecole, broccoli, Brussels sprouts, cabbages, cauliflowers and savoys in their several varieties.

Peas.—Although sowings are sometimes made later than the end of this month, it is not always advisable to do so except in favoured localities. When sowing late it is usual to put in a quick-maturing or early variety, such as The Pilot. We have sown the early variety Essex Star on June 8th and had pods for pulling by the middle of September.

Root Crops.—Thinning the young plants of beetroots, carrots and parsnips, etc., will now call for attention. Where the two last named crops are growing in prepared holes, care should be taken by the worker to leave not only the best plants but the best placed ones—that is, those occupying the centre of the holes. Every precaution should be taken when thinning the carrots to leave none of the roots lying about, as it is said that even the aroma in the air around, caused by the thinning, will attract the carrot fly. Each carrot left should have the soil brought up and around the top, then pressed fairly firm with the fingers, so that nothing of the tender root is left exposed. Every evening after thinning spray the plants with Abol or Clensel—either insecticide, of course, being well mixed with water. The smell from the insecticide is to counteract the aroma from the carrots, and so ward off the fly. In fact, it is safer to give a gentle spray once a week for the next five or six weeks.

THE FLOWER GARDEN.

Tender Plants.—It is rather risky to start bedding out such plants as ageratum, begonias and heliotrope, as they are so easily spoiled by frosts—and we are still liable to get a little frost at times. It is better, therefore, to leave all tender bedding plants where protection of some kind can be given at nights, at least for another week.

FRUITS UNDER GLASS.

Melons.—Now that bedding plants, etc., have been cleared from the houses, more room will be available indoors. Melons which have been forwarded in 6in. pots, should be planted. Once the plants are fairly established in the beds a little lime should be sprinkled on the soil around each stem. No water should be allowed to reach the stems at the soil surface; hence the practice of making little mounds in which to plant the melons, as watering can then be done in the spaces between. Due attention should be given to pollinating the female flowers as they expand.

Peaches.—Trees bearing heavy crops in late houses should be gone over and further thinnings made. Continue to syringe the trees twice daily to keep the foliage free from insect pests. These peaches, grown under more airy and natural conditions, should produce better flavoured and more highly coloured fruit.

Vines.—The principal work among the late grapes, such as Alicante, Lady Downe's, Mrs. Pince and Risin de Calabre, will be thinning—in some cases for the second time—among the bunches. Alicante is a very free setting variety.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Brunfelsias (syn. Francisea).—Although generally regarded as stove plants, these beautiful plants in common with many others that require a fairly high temperature when making their growth, stand quite well in an ordinary greenhouse when they are in flower. These plants have the merit of producing a succession of flowers over a long period, but are generally at their best during May and June. They are easily propagated during the summer months by means of half ripened shoots inserted in pots of sandy soil, and plunged in a close case with slight bottom heat. During their growing season they enjoy a moist atmosphere, and a temperature of about 60°. When growth is completed they will stand in a lower temperature, and during the winter should be kept drier at the root, as they lose most of their foliage. They grow quite freely in a compost consisting of a good medium loam, with the addition of a little fibrous peat, leaf-soil and sand. The species and varieties most common in cultivation are B. americana, a fragrant species, the flowers of which open creamy white, and then change to yellow; B. calycina, very free flowering, as also is its fine variety known as macrantha. The latter is the largest-flowered variety, and its large, deep bluish-purple flowers are produced in great profusion; small plants rooted last summer are now flowering freely in sixty sized pots. B. eximia is also generally grown, and this fine plant is probably also a variety of B. calycina.

Browallia viscosa is useful for the conservatory and greenhouse, as by means of successional sowing it may be had in flower for at least nine months. This species may be flowered in 48-sized pots, but it is a strong grower and better results are obtained if it is potted on into 6in. pots, stopping the young plants several times to form a good bushy habit. It grows freely in any good potting compost and only requires ordinary cool house treatment. B. speciosa major is the largest-flowered kind and requires an intermediate temperature in its younger stages, but stands quite well in the greenhouse when in flower. It is by no means such an easy plant as B. viscosa; it requires careful watering and must not be over potted. There is a white-flowered variety, but it is not such a strong grower as the type; both can be propagated by means of cuttings, but seedlings give the best results.

Alonsoa Warscewiczii is a very beautiful half-hardy annual, with scarlet flowers, which is very suitable for pot culture. Plants from seed sown early in the year flower towards the end of May. If sown about the beginning of July the subsequent plants prove useful for flowering during the autumn. A. gracilis has also got scarlet flowers, while A. Mutisii has pink flowers with crimson centres. They all grow about 12ins. high and succeed in a cool house under the conditions usually given half-hardy annuals grown for pot work. A. incisifolia is a perennial species which is worthy of more general cultivation. It is an elegant plant with bright red flowers, and by growing several batches may be had in flower over a long period. Cuttings root readily at any time in a close case. If the young plants are pinched several times they soon make nice bushy plants in 48-sized pots. If larger specimens are required they should be potted on into 6in. pots. This plant only requires cool greenhouse treatment during all stages of its cultivation.

J. COUTTS.
Royal Botanic Gardens, Kew.

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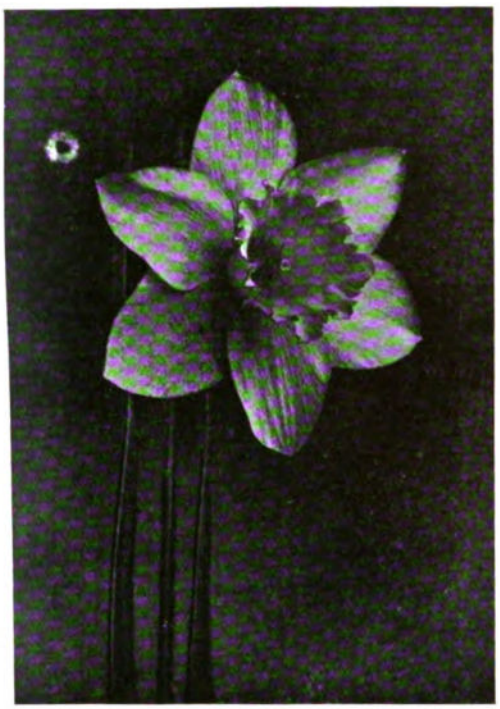

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THE GARDEN

VOL. LXXXVIII.—No. 2741. MAY 31, 1924

BLUEBELLS IN THE QUEEN'S COTTAGE GROUNDS AT KEW. THIS YEAR THEIR NUMBERS ARE SO GREAT THAT THE TERM "SEA OF BLUE" CAN BE TAKEN LITERALLY.

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THE GARDEN

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THE CHELSEA SHOW

WHAT am I to say about the Chelsea Show that has not been said many times before and many times better said? In a sentimental vein I could talk upon every Englishman's inherited love of flowers or in a patriotic strain say that this is the culminating peak of the gardeners' year which proves conclusively that we are at least superior to all other nations in horticulture, but this might be slightly tinged with sarcasm. Behind it all would be a vague wonder as to what was the real spirit of Chelsea, which is as elusive as a will o' the wisp and as difficult of definition as the Fifth Dimension.

Let us discuss for a moment the different classes which throng the gardens on Show days. At the one end of the scale is a devoted multitude to whom Chelsea is a Mecca. It may be their only visit to London in the year; they examine everything with a stern thoroughness as if it was a task to be accomplished and to be accomplished to the top of their bent. They know what they are talking about and are not carried away by the excitement of the moment. They purchase not only with an eye to their pocket, but with discrimination, for they can see the merits and demerits of a plant and know their own capacity for cultivation. That is the class, luckily a large one, which is surely the backbone of Chelsea Show; they are liked and trusted by the nurserymen, to whom Chelsea means bread and butter. Knowing their own limitations, they buy cautiously, and do not turn around in six months' time and complain that the plants supplied were hopeless. They do not go into raptures, which may or may not be sincere, but very little escapes them.

I have enlarged upon the merits of this class, for they deserve every morsel of praise. At the other end is another class, unfortunately almost as large, who play at gardening because they think it is correct to do so. Some of them are women and some are men. They wander through the tents and gardens with no particular object in view. They are full of adulation; "How charming!" and "Isn't that simply marvellous?" are heard on every side. They order a dozen plants without taking the trouble to find out if it is suitable for their requirements; it may come from the Sahara or from Greenland for all they care. They are the butterflies of gardening. Between the two classes come the rest, those who are not quite sure of themselves, but who have somewhere in the background that instinctive love of flowers which *is* our birthright. Perhaps it is for them that the Chelsea Show exists—or, rather, perhaps it is they who make it such a success. Their ideas may be nebulous to begin with, but slowly they crystallise and in a twinkling they may become the most expert of gardeners.

To return to the Show, surely there is no trade in the world which is so lucky in having such tempting wares to set before the purchaser: colour, texture, beauty of form, rarity, shape, they may all be present in the one plant, so what more can one want. This brings to mind the one criticism that can be made of the Chelsea Show, that it is so much of a selling medium and so little of a competition. Amateurs are swamped by the number of trade exhibits, and yet it is perhaps just as well, for 90 per cent. of those who visit Chelsea do so in order to buy either on the spot or in the future.

In our forecast last week we gave a few general notes about many of the main exhibits, and we hope that they were of some assistance to our readers. In this number will be found the first portion of our full report, which will be concluded in our next issue. These are facts which must be duly chronicled. Somebody has suggested that we should publish a map showing the position of the different exhibitors. To begin with, the idea sounded enticing, but then a picture came before me of hundreds of our readers moving along with the crowd inside the tents. Dozens of GARDENS would be opened and elbows thrust out in consequence. Our devoted readers would trip over boxes and collide with stands in their efforts to steer a course by means of our map—so the idea was dropped. The best method is to decide to see everything and drift with the throng. The colours will be kaleidoscopic, and the result will be that you retire at the end tired and footsore, but you will have the satisfaction that it was in a good cause and that you have seen everything. I am as far away as ever from finding out the spirit which draws everyone to the Chelsea Show. Perhaps it is a fetish; if so, it is a benign one.

E. H. M. C.

The Hon. Vicary Gibbs has again kindly consented to the opening to the public of the gardens of Aldenham House on the Saturdays of July, August and September, and the August Bank Holiday Monday, on the same conditions as in previous years, viz., that children must be accompanied by a grown-up person, and that dogs will not be permitted. These facilities will not be available on Saturday, July 19th, as this is the date of the annual floral fête of the Elstree and District Horticultural Society at Aldenham Park, when admission is only possible on payment of the Society's entrance fees.

Dame Alice Godman has announced that South Lodge, Horsham, is open to the public on Thursday, May 29th, and Saturday, May 31st. The entrance money of 1s. per person is to be given to the Sussex Hospitals.

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AN IGNORAMUS AT KEW

BY BERNARD DARWIN.

I AM as ignorant and unbotanical a person as exists in the whole world. I can apply to myself the remark made by my great-uncle Ras to his brother Charles, "My dear fellow, I don't care a damn for the whole kingdom of Nature." I have, however, this one redeeming quality, that I like going to Kew.

When I go there I always experience the same series of emotions. First of all, I feel a certain transient shame at my ignorance of the beautiful things there. Next there comes a certain hostility to science which I cannot altogether smother. It is for a moment rather annoying to have an oak, which I really do know by sight, labelled "Quercus pedunculata"; there seems something "highbrow" about it. Then both these emotions are swallowed up in an enjoyment of the peacefulness and the spaciousness of Kew. Kew is so big that there is never a crowd. I have actually eaten my lunch out of doors there on a Bank Holiday. It sounds sheer madness, yet we ate our sandwiches in the perfect solitude of a most enchanting thicket. And as to peacefulness, Kew can in about a quarter of an hour make a complete loafer out of the most restless being. I can look out on the Old Deer Park, where I often play golf, and watch the golfers with pity and amazement, wondering why, when they might sit still and look at bluebells, they pursue a ball with such ungraceful and ineffective antics.

As I always feel these same emotions, so also I have a certain procedure at Kew from which I scarcely deviate. I followed it once more the other day when I went there on rather a chilly, windy day with lowering black clouds at the end of the first week of May. First of all, I dashed to the big pond by the Palm House to watch a small girl throwing bread to the ducks. There are some of the most fascinating possible birds in that pond, with absurd red noses and heads that appear to have been carved out of wood and painted by Caran Dache, and their method of suddenly ducking their heads and presenting their tails is infinitely engaging. Then I went into the Palm House itself, not to look at the palms nor wholly to get out of the wind, but in order to enjoy once more the sentimental memories of a beloved greenhouse which always return to me with that heavenly tropical stuffiness. The palms, too, have a little sentiment of their own, because they remind me of an ancient picture of Ali Baba in hiding while the Captain of the Forty Thieves approached the door of his cavern of treasure in the forest.

These two rites having been performed, I looked with rather lack-lustre eyes at the notice board telling me of special objects of interest. Some were unintelligible, but cherries, magnolias and rhododendrons appeared to constitute an inevitable duty. And the most beautiful of them all hit one right between the eyes on leaving the notice board. This was a double-flowered cherry in the full tide of its loveliness, a dream of white, with every single blossom complete and perfect. As I wriggled under the branches to read the name on the label and knocked off one single petal through not stooping low enough, I felt a Goth and a vandal. The magnolias were disappointing by comparison but then I know that I am never worthy of magnolias, which look to me rather too full blown and like ladies who have lost for ever something of youthful slimness. The rhododendrons were very splendid and better still, for me, were just one or two azaleas that had ventured out. To an unflowery person I suppose that flowers are dear not for their own sake but from some association of ideas. Rhododendrons mean a little island in the middle of a lake on a lonely hill in Wales and azaleas mean a particular flower-bed in a Kentish garden, and the azaleas mean most because Kent comes first and Merionethshire second.

Yet there is one thing that I do want to see purely for its own sake at Kew, and that is the blue sea of bluebells. Alas! when I was there it was but a little edging of blue foam on a green sea. One associates bluebells with beech trees that have just put on their new spring clothes. The beeches were almost at their best, so clean and fresh and delicate, but the bluebells were still very few. They looked rather dowdy and bedraggled and as if their poor little noses were only blue with the cold which had tweaked them. Elsewhere, however, there was a compensating stretch of blue. This was where the grape hyacinths were in full glory near a little temple. They were very properly labelled "Heavenly Blue." These, too, had an association of ideas. If it was not actually these very flowers, it was certainly some pretty little cousins of theirs that grew on the bank of a dry river bed where I lived for a while in Macedonia. They brought back the mud-walled houses of a Turkish village, with all the quince trees in blossom, the Belasica mountains behind and in the foreground a Turkish boy, his little stomach enveloped in a big red sash, playing an engrossing game with pebbles from the river bed.

IRIS SIBIRICA AT KEW.

As one wanders through the great spaces of Kew one's surroundings change so much that one's mood must change with them. The bamboo garden gives a feeling of richness

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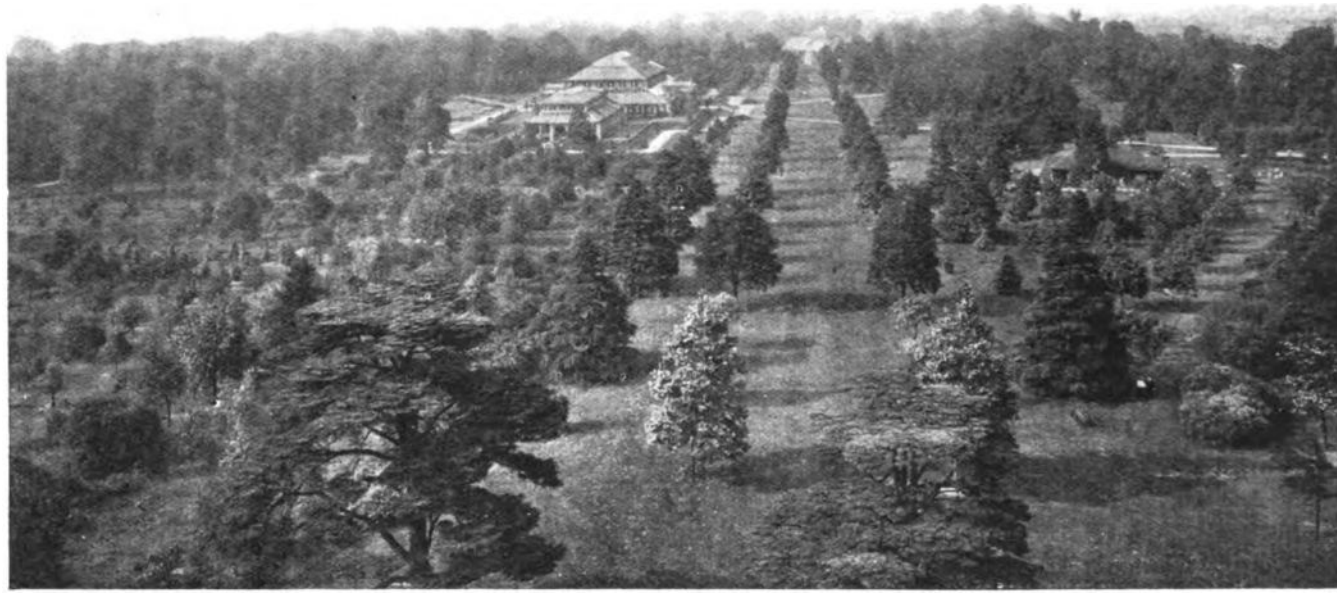

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A PANORAMIC VIEW OF KEW.

Frontispiece to the Guide to the Royal Botanic Gardens, Kew.

and splendour and luxury. How gorgeous is the name Arundinaria japonica! It is pleasure to roll it out aloud as one might do with the high-sounding titles of an Oriental despot. On the other hand, where the daffodils are growing casually in the grass among the trees, one has the peaceful, sunshiny, homely feeling of an intensely English garden. Then, again, when we are among the fir trees the sun goes in. Everything is dark and gloomy, and we might be in Switzerland or Scotland, in a lonely wood on a lonely hillside.

Finally, to give one more desultory impression, there is one thing at Kew that makes me more ashamed of my ignorance than either the flowers or the trees can do. It must be a delicious place for people who know and love birds. There was at one spot a blackbird which sang to us divinely, but beyond that my mind is a blank. I merely know that there were birds everywhere, that I did not know their names or their songs, and that I felt a sudden desire to look for their nests; only a notice said I must not. But stay! I have forgotten one thing—the pleasantest thing that happened to me at Kew. A dear little robin sat on a *Fraxinus anomala* and looked at us as bold as brass with his beady eye while we stood within a foot of him. I wonder that he does not tell all the other little robins in Surrey and Middlesex to come and live in so agreeable a neighbourhood.

The FINER HYBRID RHODODENDRONS

A FEW weeks ago Mr. Gomer Waterer wrote a most excellent article in THE GARDEN on hardy hybrid rhododendrons. What he says is true, that there is a strain of hardy garden hybrids which are among the most suitable of all rhododendrons for ordinary gardens, that they are very floriferous year after year, that they will stand any amount of frost and will flourish in full sun. Where I might join issue with him is in his general utilisation of rhododendrons, for they are not, and never have been, plants which love the sun; the reason is that they are such typical plants for moderate shade. This can be proved by growing even the hardiest of hardy hybrids in a situation where there is some protection from wind and where the sun does not blaze down on them from sunrise to sunset. You will find that their leaves will grow larger and their brilliant trusses of flower fuller in form and more beautiful in texture.

This was easily seen at one of the Vincent Square Shows of the Royal Horticultural Society, where a plant of Loder's White was staged. Now, this is a rhododendron which is absolutely hardy and yet has the advantage of giving, even in a cold garden, a touch of an exotic look. If grown in a position where it is in moderate shade, it will delight even the most sophisticated by its magnificent rather loose trusses of a pure white opening from rosy buds. The petals are fimbriated and the corolla is often 5ins. in diameter; and this in an ordinary garden. This plant at the Show had tiny leaves and flowers barely an inch and a half in diameter. No doubt this plant was forced for the Show, but it had been so obviously half starved and grown without any protection that it was a pity it had been staged: it certainly did the plant no credit.

Many people are only too inclined to treat all rhododendrons, whether hybrids or species, as they do the common garden varieties, and this is a grave error, for the plants are so obviously unhappy that constant complaint is laid at their door that they are not hardy in that particular garden. All hybrids and species are the better for partial shade and particularly for protection against wind. With these two precautions and with proper feeding the whole of the hybrids mentioned in the latter part of this article are suitable for our gardens unless they are definitely stated as being tender. In an article of this length it is, of course, impossible to mention more than a few successful hybrids, but these included are all well tried plants which already beautify many gardens.

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DR. STOCKER.—A cross between R. Aucklandii (Griffithianum) and R. caucasicum album, raised by Messrs. R. Veitch and Sons of Exeter. This is a magnificent hybrid with large flowers, resembling R. Aucklandii in shape, carried in a loose truss. The flowers are very wide open, often 4ins. to 5ins. in diameter, white with a few dull crimson spots at the base; the outside of the corolla is faintly tinged with rose. It is very floriferous and rather dwarf in stature, which is an advantage, as some of the Aucklandii crosses are inclined to be long and lanky. It flowers in the first half of May and makes its growth late, so its young shoots are rarely cut by frost.

MANGLESI.—Another fine Aucklandii cross, probably with some catawbiense hybrid. It was raised by Messrs. J. Veitch and Sons at Coombe Wood and was first sent out in 1885. Although fairly well known, there is room for a great many more plants of it in our gardens. The flowers are carried in a large upstanding truss. They are pure white with a few crimson spots on the upper part of the corolla. It is a more vigorous grower than Dr. Stocker and becomes a large plant. It is just as hardy and flowers in May.

BEAUTY OF LITTLEWORTH.—Raised by Mr. J. H. Mangles, it is an Aucklandii cross with notably large foliage and white flowers speckled with dull crimson. As will be seen from the illustration on page 370, the leaves are particularly large for a hybrid, while the flowers make a bold show on the fine conical truss. It flowers in May, and is perhaps not quite so hardy as Manglesi.

IVORY'S SCARLET.—A hybrid from blood-red arboreum, raised by Mr. Ivory, a nurseryman at Dorking about 1850. Mr. Millais calls it one of the "great" rhododendrons that should be in every garden, although at the end of his description he wisely adds the warning that this rhododendron strongly resents full exposure to the sun and drought. The colour is intense, but is, perhaps, more of a rich red than scarlet. It is rather a straggly grower and has to be helped to make a shapely bush. Although very floriferous, it does not flower freely until it is of some size. It flowers in May.

THE UNKNOWN WARRIOR.
A new Dutch hybrid, with rose-pink flowers.

THOMSONI × FORTUNEI.
Raised by Sir Edmund Loder at Leonardslee.

LUSCOMBEI.—R. Fortunei × R. Thomsoni. It has been raised by several growers, including Sir Edmund Loder. Although it flowers in April or early May, it is rarely cut by the frost. The flowers are often 3ins. in diameter, clear rose in colour, and carried on rather a loose truss. This is a most excellent hybrid, very free flowering and adaptable. There is an opposite cross, Thomsoni × Fortunei, with rose flowers of varying intensity; an illustration of some fine trusses of this hybrid is given.

LUSCOMBE'S SCARLET.—The parentage is doubtful. The truss is more compact than in Luscombei, while the colour is a mixture between rose and scarlet. It flowers early in May and is very floriferous.

LODERI.—The best hybrid and probably the finest rhododendron in existence. This famous plant was raised by Sir Edmund Loder and is a cross between R. Aucklandii and R. Fortunei. It grows to a height of 15ft. or more and as much in diameter. The flowers are produced in late May. There are two forms, one with a very loose truss and the other moderately so. The corolla is widely campanulate, often 6 ins. across, while the colour varies from pale pink to pure white. No description or illustration can give a picture in late May of this magnificent plant with its grace, its large foliage and exotic-looking flowers. Although hardy, it is a plant which will not stand full sun or drought. To see it at its best it should be planted alone in thin woodland in a position where it can be admired from all sides. It is best seen with a dark background. Another hybrid of similar parentage is Kewense; although a fine plant and very floriferous, in size and grace it cannot compare with Loderi. It is absolutely hardy and a worthy garden plant.

Two most excellent strains of hybrids have been introduced into commerce by Messrs. C. B. van Ness of Boskoop and Mr. M. Koster, most of them with Aucklandii blood in them. With one or two exceptions they are of extreme hardiness and are of inestimable value to our gardens. They are large-flowered and take the place in cold gardens of those magnificent hybrids which are only hardy in Cornwall. As a rule the colours are rich, while the plants flower at an early stage and are very floriferous. One exception which is not quite hardy is Queen Wilhelmina, owing to the fact that it flowers and makes its

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growth early in April. The colour is a rich red. Among the best are :

EARL OF ATHLONE.—Large fairly tight trusses of magnificent rich blood-red flowers. It flowers in May and is the nearest in colour to blood-red arboreum that a cold garden can possess. Plants of 2ft. 6ins. will flower freely even in full sun, although the trusses will be larger if it is grown in moderate shade.

UNKNOWN WARRIOR. — A shapely bush with large upstanding trusses of rose-pink flowers in May. It is very floriferous and is an admirable plant in every respect.

GEOFFREY MILLAIS.—Similar to Unknown Warrior, with spotted palest blush flowers.

PRINCESS JULIANA. — The commonest of this strain in our gardens and, to my mind, the least pleasing in colour. The edges of the petals are fimbriated and the trusses are shapely, but in a dull season there is too much blue in the pink to make it attractive. Later the colour fades to a blush white, which is attractive.

KING GEORGE.—A very fine deep rosy-scarlet with buds deeper in colour. It flowers in May and is fairly soft.

R. KEWENSE.
A most floriferous hybrid and absolutely hardy.

ARMISTICE DAY. — Large trusses, deep rose in colour. A very good hybrid.

VAN NESS NO. 300.—A new variety shown by Messrs. van Ness for the first time this year. Pale lilac in colour and slightly fragrant. This is not a common colour in large-flowered hybrids, and so should become very popular. The trusses are large and stand up well.

Many gardeners are now interested in hybridising rhododendrons, and it is certainly a fascinating hobby. There is one word of warning, however, which can be given. Do your hybridising with some definite object in view. It is little use crossing two ordinary garden hybrids, for in form and shape the progeny will be the same as the parents. There is still a great deal of work to be done in providing our gardens with large-flowered lilac and bluish tinged rhododendrons, and also those with yellow and orange flowers. Remember always that the best forms with the largest flowers will produce the best progeny. R. Loderi is a case in point; several growers have tried to get the same result from a similar cross, but never with the success attained in R. Loderi. The reason is obviously the quality of the parents. E. H. M. Cox.

BEAUTY OF LITTLEWORTH.
A fine hybrid, with upstanding truss and large foliage.

GEOFFREY MILLAIS.
A new Dutch hybrid, which will certainly become popular.

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A POOR MAN'S PARADISE

BY DION CLAYTON CALTHROP.

OVER the length and breadth of England you will see strange conglomerations of history, colour, arrangement and pride jewelling the roadside. They are the cottage gardens of England, and note also that there are but few homes where no flowers enter. As a race we have a passion for flowers. The Romans left us many great things, and I am inclined to think this gardening mind of ours is not the least of them.

A CHARMING COTTAGE WITH AN OLD ENGLISH GARDEN.

Many a man in England little dreams that where his cottage stands, once, in the Roman days, gentlemen sat drinking Falernian poured out of amphoræ dated with the year of the Consul. There they ate roasted field fares and asparagus, and dates sent from Thebes; and where stood their clipped hedges of yew and box there stands a cottage or two with gardens gracing the road, a windfall of colours for the traveller's eyes. Still less do they realise that the gardeners' patron saint is Saint Fiacre, who gave his name to the French cabs.

There's your man in his shirt and trousers with a belt about his middle and a pipe in his mouth, a brawny brown man used to hedging and ditching, or reaping and sowing, tending his flowers with as much pride as a woman has in her jewels.

There's your cottage thatched with reeds or straw, or tiled with slate or stone, and there's a bit of supper getting ready and a chat with a neighbour and great content.

In English literature, which is rich in descriptions of the country, one gets the two views—the realistic and the ideal. Some writers see nothing but the brute force of nature, the eternal struggle for existence, the harshness of poverty, and others see, more truly, the decorations of life like medal ribbons on a field of khaki. And flowers are bright spots of comfort in a world of doubt.

Your poets' picture is the true one, let the pessimist say what he may. It's a cutting here and a cutting there and a packet of seeds from the village shop (and let me assure you they do come up looking like the coloured pictures on the outside). It is an article of faith that, and a tribute to seedsmen, that marigolds come up looking like marigolds and pinks are pinks, which nobody can deny.

Here we have our history at our door with coloured illustrations. Here's Sir Walter Raleigh looking at you from the eyes of a potato, here's Greece with her currants from Zante, and here's the quince from Crete. Tobacco, that agreeable weed, scents the night air, with stocks and fifty growing things to give you a calendar.

Here's a herb or two for the pot and a bit of lavender to sweeten linen, and what is life without an onion?

The very names of the flowers have a happy sound, bachelor's button and gillyflower, love-lies-bleeding and heart's-ease. The geranium and the arum the poor man has from Africa, the crocus from Persia with its gorgeous friend, the tulip.

Right up from the gate to the door are ladies and gentlemen, or over the porch and on the window sills, and creepers on the house front maybe, a gnarled old apple tree in the bit of ground at the back, where the lavender bush is to dry your linen on, and a herb or so to pluck at, and poppies to cure the

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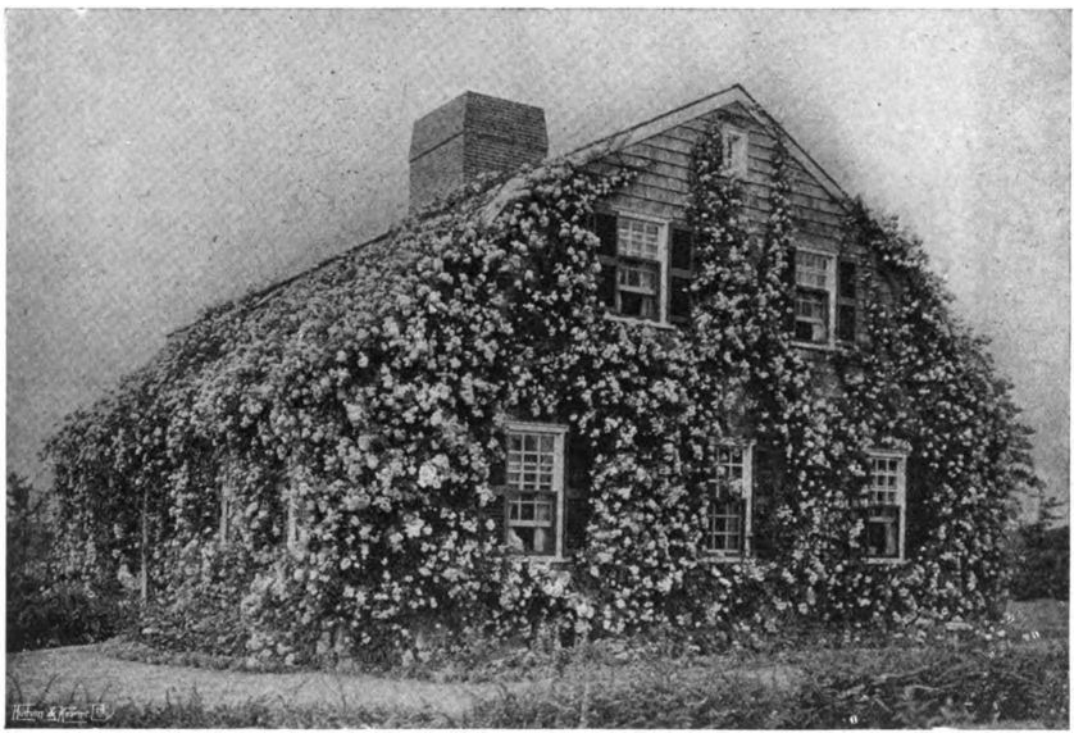
toothache, and aconite for the rheumatics, and tansy or camomile for liver, and hellebore for blisters, you will find them in plenty of gardens; and, as like as not, an old body in a shawl sitting outside doing about five things at once, minding the children, scaring the birds, listening for the kettle to boil, hurroushing a stray dog out of the garden, and keeping a weather eye on the neighbours. She's history is the old dame, she could tell a tale as old as the tale of Noah taking to the water, and does tell a tale, too, if she and you get on together—right from the time when she was in service to the time she married her third husband—and good listening it is too. Maybe a flower will start the tale—those great big sunflowers, for instance—and she's off with the story of the Squire and the Lady from London. You don't have to bother how the story links up with the sunflowers, but it just begins. "I mind the time," and there you are back sixty years, anyhow the year the young Squire set his watch by the sundial of a moonlit night. (Hush!)

Old-fashioned the garden is with those frail pink roses such as you see on Lowestoft bowls, and sweet-scented musk by the way, where has all the sweet-scented musk gone nowadays?), and periwinkles, and those great blue and white striped convolvuli, beloved of the flower painters in the eighteenth century.



A WONDERFUL PROFUSION OF RAMBLER ROSES ON A COTTAGE.

There are other roses in this garden, the York and Lancaster, the cabbage rose and the Seven Sisters, a hollyhock or so and some African marigolds, and, of course, evening primroses. Herrick would have felt quite at home in such a place: even the very wains which pass the door, even the brass ornaments on the horses, are just the same as they were in his day, or for the matter of that, in Chaucer's.

Round at the back (O, I've been all over the place), there are two straw skeps, with wood hoods painted blue, and the alighting board for the bees is white. This is the kitchen garden, a potato patch, a mound with vegetable marrows growing on it, cabbages, sprouts, onions, leeks, a few chives, lettuces and turnips, and all sorts of oddments, but kept as neat as you please.

If you look at the garden on either side you will soon see that our man is a gardener born, and I, for one, don't believe you can make a gardener: he is like the artist, born and not made.

You can tell that his wife is a good housewife by one glance at the parlour, which sparkles with cleanness. A pair of brass candlesticks flank a Dutch clock on a bracket, and there are two spotted dogs on the mantelpiece, and one of those mugs with brown and blue bands and a design of seaweed holds a bunch of lilies of the valley. There are one or two silhouettes and two enlarged photographs (one of a man nearly all beard and a painfully fixed expression and the other of an old woman in her best cap), and there is a church almanack and six very uncomfortable chairs.

I am all for the kitchen myself, where I am allowed to sit on a patchwork cushion in a Windsor chair and there we talk, the man in his socks, for he is not allowed to bring his muddy boots into the house, and he will talk about flowers in just the same way and with the same sense of love and pride as a man who runs an orchid house or an orangery. Indeed, the Squire turns a blind eye when he passes by and sees one of his choicest carnations flourishing away in the front garden, well knowing that the pot of musk in his dressing-room came from the cottage in exchange. And no robbery either, say I. The Squire, let me tell you, being just as at home in that kitchen as in his own drawing-room, and he'll bring his bottle of port and bottle of whiskey round himself on Christmas Eve, and not grocer's port, either, I'd have you know.

I might have forgotten—but, no, I never should—the bush of moss roses in the garden and their persistency in the decoration of the house, pink on the parlour wallpaper, blue in the passage and staircase and figuring in an orgy of sentimentality on a woolwork fire screen. If I had to pick a flower to symbolise the Victorian era I should pick the moss rose, just as I should pick the gardenia for the Edwardian, and harking back to Chaucer's daisy, the Tudor rose, the auricula for King James, and the tulip for William of Orange.

If all this appears to wander, remember that such gardens do give rise to rambling thoughts; they are places in which to cull a posy more than to pick choice exhibition blooms. A thought for a flower, a memory, or perhaps a succession of memories back to the time when one picked daisies and poppies and brought them home in a hot hand as an offering. There, that takes me back to doddering grass at once, and daisy chains, and cowslip balls, and the threaded loops of dandelions one used to make helped by a thorn out of the hedge.

Lucky the man who lives off a main road and does not suffer clouds of dust raised by passing motor cars to smother his garden. Lucky the man who can find comfort and repose after his days work in his garden, with his pipe; enjoying the night scents, the cool of the evening, and the final settling down of a dormitory of starlings.

Once, I was talking to an old gardener by the sea, and two or three seaplanes flew overhead. "Times have changed," I said. He took his pipe out of his mouth and replied, "Well, sir, when I look at the sea and the sky and notice the young folks courting in the lanes, I don't seem to feel they have changed very much."

Flowers and gardeners, I salute you.

FORTHCOMING EVENTS.

June 1.—Wakefield Tulip Society's Meeting.
June 3.—Royal Caledonian Horticultural Society's Meeting.
June 7.—Blackburn Horticultural Society's Meeting.

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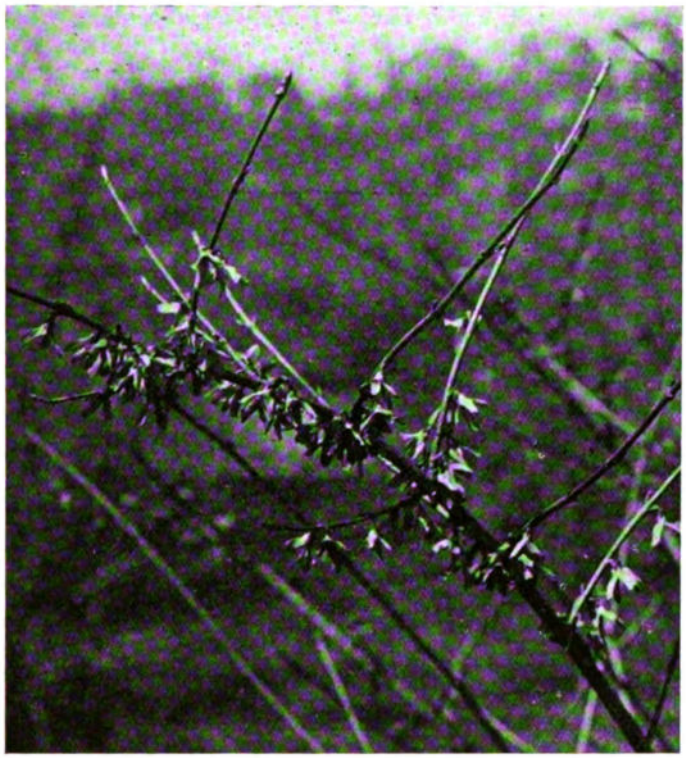
RARE AND NOTEWORTHY PLANTS

BY E. H. WILSON.
OF THE ARNOLD ARBORETUM.

FORSYTHIA OVATA.

THERE are comparatively few Korean plants cultivated in England, though those of the sister countries of Japan and China are among the most valuable material hardy gardens possess. Undoubtedly the best known and most prized Korean plant we have is the lovely Viburnum Carlesii, often carelessly referred to as native of other Eastern lands. Since the annexation of the country by Japan the flora is becoming known and each year good plants are brought into cultivation. Korean plants are hardier than the rank and file of those of China and Japan, but since the flora is boreal in character many are less suited to the English climate. In the milder parts they start into growth early and usually suffer from late frosts. In eastern North America the climate is to their liking and they give maximum returns. In the British Isles these plants should be grown either in the coldest parts or in those favoured with the mildest winters, and then good results would ensue.



A FLOWERING BRANCH OF FORSYTHIA OVATA.

A new and interesting Korean plant is Forsythia ovata from the Diamond Mountains. It was discovered and named by Dr. T. Nakai in 1917 and was brought into cultivation by means of seeds which I collected in the autumn of that year in the type locality. In the Arnold Arboretum the plant, without any special attention, has grown well and flowered for the first time in 1923. This year it is flowering more freely and a better opinion of its garden merits can be formed. The flowers are primrose yellow

A FINE TREE OF CERCIDIPHYLLUM JAPONICUM, 80 FT. TALL GROWING IN NORTHERN JAPAN.

C. JAPONICUM, 40 FT. TALL GROWING IN THE ARNOLD ARBORETUM. THE SEED WAS SOWN IN 1876.

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in colour, rather small, and are open a week in advance of those of any other species. The leaves are very distinct, being broadly ovate, even rotundate, 2½ins. to 4ins. long, 2ins. to 3½ins. wide, long-pointed and often very coarsely toothed, though sometimes they are more or less entire. The stems are rigid, ascending, clothed with grey bark. How tall this plant will grow in gardens we do not know, but in a wild state I never saw it exceeding 6ft.

In exceptionally severe winters the flower-buds of F. suspensa, F. viridissima and their varieties and hybrids are killed in this Arboretum, though the European species (F. europæa) rarely suffers in this way. If the new Korean Forsythia proves "bud hardy" it will be of exceptional value to northern gardens.

CERCIDIPHYLLUM JAPONICUM.

Not before in the Arnold Arboretum have the trees of Cercidiphyllum japonicum flowered so freely as they are doing at the present time. Every tree is decked with colour, illuminating the landscape from a distance. The male and female flowers of this plant are borne on separate trees. They are naked, produced from short, spur-like shoots; the male flower is a cluster of crimson stamens with long anthers suspended from thread-like filaments; the female consists of two long divergent crimson pistils. The aggregate number of flowers is enormous, and the whole tree appears flushed with bright crimson. The leaves unfold immediately the flowers fade and are at first bronzy crimson and singularly pleasing to look upon; in the autumn they become brilliantly tinted with yellow, orange and scarlet. In shape the leaves resemble those of the Judas-tree, hence the generic name.

The cercidiphyllum trees in this Arboretum were raised from seeds received from Hokkaido in 1876. The trees have grown very well, the tallest being fully 40ft. high with a trunk 6ft. in girth; they flower freely and have ripened their curious fruit pods regularly each season for twenty years past. In outline the crown is broadly ovoid and made up of innumerable ascending-spreading and twiggy branchlets.

Some years ago an animated controversy was carried on in English gardening papers as to whether Cercidiphyllum was a bush or a tree. As a matter of fact, cercidiphyllum is one of the world's noblest trees and grows to a larger size than any other deciduous-leafed tree indigenous in north-eastern Asia. It is native of Japan and of interior China, where I once measured a tree 55ft. in girth of trunk; but more usually the trunk circumference of cercidiphyllum is from 20ft. to 30ft., and from 70ft. to 80ft. high. In Japan, where it is known as the Katsura, the wood is valued for planking and general building purposes.

GARDENS OF INDIA

BY SIR GEORGE WATT.

(*Continued from page* 286.)

THEIR gardens contain an assemblage of plants of this nature, peculiar and characteristic. Among these the following may be mentioned: Malva verticillata, the mallow or *lapha-sag;* Chrysanthemum coronarium, the *babir*, not met with in any other part of India though common in China; Rumex vesicarius, the sorrel, regularly eaten as a *sag* and also an extremely handsome plant, well worthy of a place in the ornamental garden; and lastly, Brassica cuneifolia, found in nearly every one of the Northern Bengal to Assam vegetable gardens. That remarkable plant forms a rosette of dark bluish-green leaves, having broad yellow midribs and leaf stalks. When young it looks not unlike a Chinese cabbage, but in time it becomes more like a sprouting broccoli and shoots up a much-branched inflorescence to a height of 6ft. All parts are eaten, especially the young flowering shoots and tender leaves. It is generally known as *lai-hak*, which might be translated as *mustard-sag*. It is nowhere met with outside the region indicated. But perhaps the greatest novelty is the edible chrysanthemum. While not exactly an ornamental species, when seen in compact plots, the erect sparsely branched stems with their crowded yellow heads make a good show. But the startling thing about most of the plants in the Northern Bengal and Assam gardens is their strongly Chinese feeling, this is the more significant since the people are also distinctly of the Mongolian type.

THE FLOWERS.—Such then are some of the chief fruits and vegetables of the peasant garden, so I must now hasten to tell you something about the flowers likely to be seen there. Right in front of the house door, very possibly, will be found a plant of the sacred *tulsi* (Ocymum basilicum), a plant that cannot be omitted since, through its cultivation, the favour of the gods is not only thereby secured, but the plant itself is believed to purify the atmosphere and to kill mosquitoes, so it is invaluable. The oleander or *kaner* (Nerium odorum) in a like manner has the reputation of being able to protect the household from malaria, so it also must be found a place. Moreover, and as a matter of business, the *kaner* must not be overlooked since in the garland trade it has few equals, and possesses the additional merit that it can be presented to all the gods. Then the bush *tagar* or *chándui* (Tabernæmontana coronaria), with its sweetly scented flowers (as its specific name implies), might be spoken of as *the* garland flower of India. Fortunately, it flowers throughout the year and there are single and double flowered forms. Roxburgh (the father of Indian botany), truly observes that few shrubs surpass in beauty the double-flowered *tagar*. The *gandharaj* (Gardenia florida), a Chinese and Japanese bush, is sometimes cultivated as a substitute for the *tagar* and there are both single and double-flowered forms, sweetly perfumed.

The *har* or *harsinghar* (Nyctanthes Arbor-tristis), is a shrub much admired by the Natives of India; it has the habit of shedding its flowers in the early morning. The orange-coloured tubes of the corollas are picked off from the white limbs, and from the tubes, thus laboriously collected, a golden yellow dye is obtained. The flowers have also a sweet perfume, like that of the jasmine. The *harsinghar*, according to a Hindoo tradition, is said to have been brought from heaven by the god Krishna. Still another story tells of the bush having been a king's daughter who fell in love with the sun, but being repulsed, ever after refused to look on it again, hence the well known fact of the flowers falling before the sun rises. Mimusops Elengi has the same property of shedding its flowers at break of day. Both these flowers are highly valued in the garland trade.

But the mali or garland-maker must possess a jasmine or two and the species most generally met with are the Arabian or *mogra*, the *bel* (Jasminum Sambac), which is much admired for votive offerings in certain religious ceremonies; moreover, the flowers constitute one of the darts of Kama-Deva, the Hindu god of love. Then again, the Spanish jasmine, *chameli* (J. grandiflorum), was highly commended by the Emperor Baber in 1519. But it is to-day more valued as a perfume and medicine than as a garland flower.

A member of the Amaryllis family, the *dapidhupi* (Crinum latifolium), is a most stately plant, in blossom during the rains. Room for it is found, as a rule, near the well, where it may secure a daily supply of water. Recently, another Amaryllid has been introduced to Indian gardens—the *gulshab* or *rajani-gandha*, the tuberose (Polianthes tuberosa). It has been given an honoured place in the peasant garden, but more, in response to the demand for the flowers in the extraction of attar of tuberose, than as a garland flower.

ORNAMENTAL FLOWERS.—Most of the flowers already mentioned, it will be observed, are natives of India. They constitute a series very possibly not unlike that grown in the gardens of the malis centuries ago. Flowers not used for religious observances, naturally, are more subject to the caprice of the cultivator. Hence one might be permitted the observation that the choice of foreign flowers has in many cases been unfortunate. Two more discordant notes (both in colour and form) could hardly have been struck than the introduction, first of the *genda* or marigold (Tagetes erecta); to-day its flower heads are strung into garlands and these are even hung round the idols, so that the *genda* has, it would seem, been adopted as a sacred plant; second: the yellow, purple or magenta flowers of the *gulabbas* or *krishnakeli*, the Marvel of Peru (Mirabilis Jalapa), a plant that is leaving the gardens and becoming so prevalent near villages as to exclude all other vegetation. It is, in fact, following closely on the *sial-kanta*, the Mexican or prickly-poppy (Argemone mexicana), now no longer cultivated, for it has assumed everywhere the condition of a pestilent weed.

The ornamental flowers met with in the peasant gardens had better, however, be left over till we come to deal with the Native gentleman's garden. The following may be accepted as the more constant: The *joba* (Hibiscus rosa-sinensis); the *krishna-chura* or Barbados pride (Cæsalpinia pulcherrima), an introduced plant now met with in every garden in India; the *galub* (Rosa damascena), the Damask or Persian rose; the *rangan* or flame-tree (Ixora coccinea); the red periwinkle or *sadaphul* (Vinca rosea), and a West Indian plant rapidly becoming a weed.

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THE GREAT CHELSEA SHOW

May 26th, 27th and 28th

CHELSEA this year promises to exceed that of any other year, not only in the numbers of visitors, but also in the quantity and brilliance of the exhibits. The colour is particularly brilliant this year, perhaps partly owing to the cold winter and the late season, which has brought on plants with a rush, without any time to allow them to fade in the bud owing to strong sunlight. Their Majesties, the King and Queen, have again graced the Show with their presence, and were noticeably interested in many of the exhibits. Other Royal visitors were the Queen of Rumania, accompanied by her two children, and the Duke of Connaught. We are sure that this Show will be more than satisfactory from everybody's point of view, and from personal experience we are sure that the exhibitors deserve every encouragement. They have worked early and late in the past few days, and few people can realise the amount of labour entailed in preparing every exhibit, however small. Plants have had to be brought up a long distance from the country, and to see them as we are now able to—both in the tents and outside—shows not only skilful cultivation and careful packing, but also a capacity for taking pains. Chelsea opens in fine weather, with a promise of clouds and a few rainy periods in the forecast. Let us hope they do not materialise. At any rate, it is a vast improvement on last year's horrible experience of rain and storm.

MR. CLARENCE ELLIOTT'S ROCKERY. THE BRILLIANT AQUILEGIA GLANDULOSA WILL BE SEEN IN THE BACKGROUND.

ROCK GARDENS

Although many different styles have been evolved during the recent and widespread development of rock gardening, yet the majority of the exhibitors at Chelsea still remain faithful to a type, composed of a waterfall and a stream bordered with rocks, that seems to have become classical for show purposes.

This type is handled with the most immediately striking and brilliant effect by Mr. G. G. Whitelegg, whose stream lies in a rocky valley, with its 9 wide ledges heavily planted in drifts of colour. The dominant note on one side is given by masses of creamy white Saxifraga lantoscana, backed by the cool blue of Veronica gentianoides; while, on the other side of the stream, sheets of pink lead up, through the rather harsh magenta pink of Phlox Vivid, to a group of orange and violet blue in the background, formed by the double Welsh poppy and Aquilegia alpina. In the foreground by the stream-side is a delicate, cool-coloured group of grey powdered Primula pulverulenta in a setting of blue-grey grass; while the central point of the picture is a single plant of Ourisia coccinea in orange-scarlet. The whole effect is very brilliant, but in spite of the studied arrangement of colours the impression it gives is rather uncomfortable; there is, perhaps, too much unrelieved colour, and the general feeling is rather that of a carefully irregular piece of bedding-out than of the brilliant but always congruous association of alpine plants in their natural setting.

MR. WHITELEGG'S ROCK GARDEN.

Messrs. T. R. Hayes use their rock-bordered stream (which is a reproduction of a little piece of Westmorland scenery) with rather more restraint. Their weather and water worn rocks are of great individual beauty and would make a satisfying picture with only the slightest planting; there is one especially fine old channelled boulder lying in the stream bed in the foreground. Very good use is made of dwarf conifers; many of them are being shown for the first time, such as Abies Forrestii, a completely prostrate fir with the tough, wind-swept look of a true high alpine; this is the chief ornament of a large boulder cropping up out of the turf in the foreground and planted discreetly with grey and bronze sedums. One or two of the little cypress-shaped junipers and a small group of Gentian verna grow in the turf at its foot. T

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boulder is really a little rock garden in itself and a style independent of the stream and waterfall; it could be placed naturally in the lawn of many a small garden where the more ambitious sort would be extravagantly out of place, only—it requires the greatest strength of mind not to overplant it. Two other very attractive dwarf conifers in this garden are a flat-growing form of the deodar and that solid little hedgehog Picea excelsa echiniformis, very effectively planted up against a boulder, and the pleasantest piece of grouping (to one visitor, at least) in all the rock gardens, is a clump of the soft pink Cypripedium spectabilis against a background of grey limestone and the dark green of Picea Remontii.

The Backhouse Nurseries obtain a brilliant effect by backing their stream with Kurume azaleas, Japanese maples and Rhododendron Pink Pearl, the rather emphatic splendour of which a little overpowers a fine group of Antirrhinum Asarina, trailing its creamy yellow flowers over the face of a grey rock. Another modest beauty is Viola Hazlemere, a little pansy of which the colour is very difficult to describe, and very charming; perhaps a pinkish lilac washed over with grey most nearly fits it.

Messrs. Hodson's, Limited, vary the theme by introducing a satisfactory-looking "moraine" garden, a shelving valley of scree, alongside their stream; but it is a pity that this, the only example of its kind exhibited as part of a general scheme, should be planted with drifts of Lithospermum Heavenly Blue, yellow sedum, etc., instead of with the typical scree plants.

Messrs. Cutbush dispense with the stream and waterfall and build up, instead, a narrow gorge, planted with fine specimens of hardy ferns and lit up by a clump of trollius and Primula japonica. Beside the entrance of the gorge is an interesting holly, dwarfish and small-leafed, Ilex Pernyi that should make a useful bush for the higher slopes and background of the rock garden.

Messrs. Pulham and Son's stream meanders very pleasantly, and has three waterfalls. An interesting little cotoneaster overhangs the stream in the background, a new introduction of Mr. Forrest's from China. It has all the distinction of design of the best of its family, and the grey green leaves tone pleasantly with a bush of Senecio Grayii behind it.

Mr. Clarence Elliott breaks away altogether from the classical type of the show rock garden, with a steep cliff of which the upper ledges are thickly planted with Aquilegia glandulosa, solid lines of ivory white and powder blue against a background of grey stone and dark green conifers. The great widespread flowers show to best advantage nodding down, as here, from above eye level; but it is worth noting that these sturdy plants, some of which have between thirty and forty blossoms, have been grown in ordinary stiff loam in open beds, which should encourage a bolder treatment for one of the most beautiful of hardy plants and find them a place in the choice border. Over against the cliff is a little conical mountain, one slope occupied by a forest of dwarf junipers with a plant or two of a special dwarf form of Rosa alpina at the base; the other slope planted with wahlenbergias, pentstemons and Asperula Gussonii. But the most original development of rock gardening is shown in the stone sinks and pig troughs (the incongruity of their association with alpine plants is merely verbal), which Mr. Elliott exhibited for the first time last year. These illustrate, in their small compass, three distinct types of rock garden: a "scree" garden, containing Linaria alpina, Gentiana verna, achillea, etc.; an "alpine lawn," a close mat of thymes, Dianthus Musalæ, Arenaria verna and other little plants that are naturally companionable; and a boulder, with Wahlenbergia serpyllifolia major streaming out from under it over the rough edge of the sink, and saxatile plants long established in its crevices—a square foot of alpine scenery with all the charm that comes of intimate association between the plant and its setting.

FORMAL GARDENS

One of the outstanding features of Chelsea is formed by the life-size gardens, complete with their walls and paths, terraces and fountains, which enable one—or *should* enable one—to judge of the work of some of the bigger landscape firms at first hand. These gardens are this year inferior in quality (taken as a whole), to those to which we have for some years now been accustomed. Stonework, timber, paving, statuary and water are as lavishly employed as ever, but the results achieved are not—except in one or two cases—commensurate with the outlay. Better luck, perhaps, in 1925!

MESSRS. CARTER'S FORMAL GARDEN.

Messrs. J. Cheal and Sons, the well known Crawley firm, have a rather attractive arrangement for an ordinary rectangular suburban garden. The outer borders are filled with miscellaneous plantings, while a large part of the centre is devoted to beds of polyantha roses and a little circular sunken pool garden. The pool garden is very nicely proportioned and good to look upon, but two beds of polyantha roses break up the view of it from the house; these would be better on the farther side. The bottom portion of the garden is devoted to fruit trees, while the "herbaceous walk" through it is planted with dahlias. In addition Messrs. Cheal have an avenue of topiary.

Mr. James MacDonald once again exhibits a formal garden of grasses and this is very tastefully laid out, albeit the rather broad paths—for the great Chelsea public—would look better covered with granite chippings than with the rather nondescript gravel employed. Not the least notable feature is a *hedge* of grasses—mainly well grown plants of Miscanthus japonicus gracillimus.

Mr. Herbert Brook has a small garden featuring much rough walling and rougher paving.

Messrs. Kent and Brydon have a quite small, but very pleasing little formal garden, planted with Japanese maples and choice rock garden plants.

The Horsecombe Quarries display all kinds of stone garden ornaments and, mistakenly as we think, attempt to make with them a formal garden.

Messrs. Italia House, Limited, stage a garden with much walling and paving which in fact gives as much of the Italian feeling as is desirable in an English garden. One enters between a pair of roofed colonnades and the bottom end of the garden is dominated by rather an attractive terrace with rubble walling and easily graded stairways.

Messrs. Wm. Wood and Sons have a quiet little formal garden and a paved wooden pergola among a fine display of their garden furniture and statuary.

Mr. John Klinkert has a garden of topiary, which, judging by the "Mounts" at Packwood and elsewhere, would greatly have intrigued our forefathers. The topiary is excellent.

Messrs. W. H. Gaze and Son have an attractive and very restful garden in the Old English manner, the colour being provided by orange azaleas and mauve aubrietias. The inevitable central pool takes the form of a Maltese cross. On the whole we believe this to be the most entirely satisfying exhibition garden Messrs. Gaze have done.

Messrs. Carter of Raynes Park have a rhododendron garden, with garden shelter complete, which encloses a formal sunken pool of rather elaborate—dare we say too elaborate—shape. Pool and garden alike are dwarfed by an over-powerful fountain.

Messrs. R. Neal and Sons, Wandsworth, have one of the best positions in the Show and have erected thereon a doubtless very expensive and quite spectacular garden. Rhododendrons are largely employed for the planting, and the colour combinations are daring in the extreme.

ROSES

It might have been the "Flaming Month of June" to see the masses of glorious roses in the tents; they are shown in such generous quantities and of such excellence.

Time was, and it does not seem so very long ago, when most of the roses at the Spring Show were exhibited as cut flowers, but the scene has changed and it is profusely-flowered

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ROSE ROSELINDA SHOWN BY MESSRS. STUART LOW AND CO.

pot plants that now predominate. Almost any and every type and variety have been pressed into service, and the growers have been equally successful with all. To the lover of garden roses there are numbers of the best Hybrid Tea varieties, both the newest and the older, tried favourites. The lover of Nature's species will be charmed with the pillars of Rosa altaica in the collection of Mr. Elisha J. Hicks, for there he shows it in unaccustomed luxuriance. The roundish single blooms are larger and of a clearer white than usual and they are very freely produced As shown it is quite a desirable rose for a dwarf pillar or as a bush in the shrubbery. In the same collection Rosa Willmottiæ, a dwarfer species with pink flowers, is also of interest. In this generous group the free-flowering varieties include Double Orleans of great beauty, Lady Swathling, Lady Reading and Coral Cluster. Among the large-flowered sorts are Premier, Margaret Horton, Rev. F. Page-Roberts and Clovelly.

Rosa altaica is also shown by the Rev. J. H. Pemberton adjoining a vase of R. sinica Anemone of lovely pink colour. Chatillon Rose might be termed a glorified wild rose, for it has much of its appearance but with immensely improved colouring, though it is a real dwarf polyantha. Carrie Koster, White Echo and Edith Cavell are also especially well shown. At one end of his collection Mr. Pemberton shows a vase of a dazzling polyantha said to be a sport from Edith Cavell. This appears to be almost, if not quite, identical with La Reine Elisabeth, which, shown as half-standards, is so striking in the collection of Messrs. F. Cant and Co. In their back row they have a number of tall cluster varieties of considerable beauty. Exhibition boxes placed along the front contain many desirable sorts, such as Capt. F. S. Harvey Cant, which is also to be seen in a large group, Premier and Lady Alice Stanley.

Phyllis Bide, shown by Mr. George Prince, is described as a new perpetual climbing polyantha, and its uncommon orange salmon colouring attracts attention. Edith Cavell, Souv. de Claudius Pernet, Mr. Henry Morse and Hoosier Beauty are all of merit.

As at the N.R.S. Spring Show, Messrs. A. J. and C. Allen have cluster varieties bearing a great wealth of bloom. Romeo, Thousand Beauties, Chatillon Rambler, Excelsa and Paul's Scarlet Climber are noteworthy examples, while among their excellent dwarf pot plants may be mentioned Columbia, America and Hoosier Beauty. Of their newer roses Albertine, a double-flowered copper salmon coloured climber, Papa Gouchalt, another climber of deep pink colouring, and Pilgrim, which is much like a larger and more pointed La France, are of much more than average merit.

In a corner space Messrs. W. Cutbush and Sons have a pretty group of such free-flowering roses as Red Explorer, American Pillar and Hiawatha of the taller sorts, with Orange King, Greta Kluis, Salmon Queen and Mrs. W. H. Cutbush of the dwarfs.

Messrs. B. R. Cant and Sons have an interesting collection on a stretch of tabling where they show Padre, Hiawatha, Sovereign, Covent Garden, Blush Rambler, Thousand Beauties, Orange King, with other good sorts.

A magnificent group of pot plants has been well set up by Messrs. Chaplin Brothers, and this is noteworthy for quantity and quality of bloom. The tall varieties include American Pillar, Dorothy Perkins and the white variety, Blush Rambler and Sodenia. Among the dwarf Hybrid Tea sorts William Bowyer and Agnes Glover, two dark maroon crimson varieties; Florence, rich pink; Mrs. Tresham Gilbey, pale salmon pink; and Mrs. Henry Bowles are all very charming.

Mr. Charles Turner has placed his collection of roses behind many excellent lilacs. The chief of the roses are Mrs. T. Roosevelt, Souv. de Claudius Pernet, Countess of Gosford and La France.

Vases of fresh-cut roses are shown by Messrs. Ernest Paul and Co. Madame Butterfly, Mrs. Henry Morse, Hoosier Beauty, Ophelia, Mrs. John Laing and Covent Garden are the principal sorts. In the Orchid Tent, Messrs. Wheatcroft Bros. have a small collection, in which Coral Cluster and Jessie are prominent.

Messrs. Stuart Low and Co. are showing their new rose, which is a sport from Golden Ophelia. It excels the original both in colour and size. The centre of the flower is orange golden. This rose is sweetly fragrant.

TREES AND SHRUBS

This year, a certain number of the trees and shrubs, perhaps more than usual, particularly rhododendrons, are being shown in formal and informal gardens. These will be found under a separate heading. Messrs. Wallace are showing a magnificent group of azaleas and hardy hybrids at the bottom of the Sundries Avenue. The colours of the azaleas are particularly fine owing to the fact that they have all been grown outside and are not forced for the occasion. The two most noticeable plants on this stand are Koster's Red, which is really a flaming vermilion in colour, and the other Dr. Oosthoek, of which the colour is quite impossible to describe. It is, perhaps, closest to that of a roaring fire on a cold, frosty night.

Another exhibit outside, at the entrance to the main tent, by Messrs. Charlton and Sons, is rather spoilt by overcrowding. They have a large space, and if only some exhibitors would realise that the public is often as much attracted by individual plants well grown and well shown as by a crowded exhibit, they might find these shows more satisfactory from the point of view of orders. Messrs. Charlton show maples, azaleas, hardy vines, hardy hybrid rhododendrons and Populus lasiocarpa, a most attractive species, with large leaves, which should be more often seen in our gardens.

Messrs. Koster and Sons have a fine exhibit opposite the entrance to the main tent of their seedling azaleas, some of which are particularly brilliant in colour, especially those of flaming orange.

Messrs. Cutbush's outside exhibit consists entirely of topiary trees, which show excellent craftsmanship in cultivation.

At the entrance to the main gate is Messrs. Fromow's exhibit of their well known maples. As usual, this exhibit is one of the most interesting of all in the entire Show. Among many fine varieties Acer dissectum palmatifidum and Acer dissectum ornatum are very fine. The latter is pleasantly flushed with purple and young leaves.

Messrs. Cuthbert have a magnificent collection of azaleas of all shapes and sizes. Their corner of the main tent is probably

MESSRS. ALLEN'S ROSES.

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the most brilliant in the exhibit, but the azaleas lend themselves to colour grouping. Their Azalea mollis x sinensis are, as usual, the most noticeable, among them being Radiancy, a fiery red of very pure tone, and Apple Blossom, which is a true name, for the colours are exactly similar in their soft pinks and whites to apple blossom. They are also showing a very fine altaclarense hybrid of a pure canary yellow called Sunbeam.

The Donard Nursery Co. are staging a most interesting exhibit of trees and shrubs. Skimmia fragrans with its strong wholesome scent is a most attractive plant in a garden. Enkianthus campanulatus is also seen on this stand; it is a more bushy grower than the more common E. japonicus, but is otherwise similar in appearance, with its hanging bells almost coppery in colour. Two softish plants that are noteworthy are Pittosporum Silver Queen, a fine hybrid of their own raising with an almost metallic sheen on its leaves, and Lomatia pinnatifolia with heavily cut foliage.

Mr. Notcutt is showing brooms, azaleas, lilacs and other plants, but the finest are the brooms. His collection is well worth a close examination, for it contains many uncommon varieties. The more common Cytisus fulgens and Beani are to be found, but also C. versicolor of a pleasant greeny white, and C. among them R. Keysii, a peculiar Himalayan species with tubular orange flowers, and R. Elizabethæ, a hybrid from R. Falconeri. On his stand are also shrubs, such as Enkianthus japonicus.

The Yokohama Nurseries are showing their dwarfed trees, which are so well known that they require little comment. They also have several plants of Quercus dentata, which only arrived a week or so ago from Japan. This handsome species, with its large cut leaves, and others travel well to this country, which is surprising, but deaths on the journey are remarkably few.

Messrs. M. Koster and Sons also have a most attractive exhibit of their fine hybrid rhododendrons inside the tent. No. 150 is a pure crimson with darker spots, in an upstarting truss. Robt. Wallace is a fine rose, but probably the best plant on their stand is Peter Koster, a rose-carmine with particularly open flowers.

The Orpington Nurseries have an attractive stand of hardy hybrid rhododendrons, azaleas and some fine bushes of Cytisus Dallimorei.

Mr. T. Lewis also showed hardy hybrid rhododendrons and two very fine new azaleas, King Albert, a good orange, and Seedling No. 1, which is quite equal to the famous Dr. Oosthoek in colour.

THE RHODODENDRON EXHIBIT OF THE LADY ABERCONWAY AND THE HON. H. D. MCLAREN.

sessifolius, feathery in habit and of a clear soft yellow. In a vase on this stand is a magnificent spray of the single scarlet thorn, a plant which should not be despised.

Lilacs and roses are exhibited by Mr. Charles Turner. The roses are noticed elsewhere, but his lilacs are causing great enthusiasm. Among the best are Princess Clementina, a new large semi-double white; Mme. F. Morel, lilac with a dark reverse in particularly large trusses; M. de Messemæcher, the inside of the flower a deeper purple than that of Louis Spath, with a lighter reverse. This last is very fine indeed.

Messrs. Hillier and Sons are showing a fine collection of trees and shrubs, including wistarias, bamboos, syringas, etc. Many of the plants are Chinese species, and no doubt in time will become common in our gardens. Populus Wilsoni has magnificent large leaves, even larger than P. lasiocarpa; Salix magnifica is another large-leaved Asiatic species which looks soft and is not. Then there is Syringa reflexa, a fine species with rose flowers; the raceme as it ages bends over and hangs down. One other plant must be mentioned, and that is Raphiolepis Delacouri, with soft rose stars; this is also apparently hardy.

Next to Messrs. Hillier is Mr. Reuthe, who, as usual, is showing his well known rhododendrons, both species and hybrids;

Messrs. John Waterer, Sons and Crisp have an attractive exhibit of their famous hardy hybrid rhododendrons, among them Pink Pearl, Mrs. E. C. Stirling, Cynthia and Bagshot Ruby; the last is still one of the best hardy reds in existence.

Another exhibit of hardy rhododendrons was that of Messrs. Fletcher Brothers, who also staged several bushes of cytisus.

Messrs. Robt. Green are showing a collection of clipped bays at the entrance of one of the tents and a fine collection of ornamental palms inside. On Messrs. Gills' stand are seen the last of the Cornish rhododendrons in flower. It is rather late on in the season for this genus in Cornwall. Among other plants they are staging Clianthus puniceus, that valuable New Zealand climber, both the familiar red form and a less common and just as attractive white variety. There are also Drimys Winteri, olearias and abutilons. The Lady Aberconway and the Hon. H. D. McLaren have a magnificent exhibit of rhododendrons from their Welsh garden. R. callimorphum, with its rose-coloured bells is excellent, so also are the flat platter-shaped flowers of R. Soulei, both pink and white, the latter most effective. There is also on this exhibit fine vases of such semi-hardy rhododendrons as Lindleyi, Lady Alice Fitzwilliams, and fragrantissima. These have all been grown in the open. One shrub on their exhibit is worth noticing, Corokia Cotoneaster, perfectly hardy and charming. Its twigs are even more twisted than the more common Corokia virgata. Messrs. Cheal's have an attractive exhibit of hardy trees and shrubs in a corner of the main tent. Among them are Corokia virgata, Hydrangea Sargentiana, Enkianthus cernuus and numerous Japanese azaleas.

Messrs. Russell and Co., Limited, have a large exhibit of ornamental trees and shrubs in the open. Cytisuses, acers, wistarias, rhododendrons and azaleas, and clematises are conspicuous. Close by are several specimens of topiary work.

IRISES

Fleur de luce—the flower of light. Truly irises are, above all flowers, lovers of the sun and the open, and in the comparatively subdued light of the exhibition tent the full beauty of their colours is partly lost. Especially is this so with the violet-blues and the blended; the yellow variegatas and the rich red purples are less affected. Also the best effect is attained if we look a little down on them, just as we see them when growing naturally in the open. This is admirably exemplified at Chelsea in Messrs. Bunyard's and Messrs. Wallace's exhibits, the plants being grouped on slightly raised and very naturally formed borders. Considering the late season and interminable wet weather, these two exhibits are wonderful and divide the honours for irises at Chelsea this year. Both contain many of the latest varieties in splendid condition. The Wallace display is more open and extended, while Bunyard's is perhaps the finest and most artistically arranged massing of bearded irises ever seen at Chelsea.

Of the individual flowers there is only space to mention the most notable. But this does not mean merely the newest and latest arrivals. Princess Beatrice is still without a rival among the pale violet-blue pallidas. Queen of May, Alcazar and Isolene are still in the front rank. Jacquesiana still holds its own, though over sixty years old. There is a large group now of this type—the red squalens type—all of which are desirable and satisfy varying tastes. Prosper Laugier and Ambigu are rather deeper toned, and Rosalba, shown by Messrs. Bunyard, is a more self red toned flower and the best for massing. Opera and Archeveque are a little nearer the red pallida or red bicolor type and the latter rather dwarf. Seminole is the finest in colour, form and habit of all these. These red-toned irises are coming more into favour, since it is realised how beautiful they are as cut flowers by artificial light, for which purpose the violet-coloured iris are unsuitable. Among the lighter red purples Ed. Michel is still good, but Miss Sturtevant's Dream, shown by Wallace, is more beautiful in colour, a self lilac rose; while Mr. Dyke's Aphrodite, shown by Bunyard, is the best of these. In Wallace's display may also be seen the new Lady Byng and Queen Caterina, both of a beautiful clear rose-mauve, and the latter with a lustre unsurpassed by any other iris, but needing the full sun for its perfect display.

There are so many of the violet-blue Trojana hybrids that it is difficult to choose. Lord of June, Morwell Angelo and many others are all fine, but perhaps the best seen to-day is Ann Page, shown by Wallace. of the specially blue-toned irises, Crusader is shown in fine form by Bunyard and Blue Bird by Wallace, but brighter and bluer than either is Leoné Trenance with flowers of very fine form. Azure may also be noted together with these, though it is a bicolor.

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Of the outstanding varieties to be seen at Chelsea this year the two most notable are shown by Wallace. Theseus is a splendid large-flowered white raised by Sir A. Hort. Though its parentage is unknown, it has every appearance of being a union of Kashmir White and a Trojana hybrid. Tall and of fine Trojana habit, it has also the Trojana form of flower and strong olive yellow reticulations. Pioneer, of which Messrs. Wallace show a fine group, is now the finest of all the deep red-purples. The flowers are very large and of the finest form, and the colour rich and deep. It is early, very strong-growing and very free-flowering, being derived from Germanica through Paladin (which may be seen in fine form in Messrs. Bunyard's display). These two are now shown for the first time. Others that, though no longer new, are still among the best of irises, include magnifica, one of the largest and quite the finest formed iris yet raised—with a little more substance it would be almost perfect. Messrs. Wallace also show Ambassadeur, which is equal to all but the best of the Dominion race and has the same rich velvety falls, darker even than Moa. Bruno, probably the richest coloured iris yet raised, but weakened somewhat from forcing. Lent A. Williamson, likewise somewhat weakened in colour, and Mr. Yeld's stately Asia and Prospero. A good group of Denis' Dalila, always a striking iris in the border, is also shown.

Souvenir Mme. de Gaudichau is shown both by Wallace and Bunyard, though the colour is not so rich as when seen in the open. It is quite the best self deep violet purple iris and wonderfully free-flowering. Citronella is to be seen near Bruno, and maintains its reputation as the most beautiful iris shown, in spite of the median line in the falls that some think a blemish.

In Messrs. Bunyard's display, besides others already mentioned, may be seen Glamour, one of the fine Dominion race, and the nearest of these to a red squalens type; indeed, it might almost be described as an enormous Jacquesiana. Also Titan, so fine in form and size, but less distinguished in colour than others of Dominion's progeny.

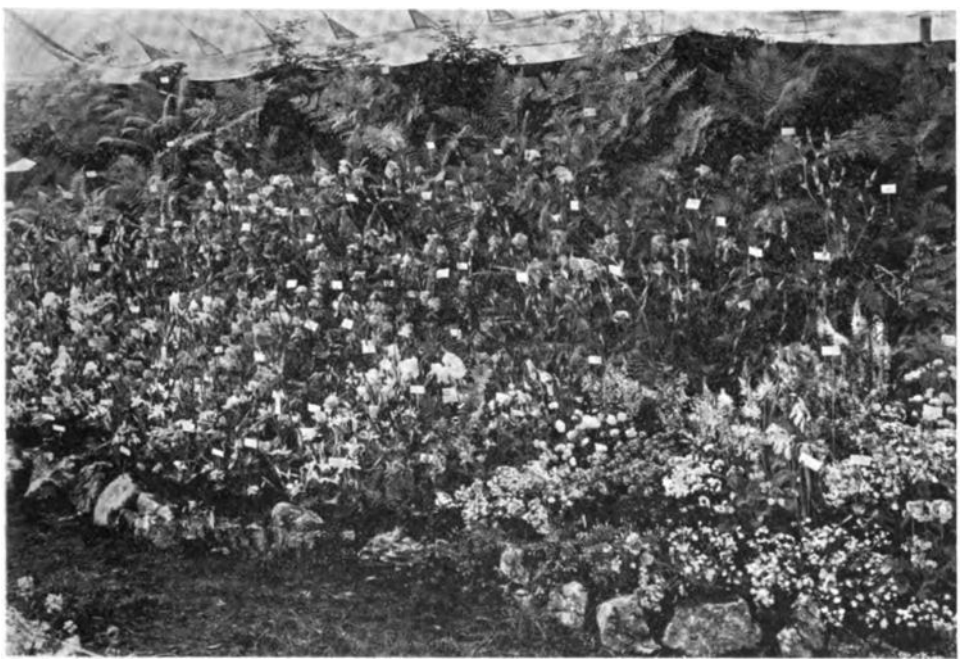
Few Plicates are to be seen, but in Messrs. Bunyard's exhibit is the beautiful Mme. Chobaut, a squalens-plicata. The colouring baffles description—cream tinged yellow and margined in the standards with a veining of pale wine colour, and in the falls with lilac shading to brown at the hafts.

The Orpington Nurseries make a large display on raised staging. This is more convenient perhaps for examination of individual flowers of special merit such as this firm specialises in, but it makes a less effective display as a whole. The season has been too unkind for their finest varieties, which are of midseason flowering. Those worth noting include Istria, a white of a pleasing greenish tone and faintly tinged porcelain. Sapphire, one of the best of the Ciengialti hybrids. Turbine, one of the best of the rose mauves for artificial light and very early; and Cretan, a deep rich violet purple species from Mr. Dykes' collection.

Mr. Perry has, as usual, a beautifully displayed exhibit, but owing to the late season is unable to show any of his fine new Barbata iris seedlings. Some very interesting hybrids of the Californian Apogons are to be seen, such as Douglasiana × bracteata, and a fine display of the Regelio-cyclus hybrids, including Artemis, Psyche, Luna with its blue beard, Charon and stolonifera.

Lastly, Hoogiana is shown by many growers. A most beautiful iris and come to stay.

A CORNER OF MESSRS. BUNYARD'S COLLECTION OF IRISES.



IRISES AND FERNS AS SHOWN BY MR. PERRY.

ANNUALS.

The plant of annual growth still retains its popularity with the public in spite of the greatly increased interest taken in herbaceous, bulbous and deciduous plants which form special features in so many gardens nowadays. Annuals have all the promise of simple and expeditious gardening; the harvest follows so easily, so surely, and so early is the flowering time compared to the date of sowing. By their aid the front garden can be made tidy and quite respectably furnished with little outlay and without interfering too much with week-ends, golf scores and holidays. But with annuals, as with all other flowers, it is more difficult to cultivate them in perfection than in a slipshod fashion, and all too often, from lack of a little more care and a little more knowledge, the results fall woefully short of the mental picture conjured up when the seeds were bought. If you would grow annuals well you have a splendid example of the *fait accompli* here to hand. An exhibit such as that displayed by Messrs. Sutton and Sons or by Messrs. Carter and Co. is worth a great deal more to the intelligent gardener than the mere regaling of the eye with pleasing colours. Note the plants themselves, how sturdy, bushy and well grown they are, and you will learn with a judicious question or two the real secret of successful results. With so much of the Colonial and American element about this year, Messrs. Sutton's exhibit is such as to make one proud of British horticulture. The centre-piece is built high with salmon clarkias, carpeted with white alyssum. Surrounding this are numerous beds laid out with tasteful colour schemes ranging from cool whites and blues of Cineraria stellata to the most intense orange-scarlet of Clerodendron fallax. Here, too, are salpiglossis as they can and ought to be grown, and among them one notices a new shade of soft purple-mauve and another of pure Indian yellow. Nemesias with which the name of Sutton is particularly identified, make glorious masses of white, orange and crimson; while the manner of

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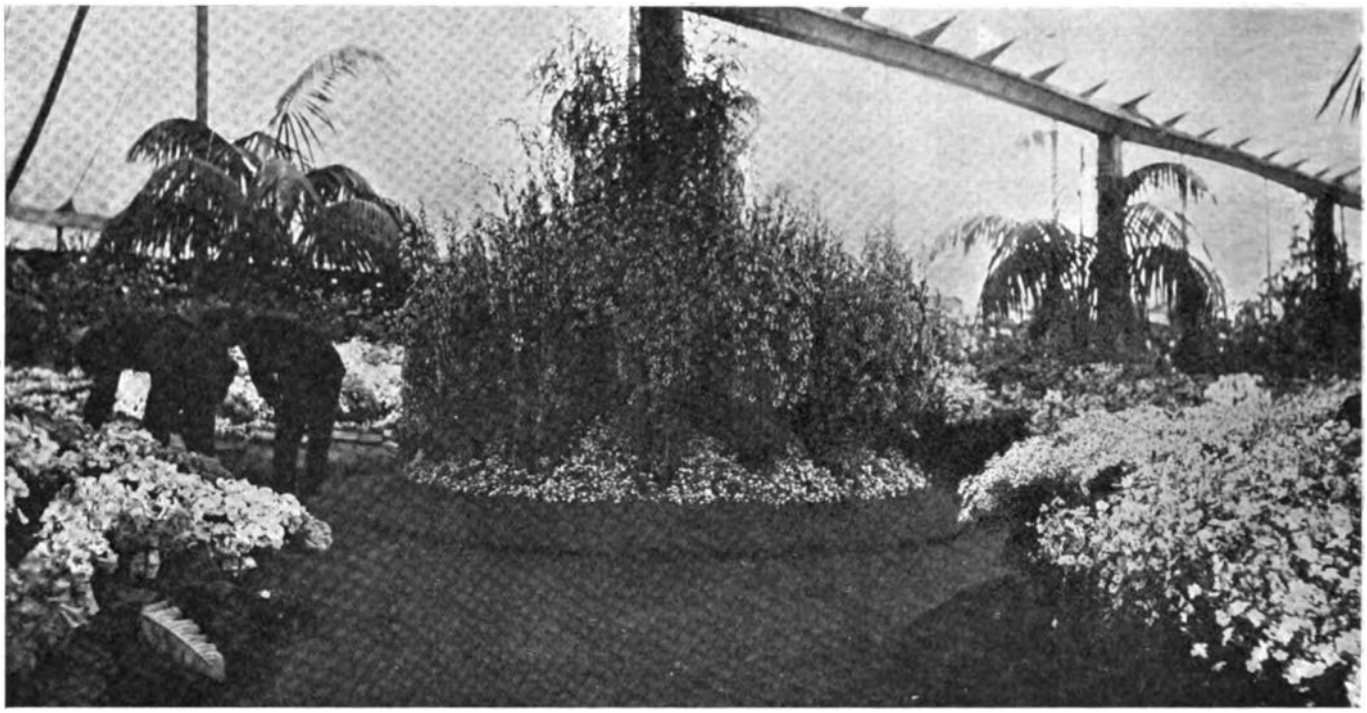


MESSRS. SUTTON'S FINE EXHIBIT.

displaying salpiglossis and Nicotiana affinis over carpets of Phlox Drummondii is extremely pleasing and effective. Tall and dwarf lobelias are also cunningly blended in the sixty beds comprising this unique picture of gardening. The employment of palms placed at intervals adds importance and grandeur to what is the most beautiful effort we have seen produced by the famous Reading firm.

Messrs. Carter and Co. have another splendid floor piece centred also with clarkias in rose shades and surrounded with schizanthus in rose and white. Salpiglossis in velvety garb are also strongly represented here, but the main features comprise a great range of greenhouse plants and will be dealt with in our next issue.

Messrs. Dobbie and Co., thorough in all they attempt, make many claims on the attention of the visitor. Their gorgeous array of May-flowering tulips will be described in detail next week, has an effective crescent edging of rose schizanthus and white Brompton Stock Snowdrift.

Like the Chelsea Show of 1922, this is another year of schizanthus, and one might travel far before seeing such splendidly grown plants of these showy annuals as are staged by Mr. Alfred Dawkins and Messrs. Hurst and Son; while the same flowers are also utilised largely, with linaria and Dimorphotheca aurantiaca, by Messrs. Webb.

SWEET PEAS

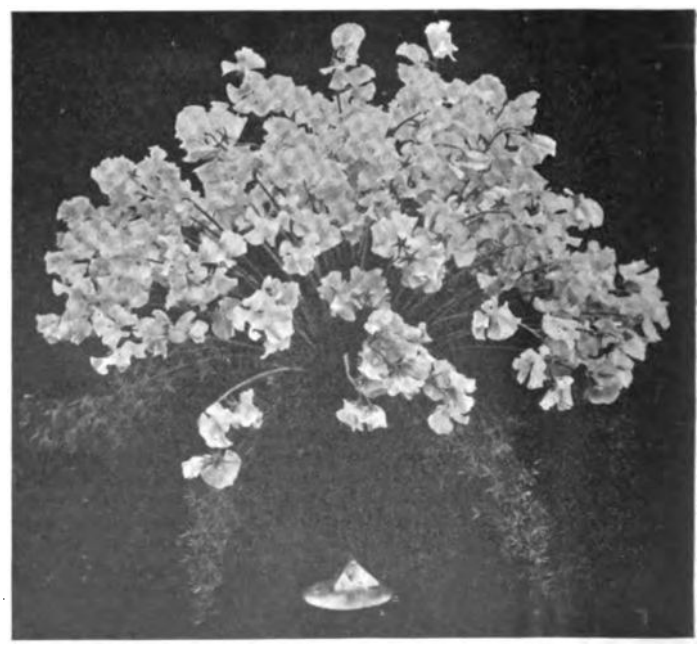
Year after year the last word seems to have been spoken about the development of this favourite summer flower, but year after year new things come to make us wonder and admire, and if one were confined to the growing of novelties as shown at Chelsea, there would still be a great range of colour in the garden.

In Messrs. Bolton's stand we note fine new varieties which will give great pleasure to all who love the queen of annual plants—and the names are as up-to-date as the blooms. Wembley and Empire are both reminiscent of the current year, the former a lovely soft pale bluish lavender, the latter a pale rose pink, both of them being new sorts of great merit. Angele has pinkish lavender wings and mauve standards, the colours blending well and forming a flower both striking and beautiful. Mammoth is a very rich orange, and Supreme is a first-rate decorator in its dainty satin pink. Wizard, one of Bolton's new ones of last year, is still outstanding in its unique shade of coral orange, and all the flowers shown on this stand reach a very high level of excellence.

Mr. Stevenson brings Coraline, a brilliant orange cerise, and Venus, pale salmon-pink on cream ground, which are quite new; and his older varieties, notable for lovely colouring, are Wild Rose, orange-pink shaded with old rose; Grandeur, rosy purple; Felicity, flushed pink on a white ground and Fair Lady, delicate pink on cream. This grower has two very fine peas classed among the so-called blues—Diana, a lavender-mauve, and Cynthia, a pale mauve. There is no background to assist the flowers here, but Mr. Stevenson needs little to set off the excellence of his culture.

From Messrs. Dobbie and Co. one looks for the finest that good culture can do, and there is nothing to disappoint in the display made by the Scottish firm. Naturally, the novelties for 1925 will attract much attention, and among them is one of distinct colour, viz., the cerise-rose of Rose Maiden. That well known variety, Royal Scot, is now surpassed by Grenadier, more fiery than the older one and better in form and substance. Ruby will also be hailed as a new colour in sweet peas—ruby-carmine seems to describe it, and not only is the shade a striking one but the plant is a fine grower and the form and placement on the spike all that fastidiousness demands. A new American variety strikes us as being the finest we have seen of the picotee-edged class, Youth by name, and it certainly has all the freshness of adolescence about it. The elusive yellow seems to be just a trifle nearer accomplishment in Majestic, which has a suspicion of sulphur on the cream petals.

Messrs. A. Dickson and Sons have a splendid lot of Hawlmark sweet peas most tastefully arranged in large baskets, the colours being thrown up clearly on a background of green formed by sprays of Asparagus plumosum. For next year this firm has three highly meritorious novelties, Pink Perfection, Blue Bird and Flambeau, all



MESSRS. BOLTON'S NEW SWEET PEA "WEMBLEY."

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of them self-descriptive; but Blue Bird seems to demand special mention, as it is probably the finest of this colour yet raised. Other baskets that will catch the eye are filled with Purple Perfection, Lucifer, rosy cerise; Fairy Queen, flushed rose on cream ground; and Matchless and Champagne, two fine deep cream sorts.

The struggle to obtain something like a yellow pea is waxing keen again, and in Messrs. Ireland and Hitchcock's collection we note Mme. Sarah Grand, one of the prettiest of this section in deep ivory and cream. This firm has just secured the first F.C.C. granted by Covent Garden's newly formed Floral Committee for a new sweet pea called The Beacon—an appropriate name, one would say, for a flower with orange and coral blended together, forming an upstanding bloom of great substance with erect standard. Note here, too, another pair of lovely "blues"—Lord Lascelles, pale mauve, and Moonbeam, mauve and heliotrope; and, among the varieties already known, Annie Ireland, Bunty, Hawlmark Pink Improved, and Mascott's White, the last very pure in tone.

Messrs. Sutton and Sons make a brave show of sweet peas of daintiest and freshest colour tones from which we singled out a new seedling called Shell Pink, very exquisite as a vase flower. Where excellence is maintained at such a high level throughout, it is difficult to point out special vases for particular mention, but very beautiful indeed are Butterfly Spencer (another new one), Colne Valley and Tom Jones in strong shades of mauve, also Powerscourt of like colour, Gloriosa, Tangerine Improved and Blackseeded Cream. Several unnamed seedlings in this group may be heard of later on.

The Preston Hall Nurseries stage some choice varieties also.

CARNATIONS

With one exception the greenhouse carnations are shown by the trade growers, but the welcome exception is the Hon. George Herbert, who, from his gardens at Knoyle House, Salisbury, has sent a collection which is necessarily smaller than the others, but is quite their equal in quality. The principal sorts so well displayed are Enchantress, Nigger, Benora, Harvester, Mary Allwood and Astral.

A very delightful style of arrangement has been adopted by Messrs. Allwood Brothers, who have displayed a very dainty touch, though they show a large quantity of excellent blooms. From lightly arranged vases of yellow and pink sorts are suspended elegant baskets of dark crimson blooms. Jessie Allwood and Mary Allwood are associated with Triumph, while from Maine Sunshine and Wivelsfield Fancy spring Wivelsfield Claret. Of the many other varieties, Coral Glow, a richly coloured orange fancy, Topsy, Benora and Mikado insist on being admired.

At the Embankment end of the large tent, Mr. C. Engelmann displays an enormous quantity of excellent blooms. Very large stands, containing almost countless numbers, have Peerless, a glowing mass of rosy cerise, Saffron of rich yellow, and Cream Saffron, which is saved from insipidity by a delightful suggestion of the palest blush pink; Enchantress Supreme, of charming soft pink colour; Topsy, dazzling crimson; and White Enchantress. Smaller, but really large, stands contain Mrs. Hamilton Fellowes, rosy purple; Orange Sunstar, the scarlet Tarzan, and Sheila Greer.

On a table space Messrs. Keith Luxford and Co. are showing Tangerine, a beautiful fancy carnation; Coquette, a mauve-cerise fancy; and Lady Meyer, a very large mid pink; with such older sorts as Cheerful, Aviator, Bona and Saffron.

Adjoining their miscellaneous greenhouse plants, Messrs. Stuart Low and Co. have vases of White Pearl, Arnos Grove, of mauve and heliotrope colouring; Lady Inverforth, deep salmon; Eileen Low, pale salmon; Topsy, scarlet; and Red Ensign. Next to these they have splendid vases of the new roses, America and Roselandia, which we admired recently at Vincent Square.

Although, generally, the border carnation season is not yet, Mr. James Douglas is able to set up a large number of his splendid blooms. The fancies are especially good, and include Lieut. Shackleton, Lomond Hills, Viceroy and Highland Mary. The production of fragrant varieties has long claimed Mr. Douglas' attention and energies, so that he now has many varieties of delicious perfume. Of those now on view the chief are Wonder Clove, Sir Bonetto, Steerforth, White Clove, Purple Clove, Rose Clove and Blush Clove. Rather a new shade of colour in border carnations is apricot, which is represented by Melaine, a really charming flower.

At the time of taking these notes there was no definite information available, but we believe a collection of border carnations in another part of the tent belongs to Mr. F. W. Seymour. This includes such desirable varieties as Gondolier, Sam Weller, Cleopatra, Highland Mary and Lieut. Shackleton.

A PORTION OF MESSRS. DOBBIE'S EXHIBIT OF SWEET PEAS.

LILIES

One of the firms always associated in the gardener's mind with the lily is that of Messrs. Wallace. It is seldom, however, that they have matters quite so much their own way at Chelsea with this grandest of flowers as on the present occasion. Barring a few longiflorums here and there in miscellaneous exhibits, they have a monopoly. Their lily garden, if smaller than last year (to make room for an iris grove), is equally as interesting as that memorable display and is unlikely to be missed by any visitor. The Martagon section is well represented, bold groups of three Sutton Court hybrids being shown, these being Mrs. R. O. Backhouse, Sutton Court and Sceptre. The last named, probably the least known, we think the most attractive as shown, but all these gold or apricot and black "Turks-caps" are attractive. A very good colour form of L. Martagon is there, as well as the glorious Martagon album, while the buttery "Marhan" form, Ellen Willmott, will attract attention as well as Hansoni itself.

Lilium regale upholds its royal style and a group of sulphur-gale forms shows the variability of the sulphureum-regale cross. L. excelsum (testaceum) lifts high its nankeen blossoms, while a group of the grand old orange lily, L. croceum is the first shown at Chelsea for many years. Lovers of the rare and dainty will find a plant of Farreri and one or two other varieties—some, alas! only in bud; and many forms of L. umbellatum make bold splashes of colour. Orange Queen is a particularly good one, but grandiflora and the less known lingulata are even more showy.

Groups of hardy cypripediums and Roscoea cautleoides lend variety and Japanese maples and that most beautiful of hardy ferns, Adiantum pedatum give needful foliage colour. The mauve Ixiolirion Pallasii, shown here in quantity is perhaps "liliaceous" enough to justify a mention.

CLEMATISES

Quite one of the features of the Show is Messrs. Geo. Jackman and Sons' exhibit of large-flowered clematises. This firm, whose name is a household word for clematises, has on this occasion surpassed itself. Almost every large-flowered variety in commerce is on view, and that in excellent form, and it seems almost invidious to mention names; but the huge blossoms of Gloire de St. Julien (lilac), Marie Boisselot (pure white) and Fairy Queen (blush pink), though these are less free to flower than some of more reasonable dimensions, compel attention. The striking bi-coloured blossom, too, of the always popular Nelly Moser stand out from the cooler tones of lilac and purple and the glistening whites. It is a little unfortunate that this splendid group should have to compete with the multi-coloured splendour of Mr. Jones's hydrangeas.

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HARDY FLOWERS.

A lovely group of delphiniums is shown in tent No. 1 by Messrs. Blackmore and Langdon. Noble and stately spikes of the better kinds are shown at their best, including such sorts as Princess Mary, pale blue and mauve; Marjorie Ferguson, pale blue; Lavada, deep mauve; George Cochrane, deep mauve-blue; Rev. E. Lascelles, deep blue and white double; Glory, palest mauve; Mrs. Colin McIver, lovely rich mauve; Purple King, deepest mauve; Blue Boy, single blue; Turquoise, semi-double bright blue; and Millicent Blackmore, mauve and blue, a beautiful double sort. It is quite impossible to mention but a tithe of the grand things in this group.

A magnificent lot of hardy flowers is seen in a large beautifully arranged group set up by Messrs. John Waterer, Sons and Crisp. Here are displayed in delightful fashion Lupinus polyphyllus, LL. Delight, Pink Pearl, Fascination, Sunshine and many of the older varieties of this plant. There are also delphiniums, irises, aquilegias, peonies, eremuri, heucheras and other beautiful hardy flowers, all charmingly disposed. This exhibit is to be seen at the Embankment entrance of No. 2 Tent.

A triangular group of trolliuses, Iceland poppies, Oriental poppies and other such plants make an attractive show in No. 2 Tent, as exhibited by Messrs. Wm. Artindale and Son. The most noteworthy examples being Trollius Helios, TT. Orange Globe, Lichtball, Golden Wonder, Goldquelle and europæus. Ranunculus aconitifolius fl. pl. and other plants make a beautiful floral picture.

A lovely circular group in the same tent, arranged by Messrs. Geo. Jackman and Son, comprises lupins in charming variety, irises, delphinums, lavateras, aquilegias, kniphofias, cytisuses, cheiranthuses and a host of most beautiful plants that everyone wants in their garden. Surrounded with Acer Negundo and palms, this is a most attractive exhibit.

Messrs. B. Ladhams, are showing a lot of beautiful plants in a table group in Tent No. 2. There are several plants worthy of notice, such as Thalictrum Purple Cloud, Polemonium carneum, Heuchera Pink Pearl, Mimulus luteus (semi-duplex), Heuchera tiarilloides, Primula japonica "Etna," Cheiranthus Little Gem, Achillea montana, Geum rivale (Ladham's variety), G. Borisi, Aster alpinus, King Viola gracilis in variety and many other pretty plants.

Messrs. Storrie and Storrie, have a very showy table group of hardy primulas, polyanthuses, border alpine auriculas, set up in the admirable manner peculiar to this firm. Aquilegias are very good in this instance, charming colours being represented in all of them. Scotland Yet, is a fine thing, scarlet and yellow petal. England's Glory is also a lovely variety, blush pink and yellow. Among the alpine auriculas in blue and helio shades are many very beautiful things, and there are also others in yellow and cream shades. The border polyanthuses and cowslips in charming variety, have much to commend them.

A few bunches of hardy flowers are shown together with alpine plants by Mr. W. Wells, Junr. Lupinus Moerheimi, L. Merstham Gem, Trollius Orange Gem, Thalictrum aquilegifolium purpureum, Heuchera tiarelloides, Onosma taurica, double Pyrethrum Queen Mary, single Pyrethrum Hamlet, are a few of the more noteworthy plants in this group.

St. Brigid anemones, exhibited by Messrs. Reamsbottom and Co., are a most attractive table group in tent No. 2. The flowers are large, of brilliant colours and are set up mos attractively.

In the same tent Messrs. R. Gill and Son, make up a table group of anemones, blue bells, Lilium regale and flowering shrubs. The arrangement of the flowers might have been improved upon.

Messrs. Kelway and Son, show pyrethrums and lupins in pleasing variety. The new single pyrethrums worthy of note, Prince of Wales (carmine), Lady Astor (white tinted pink), King of Spain (bright crimson), Mrs. James Kelway (cerise pink with twisted florets). There are many other beautiful things, all worthy of attention.

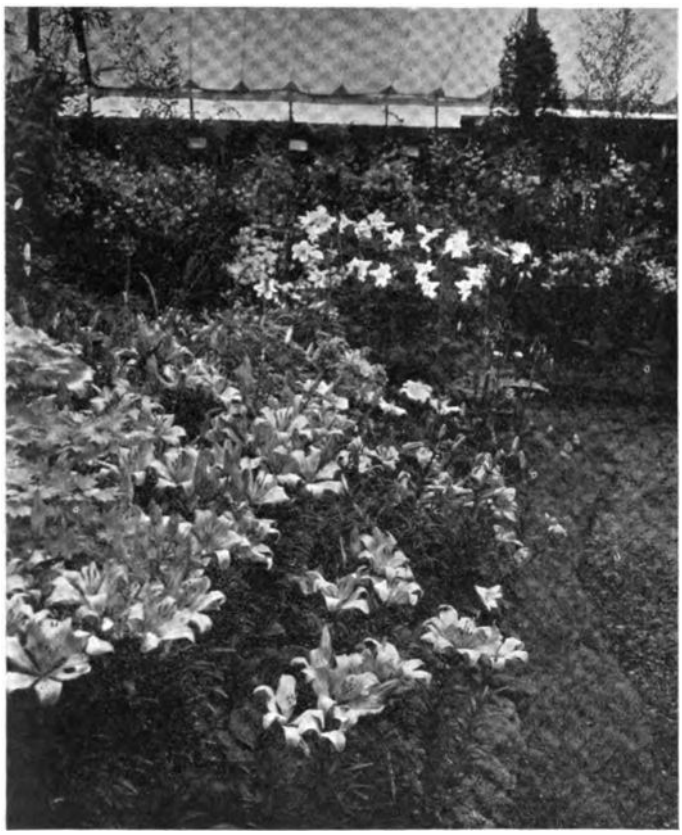
Mr. Fredk. G. Wood, has a small table group in No. 2 tent, comprising such things as Oriental poppies, heucheras, geums, campanulas and other plants, not arranged very satisfactorily.

Seedling varieties of Lupinus polyphyllus are shown in large numbers by Mr. G. R. Downer. There are many varieties shown under numbers, but others worthy of especila mention, such as The Dingle (pink), Bella Jones (violet), Mount Everest (white), Downer's Delight, Chelsea (mauve-blue), Goodwood (bright pink), May Queen (violet) and many others too numerous to mention.

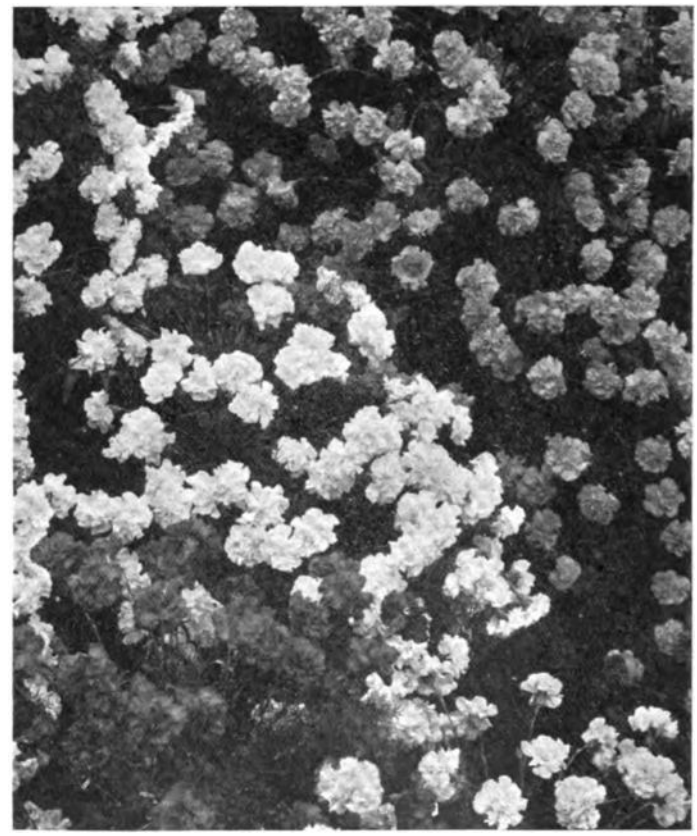
Mr. George G. Whitelegg, showed, in a group of iris, good bunches of Lupin Sunshine and Trolliuses Orange Globe and Phœbe.

A table group in No. 2 tent, exhibited by Mr. G. A. Miller, included a great variety of plants, such as polyanthuses, mimulus, single Pyrethrum Early Favourite (deep pink), Daphne Cneorum, heuchera, Genista præcox, lilacs, etc.

Lupins from Messrs. Godfrey and Son, are shown in bunches of unnamed sorts, and forms of Viola gracilis are also displayed. A sort of horseshoe border,



SOME OF MESSRS. WALLACE'S LILIES.



PERPETUAL-FLOWERING CARNATIONS SHOWN BY MR. ENGELMANN.

In next week's issue we shall publish detailed comments on Rock Plants and Primulas, Stove and Greenhouse Plants, Pinks and Alpwoodii, Orchids, etc., and Garden Sundries, with descriptions of New and Rare Plants.

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SOME SHADE-LOVING ROCK PLANTS

DESCRIBED below are a few choice plants that require shady positions in the rock garden; positions which are not too easily furnished when only choice or rare plants are required. Some of the plants are difficult to make happy, even though a good deal of care and attention may be given them; but that is the most interesting and fascinating part of the hobby, and to triumph over the most difficult little plant gives unlimited pleasure. In odd cases, no doubt, the joy one may get in mastering a hard subject, exceeds the joy that the perfected plant grants one.

In Omphalodes Luciliæ, from Asia Minor, we have a perfect treasure, with many likes and dislikes, usually more of the latter than the former, when attempting to provide a home for it in the rock garden. However, it is an ardent lime-lover and appreciates a shady corner, cool and moist in summer. Quite an agreeable compost may be made up of two parts limestone chips and old mortar rubble and two parts leaf-mould, loam and sand. This should be placed in a suitable pocket with a due north aspect. The foliage of the plant, handsome in appearance, is of a blue-grey colour, and the forget-me-not-like flowers are a lovely electric blue, tinged with the faintest flush of lilac. The most successful means of propagation is by seed, which, curiously enough, should be taken from the plant and sown when the nutlets are still green.

Pyrola rotundifolia is a rare British native, belonging to the winter-green family, whose home is to be found in the cool shade of a woodland. It is evergreen, with round leathery leaves of deep green. It carries six to twelve waxy white flowers on a raceme about 9ins. high, and has a lily-of-the-valley-like appearance. The flowers are also deliciously fragrant. A shady corner filled with peat and leaf-mould will assist in making the plant at home, and when it is established it will soon make a handsome patch.

Unlike a great many of the wood sorrels, Oxalis enneaphylla from the Falkland Islands never makes itself a nuisance, although it is an easy doer generally and a plant of genuine merit. It favours shade, peat and leaf-mould, together with good drainage. It increases by multiplying its scaly corms into a compact tuft. Being deciduous, it disappears in autumn and reappears in spring, first producing its grey heavily-crinkled foliage, which is followed immediately by shining white flowers on 2in. stems. There is also a fine pink form, known as O. e. rosea, which requires exactly the same treatment. In each case the flowers are large and are convolvulus-shaped.

Cypripedium Calceolus is reputed to be the gem of British wild plants, although I believe it is now almost extinct in this country. Its beauty forces it to be placed in one of the choicest of choice corners, shady, cool and moist, with its roots in rich leaf-mould and loam, not forgetting an adequate supply of lime rubble. The foliage usually consists of four large, heavily veined leaves, and the flowers are generally borne singly, sometimes two, on a 6in. to 12in. stalk. The flowers are large and very attractive, having a pale yellow inflated pouch or bag and long purplish-chocolate petals.

Astilbe simplicifolia is a dainty baby "spiræa" with a graceful habit and possessed of a good constitution. There is no difficulty about growing this plant if it is provided with a moist and shady corner and a compost of fibrous loam and leaf-mould. Flowers are borne in June, comprising dainty feathery plumes 6ins. high, of a rich cream shade, from tufts of glossy green leaves, which turn to a reddish-brown tint in autumn.

One of the great favourites among alpine lovers is Ramondia pyrenaica. It requires deep shade, unless it is found convenient to plant it where it can have abundant moisture in summer. For instance, if it were possible to give it a crevice by the side of a waterfall, where it could be constantly sprayed in hot weather, then it might thrive in full sun; but otherwise, a northern exposure would suit it more. By planting it on its side in a crevice, the best results may be expected, provided that a good sound mixture of peat, leaf-mould and silver

OXALIS ENNEAPHYLLANEVER MAKES ITSELF A NUISANCE.

A FINE PLANT FOR A NORTHERN EXPOSURE, SHORTIA UNIFLORA GRANDIFLORA.

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sand forms the root run. It makes large flat rosettes of crinkled hairy leaves of rather coarse texture, and in June or thereabouts it produces its lovely mauve, golden-eyed blossoms. There are two other rarer forms, known as R. p. alba and R. p. rosea.

For a shady corner or for carpeting under trees, preferably pines, Linnæa borealis, a rare native of Britain, is excellent. It makes long trails of growth, with small round leaves, set out in pairs. From the axils of these arise the flowers, which are also in pairs. They are poised on slender 1in. stems, hanging gracefully, like waxy pink bells and are sweetly fragrant. Peat, leaf-mould and decayed pine needles make quite a good compost. It is evergreen, and if the trails are pegged down they will root freely.

Shortia uniflora grandiflora is another fine plant for a northern exposure, with handsome reddish foliage, stout and tough, which contrasts greatly with the large, nodding, delicate pink flowers, that resemble heavily fringed open bells. As the second name suggests, they are borne singly, on 3in. or 4in. stems. Good drainage is essential and a deep pocket of the best peat and silver sand.

THE SHADE-LOVING RAMONDIA PYRENAICA.

Patrinia palmata is a pretty shade plant, but is only too uncommon, as it is a perfectly easy doer without being made any fuss of. It will flourish in any good loam and leaf-mould. Its bright golden yellow flowers are borne in corymbs about 4ins. high and the foliage forms a tuft of bright green palmate leaves.

Primula Loczii is a lovely species of fairly recent introduction from Tibet. The heads of pink flowers are very similar to those of Primula frondosa, save for the farina which is absent in P. Loczii; thus somewhat resembling the species of the sibirica clan. The leaves are of a pale, often yellowish green. The chief characteristic of the plant is that it throws out runners several inches in length, and these terminate in a rosette of leaves. Roots will soon be produced if a little soil is placed over the runner, which may then be detached as a separate plant. Leaf-mould and silver sand, in a roomy pocket in cool shade, seem to be the limit of its requirements.

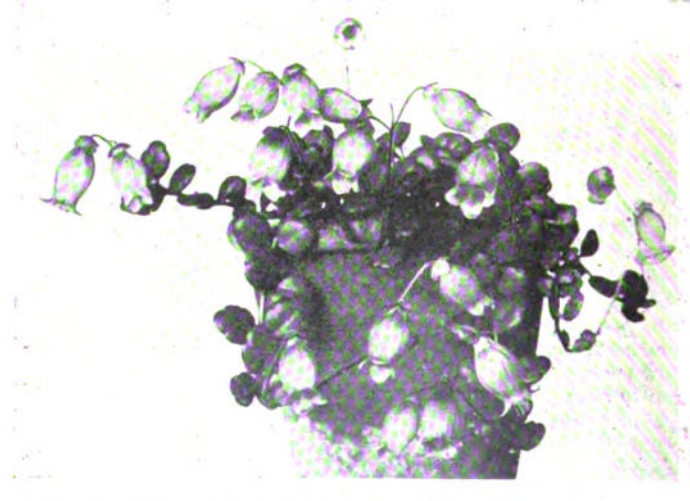
F. BARKER.

AN IDEAL PLANT FOR A COOL HOUSE

A VERY beautiful plant with a very cumbersome name, Kitchingia uniflora is comparatively new, having been introduced only some fifteen or twenty years ago. Its home is supposed to be the island of Madagascar, where all the members of this genus of Crassulaceæ come from. For some reason—its name, perhaps—the plant is still quite a rare one in gardens, which is a great pity, for it is certainly quite worth growing. The slender, slow-growing stems, carrying small fleshy rounded leaves, creep along the ground or hang down graciously when in a position to do so. They keep sending down roots at the nodes as they crawl forward. In the spring, or at other seasons of the year, according to culture, they send up quantities of graceful little bells of the most lovely pink.

It has the added advantage of lasting a long time in flower. As the specific name implies, the flowers ought to be single on each stem, but since the plant was named by Dr. Stapf in the *Kew Bulletin* for 1908, it seems to have taken a most malignant pleasure in sending up two or even three at a time on each stem.

The photograph here reproduced gives some idea of what the plant looks like when in flower, but the colour of the bells, which is everything, is, unfortunately, lacking. Owing to the climate of the country of origin, Kitchingia uniflora requires a temperate or a cool greenhouse treatment when cultivated in northern Europe. The best way to grow it is, probably, to keep it in a temperate house in winter under moderately dry conditions, and to give it, in summer, cool greenhouse quarters with more moisture. Small pots, or pans, well furnished and in full flower, make delightful decorative subjects. Propagation is easy, for, as has been stated, the stems root naturally as they develop or will root readily as cuttings.



THE GRACEFUL PINK BELLS OF KITCHINGIA UNIFLORA.

C. L.

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ALPINES ON THE MONTE MORO PASS

(*Continued from page 352.*)

A LITTLE lower still, Chrysanthemum alpinum, extremely pretty, took its place, also in mats of lovely foliage plentifully relieved with its dainty white daisy flowers. Lloydia serotina was seen locally in masses at about the same level. Silene acaulis exscarpa was much finer and flowering more freely on this side of the pass. At about 7,000ft. Senecio uniflorus with its silvery serrated leaves and fine single short-stemmed golden daisy flowers was a pleasing feature in a greensward jewelled with many other notable alpines, including Senecio incanus. Seedlings of both these senecios were obtained in the Alps some three years ago and planted on my little moraine. S. uniflorus lingered on until last summer, S. incanus dying out in its second year, neither of them flowering. The trouble seems to be the frosts and thaws that we have in our winters so frequently loosening and lifting out the roots, and the damp days also encourage rot if the plants are not protected. Silvery squat artemisias were frequent, the "Genepi" of the Swiss. Reginald Farrer in his "English Rock Garden," draws attention to the value of this plant to strayed travellers, stating that "a few of the leaves, bruised and nibbled, will bring back vigour to the most weary; and no traveller or climber, if he only knew, need feel his sinews or his heart give out, in even the most awful stony wilderness of the upmost Alps, so long as the silver leaves of any mountain wormwood are heaped about on the shingles beneath his aching feet." Alfred Wills (Justice Wills) one of the brilliant group of British alpine pioneers and writers in the middle of last century, in his "Wanderings among the High Alps," calls attention to another high alpine plant of use in time of need: "Reindeer Moss (lichen Rangiferinus) . . . A small bit of this plant, carried in the mouth and sucked, is one of the best things to allay thirst or stay hunger, when on a mountain excursion. It is slightly bitter, but not unpleasantly so, and very nutritious and fortificant."

On these high pastures there are tiny rosettes in quantity of a primula which must be a form of P. hirsuta. I should have been inclined to name it P. minima if all the books at my disposal were not so emphatic on this primula not being a native of Switzerland; unfortunately, it was out of flower, but some dead flowers that I saw seemed to have been single and almost stemless. A few rosettes were crammed into a tobacco tin; a good many of these are now quite fresh in a sand frame and I can only hope that they will flower and solve the problem. A dwarf form of Antennaria dioica was also here with reddish flowers, and tiny rosettes very similar to some taken in the higher parts of a Yorkshire locality. Antennaria carpatica was seen at a lower level—the leaves of this plant seem to lose their "hairiness" when planted in the garden. Continuing on towards Mattmark, Campanula excisa was a pleasant feature, generally in the more stony places. This local campanula, with its quaint deeply cut and perforated petals, was luxuriously abundant and continued for many miles down the Saasthal, but was much less common at the lower levels. This campanula planted in 1915 continues to run about and flower (as well as the slugs will allow) in my little moraine bed. A large purple rotundifolia belled campanula with single flowers beautifully poised on 3in. to 4in. stems was gloriously beautiful in a limited area. I have also seen a similar campanula in one or two other localities including Zermatt and with flowers of pale silvery blue as well as purple. It would be a gem for the alpine garden if it would only flower in the same way. I imagine it will not, at least I have never had the pleasure of seeing it, nor even seen it illustrated or named to recognise. It is possibly the campanula referred to by Mr. Clarence Elliott in his interesting note in THE GARDEN recently on Campanula linifolia of Mont Cenis meadows; but it is not at all the same as the latter, which in the luxurious meadows in which it occurred had to be at least 2ft. high to show itself. Reginald Farrer's reference in "Among the Hills" is as follows: "In the lush herbage in the hay fields around . . . there were now campanulas in swathes and sheaves, linifolia like a giant violet Harebell and rhomboidalis in luxuriant bending jungles." Mr. Stuart Thompson's reference to a hybrid between C. rotundifolia and C. rhomboidalis is worth following up, as it certainly had the more upright carriage of C. rhomboidalis with purplish rotundifolia-like flowers, larger and fewer in number than typical C. rotundifolia.

As it was getting late, owing to my "hold-up" on the top, I decided to stay the night at the little inn at Mattmark See instead of going on to Saas Fee as intended. Some interesting plants are to be found by the side of this interesting glacier lake at the edge of the Allelein Glacier one end of which reaches right up to the track. A very pretty cotton grass, Eriophorum Scheuchzeri, with its large white fluffy heads, was prominent in the marshy ground by the lake side, as was the dainty Pinguicula alpina in boggy places. I also noticed Astrantia minor, also Campanula spicata, but with poor flower spikes in comparison with those seen at Mont Cenis. Campanula pusilla was frequent all down the Saasthal. Campanula barbata had its silky bells finer and more variable than on the Italian side, including pure white and pale silvery blue flowers. Myosotis alpestris was not common on the route, although on a previous visit to this district it was very fine in restricted localities higher up. Gentiana acaulis was in seed and the large purple flower heads of Gentiana purpurea were particularly noticeable. Anemone alpina and A. vernalis with their fluffy seed heads and Bupleurum ranunculoides (Hare's Ear) were also on the Gletscher Alp. Two other species of this occur in the district but were not seen. Sedum dasyphyllum, S. grandiflorum and S. Rhodiola (rosea) were noticeable, and in wet boggy places S. villosum was found along with fine green rosettes of Saxifraga stellaris and Bartsia alpina. The latter association reminds me of a similar one in the springs and streamlets of the upper part of Mickle Fell, Yorkshire's highest mountain, where S. villosum with its beautiful rose pink flowers and the dainty white stars of S. stellaris were particularly beautiful when seen on a miserable drizzly day in August of the previous year while seeking for S. hirculus.

After a comfortable night a fairly early start was made for Saas Fee, where a few hours were spent. On leaving Mattmark and passing by the end of the glacier the track is somewhat shut in by high mountain walls until it opens out and brings into view the magnificent amphitheatre above Saas Fee, formed of Switzerland's highest peaks, including The Dom, the highest actually in Switzerland, the Taschhorn, the Alphubel and the Allalinhorn, together with some of the finest glaciers in the whole of the Alps. The climb up from the valley is steep and somewhat trying in a hot sun. Dianthus sylvestris and D. Carthusianorum were pretty frequent by this path and more or less frequent, especially the latter, down the remaining part of the Saasthal to Stalden. D. Carthusianorum seems to take the place of D. neglectus (of the Italian side) on this side of the Alps and is common in stony parts of the pastures and by the wayside.

After lunch the track was taken by the lower part of the Fee glacier, with torrents from the melting snow dashing down its deep cut tracks, to the alpine pasture of the Gletscher Alp, a pasture almost surrounded by the glacier and famous for its alpine flora. Unfortunately it had been "eaten" off pretty well by cattle, but still many interesting plants were to be seen, although not in the masses of an earlier period. Colchicum alpinum was just nicely coming into flower in the well watered meadows; it is quite a beautiful feature of the meadows here and also at Zermatt. Primula hirsuta was frequent in shady places and rock crevices both on the way to the Gletscher Alp and in the valley towards Stalden. On the high pastures Gentiana utriculosa was very fine with its pretty clustered blue flowers; unfortunately it is only biennial. Androsace obtusifolia was seen sparingly and also Saxifraga obtusifolia. Aster alpinus was fine locally, along with the rich orange daisy flowers of Arnica montana and occasionally Geum montanum. In the early evening my journey was continued down the Saasthal to Stalden where I arrived considerably after darkness had set in and stayed the night, previous to my passing away from the joys of the Alps into the more usual worries of everyday life.

T. ASHTON LOFTHOUSE.

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MULCHES AND MULCHING

I AM greatly surprised that more use has not been made of mulches up to now in the average garden. The process of mulching is probably as old as the hills, as references to it are made in early garden literature under various names. It may be that gardeners are not aware of the advantages which accrue from carrying it out, which advantages are very real indeed in these expensive and somewhat difficult horticultural days.

One of the most important advantages of mulching is that it reduces the need of watering, and consequently the cost of labour in working the garden. It also reduces the amount of surface cultivation, such as hoeing, hand weeding, stirring with the cultivator, and raking, as, if mulches are not applied, one has to be constantly attending to these other jobs. Another advantage is that it keeps the roots of one's plants cool, which is a different thing entirely from keeping them moist. If the roots of flowers and vegetables are kept reasonably cool in hot weather, growth appears to be definitely stimulated, whereas if the roots get hot, with very few exceptions, the speed of growth is reduced, as the plants become torpid and lazy, like many of us do when we go to relaxing seaside places for our holidays.

There is a further advantage of mulching against non-mulching, and this is that the mulch, in a mild way, may serve to stimulate the growth of crops by the feeding materials it contains. This, of course, is only in evidence when the mulch is of rich material, or, in other words, when top-dressing is combined with mulching. I usually regard the two as distinct, since a mulch will be exceedingly useful and effective if it is of some comparatively poor material, such as lawn mowings, the stimulating effect of which, even when watered through almost daily, is practically nil.

Mulches are divided, then, into two great groups, those which are rich, and those which are poor. From this it almost follows that the first are apt to be extravagant, and the second are almost invariably the more economical. A mulch which is practically a top-dressing of rich manure is very rarely required in practice, and hence I think the process has got a bad name in certain districts. I have often heard it said that mulching is exceedingly extravagant, and so it is if one has to use farmyard manure for it. I do not think, if farmyard manure and nothing else is used, that the process can ever pay for itself in these days, when dung is so expensive.

Let us take the rich group of mulches first. These consist, as I have already said, of farmyard manure, but stable manure and cow manure are also used. Sheep manure and pig manure I do not recommend for mulching, for obvious reasons. It may be mentioned that farmyard manure may usefully be employed as a mulch on any kind of soil, but that stable manure is better for the heavier loams, while cow dung is of very great use on the lighter land. It is an important point to avoid applying these manures in an absolutely fresh state, and half-rotted farmyard manure or stable manure should invariably be employed. Old hot-bed manure, while very useful, is hardly ever available as a mulch, since it almost always goes straight to the potting shed to be made into potting soil. With regard to cow manure, if this is used as a mulch in a fresh state it is, of course, exceedingly difficult to spread, and shortly after spreading a hard skin will form on the surface which will throw off any rain which falls, instead of absorbing it like a sponge, and rob the roots of moisture when they most require it. Cow manure should be stacked long enough in a heap before being used as a mulch to get over this skinning stage, and the time required for this varies considerably with the nature of the weather. As long as it spreads like paste or pudding, it is not yet ready for use as a mulch.

With regard to the other class of mulching materials, *i.e.*, those which are poor or comparatively so, quite a number of materials has been used. Lawn mowings are very valuable; half-rotted leaves are exceedingly so; peat in a half-dried state is quite good, although this is generally used more as a top-dressing than as a mulch; well rotted vegetable manure, *i.e.*, decomposed weeds and plant remains, is quite useful; but pond mud is utterly objectionable in any condition.

As regards lawn mowings, I know that they are very often used as a mulch in a fresh state both for flowers and vegetables, a layer about an inch in thickness being put along both sides of the rows of such plants as culinary and sweet peas. Such mulches have to be renewed at very frequent intervals if the weather is really hot, since the mowings dwindle down or evaporate practically to nothing. If, however, the mowings are treated before being applied, the mulches will remain much more lasting, and it is a good plan to throw the mowings into a heap, mixing about a spadeful of soil with every boxful from the mower, and allow them to warm up for a day or two and turn yellow or brown. There will, of course, be loss of bulk as a result of this heating, but the mulch when applied will last much longer. No special treatment is required before using any of the other materials except in the case of vegetable manure. Care should be taken if this is to be applied to see that the decomposition has gone far enough. If any of the weeds have not been completely killed by the process, growth will restart as soon as these are spread out in a layer along the rows of plants in the open air. If, however, the bottom portions of the manure pit are used, there is very little danger of trouble being experienced in this direction.

It is necessary now, before concluding, to give a few hints on the actual application of mulches, as I have frequently known gardeners defeat their own object when the materials were excellent both in kind and quality. The object of the mulch is, primarily, to conserve the moisture in the soil; but in applying this conserving material one covers up the soil and therefore protects it from any rain which falls, which, of course, first-class mulches absorb. If the mulch, therefore, is applied when the soil is dry, it follows that the plants' roots will be kept in a dry condition, although they will be cool, and very unsatisfactory growth will be the result. Mulches, therefore, should only be applied when the soil is in a moist state.

It is, however, often impossible to get the mulches ready, however early one starts, before the soil becomes thoroughly dry. Many gardeners, of course, do not think about mulching at all until July, and at that time the soil may have become dried through to a very considerable depth. My object in making these comments on mulches early in the summer is that the materials shall be applied before the ground has been completely robbed of its moisture. Where, however, the ground is light and sandy or the operation has to be postponed for various reasons, such drying-up will inevitably take place, and before material of any kind is applied this moisture will have to be made up, otherwise it is far better to leave the operation entirely alone. One thorough soaking with the hose-pipe, however, will do all that is necessary, and immediately this is completed pack the mulches on at once. Any subsequent watering is generally done through the mulches.

The thickness of the mulch varies very greatly with the kind of soil, the kind of crop, and the kind of material. I am in favour of a fairly thick layer in the first instance, since loss of bulk is almost certain to take place, however carefully the material may have been prepared. Some of the stronger-growing vegetables appreciate very thick mulches, these being applied in a layer up to 3ins. or 4ins. on hot and light land. In most cases a mulch 2ins. in thickness will be ample, provided that the material is of a lasting character; but where unprepared or fresh lawn mowings are applied a 2in. mulch is frequently reduced to a mulch less than an inch in thickness by a couple of hot days, and hence, if the object in view is to be maintained, a very thick layer will be required in the first instance.

One last point. In the flower garden mulches certainly look rather ugly, but their appearance can be greatly improved if a very light sprinkling of fine soil is given immediately after applying them. I need hardly add that a mulch of peat should only be used in the shrubbery where rhododendrons are cultivated or other ericaceous shrubs are to be found, and that in the flower garden itself it should only be used for plants which like rather an acid soil, as some of the acid the peat contains is certain to be washed down to the roots after the first heavy rain.

E. T. ELLIS.

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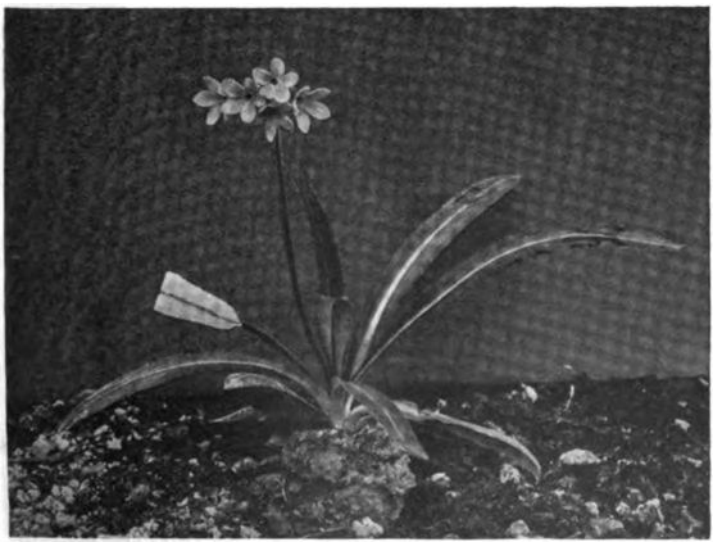
NOTES FROM CONTRIBUTORS

SOME PRIMULAS OF THE NIVALIS SECTION.

THE species included in the nivalis section contain some of the most beautiful of our early-flowering primulas. To the cultivator, up to the present, they have presented considerable difficulty; indeed, I know of no one who has been successful in finding suitable conditions in which they may be kept in health over any number of consecutive years. Most are easily raised and grown to the first year of flowering, but the second winter usually finds them in a weakly condition from which no amount of attention will induce them to become vigorous again. Here we have lately experimented with most of the species in cultivation around the edge of the pond, among the grass, not many inches above the pond level. This is the only place at all imitating the conditions of a wet meadow, and, so far, the plants appear to be strong and healthy. Among the first to flower are P. sino-purpurea and P. sino-plantaginea. Both are handsome plants from Yunnan, which are attractive both in foliage and flower. In the first the golden meal is conspicuous on all its parts, especially on the lower surface of its broad leaves. It flowers in April or May, the inflorescence rising above the foliage, bearing numerous lilac purple flowers the eye of which is greyish white. The last named is a nearly allied plant with slightly narrower foliage and less deeply coloured meal, with flowers of a deeper purple tint. The illustrations of these show them in their first season of bloom. Another desirable species is P. calliantha, which we have raised here, but never yet been fortunate enough to coax it into flower. It has meal on its foliage of the deepest gold, and lavender flowers. If we could induce it to flower it would be a desirable addition.

Perhaps the least exacting of the species so far known in cultivation of these Chinese species is P. chionantha with white flowers and sturdy foliage covered with a light golden meal. This readily lends itself to cultivation, and I have seen plants in a garden on the borders of Perthshire which have flourished for at least four years in a well drained moist, loamy soil. Of the later additions there are several outstanding plants which have been introduced by Farrer, Forrest and Ward, several of which have been lately described by Professor Smith in the Notes of the Royal Botanic Garden. These are P. Agleniana, a robust grower with tall scapes of flower of a creamy yellow colour and fragrant. P. Coryana is another giant of this series described by Forrest as growing to 18ins. in height with fragrant rose lavender coloured flowers. In P. ingens we have a still stronger-growing species than the preceding, which is stated by Forrest in his Field Notes to be "the most robust as well as one of the most beautiful primulas I know," one of the fruiting specimens he collected being between 2ft. and 3ft. in height. It is much to be desired that these last may prove amenable to our climatic and cultural conditions. There can be no doubt of their beauty, and their colours being quite distinct from the Candelabra section, now so popular, they would be welcome additions to our gardens. There are other species of this section in cultivation, such as P. pulchella, a good blue-flowered plant, and its near ally, P. pulchelloides, with rather lighter flowers and longer foliage, as well as P. Prattii, a yellow counterpart of P. pulchella, but as far as our experience goes these have not proved altogether satisfactory out of doors, but succeed well in frames, and would make good plants for the alpine house.—R. L. HARROW, *R.B.G., Edinburgh.*



PRIMULA SINO-PLANTAGINEA. KINGDON WARD, NO. 4911.

TULIPS AT VINCENT SQUARE.

DISAPPOINTMENT and surprise. In these two words I sum up my feelings as regards tulips at the Royal Horticultural Society's Show on May 13th and 14th. The disappointment I half expected, for I felt quite half-sure that there could not be a sufficiency of bloom, even in the south, to fill the Schedule of the Royal National Tulip Society that Mr. Peters, the Secretary, had not very long since sent me from Cambridge. The florists' tulip may be a cultivated taste, but it can claim as one of its devotees a Queen of England. Queen Adelaide had a tulip bed at Windsor, and tradition asserts that Queen Victoria attended one, if not two, of the Society's shows. In my own small experience I can quote two involuntary ejaculations from men well known and honoured by horticulturists. George Gordon, editor of the old *Gardener's Magazine*, once pointed me to a "Trip to Stockport." "Well, after all, it is *uncommonly* beautiful"; and on another occasion when the Hall at Vincent Square was filled to overflowing with good things, I came upon Sir Frederick Moore looking at a "pan" of prize blooms. "Jacob, I don't know if these are not the most beautiful flowers here." I often wonder if any flower will have a more prominent position assigned to it in Paradise than the tulip. For countless years it has afforded much pleasure to "Turks, Infidels and Hereticks," to say nothing of good Christians. When all this is weighed in the balance, *where* will the flower be found that will weigh it down? I once went to a show—a pukka tulip show — at Wakefield, when in one class there were *eight* prizes. The first was eightpence and the eighth, a penny! No more could be afforded, but there was as much keenness to win a prize as there is to win one of the "big" cups at Chelsea, perhaps more, and

Photos: R.B.G., Edinburgh.

P. SINO-PURPUREA.

certainly as much gratification in the winning. If these English florists' tulips were absent, there were others of great interest shown by Mr. W. R. Dykes and representative of the other end of the scale, that is, "nature unadorned." There were six of them They were on the new plant table, but as far as I could judge visitors did not crowd round them as I expected they would. They were a typical little lot ranging from the big bright scarlet blooms of Tubergeniana to the much smaller coppery-coloured flowers of a variety of the Greek orphanidea. There were two unnamed species. One was from Turkestan. It was long and pointed in the bud state with the three outer segments of the perianth covered externally—but for a narrow edge of rich yellow—with a pretty shade of red. All the rest of the flower, including the interior of these segments, was of the same rich yellow as the edge. The other unnamed species came from Asia Minor. It, like the orphanidea, was of dull colouring, impossible to describe—dingy green in the centre, then a halo of dingy yellow—then the rest of the petals dingy red mixed with yellow. Smoky might be a better qualifying word than dingy, for the flowers were quite all right, although unassertive. There were some good examples of the deep cream self-coloured Batalini, which Mr. Dykes considers is a colour form of the scarlet Maximowiczi. This species made up the half dozen. In its flowers it very much resembles the low-growing linifolia, although it may be its scarlet is not quite so bright nor its dark base quite so dark. The great difference between the two is in their foliage. Whereas in linifolia it rests on the ground, in Maximowiczii it is upright. There is no use disguising the fact that far the larger number of species tulips require annual lifting and drying off if we wish to keep them going. Left to themselves they soon disappear. The examples in the Hall on May 13th and 14th demonstrated the soundness and efficacy of this treatment, for this is the secret of Mr. Dykes' success. Of all the large red species from mid-Asia, such as Fosteriana, Ingens, Michaeliana, etc., he told me Tubergeniana was the easiest to manage.—JOSEPH JACOB.

PRIMULA WINTERI OUTDOORS IN CO. WICKLOW.

HAVING heard that a gardening friend of mine, Mr. H. de M. Barton of Antrim, had been very successful in growing Primula Winteri, I wrote to him to ask under what

P. WINTERI ON A PERPENDICULAR WALL.

conditions he grew it. I had obtained in exchange two little seedlings from Kew in 1922, which I was very anxious to preserve, as I had previously lost a plant immediately after flowering. Mr. Barton wrote that he grew his plants between stones built perpendicularly, facing north and with a good body of earth behind them to supply the roots with moisture. He added that it seemed to dislike sun and could not stand dryness at the roots. I immediately proceeded to make a rough perpendicular wall of stones, facing north, on the lower part of the rockery here, where it would have a good body of earth behind to keep the roots moist. As an extra precaution against dryness, I arranged a depression above the roots which I could fill with water in case of great dryness. The two little seedlings were duly planted and commenced at once to respond to the new position. One plant grew more vigorously than the other, commenced flowering on January 28th, 1924, had twenty-one flowers open at the same time, and continued to flower till the end of April. All the flowers here were pin-eyed, but Mr. Chittenden kindly sent me on two occasions some thrum-eyed blossoms which enabled me to fertilise with a small camel-hair paint brush. The plants have now set a good deal of seed. We have had here very changeable weather, cold, harsh dry winds, snow, frost, heavy rain and some hail. P. Winteri flowered in spite of all the changes. Twice I saw the flowers and leaves covered with driven snow, but owing to the position it did not remain on long, and at present the plants are looking as healthy as ever. The enclosed photograph was taken by a friend early in April, and though a little late gives a fair idea of the vigour of the plant.

As regards colour it would be interesting to know what Mr. Winter, the finder of it, means by blue. The blue that I have always seen in P. Winteri blossoms was a very beautiful grey-blue, and this blue it has retained here. When fading, the blossoms get at times a slight mauvish tint. It would also be interesting to know whether the soil in its native habitat is calcareous or not, and whether it contains much iron. If collectors would state the character of the soil in the native habitat of plants, especially as regards the presence or absence of lime, it would greatly assist us gardeners and greatly add to our indebtedness to them. Several times when daffodils were drooping from frost P. Winteri was as bright and gay as ever. No weather seemed to affect it.—O'MAHONY, *Co. Wicklow.*

THE CARE OF RHODODENDRONS IN SUMMER.

THE long dry summer of 1921 nearly cleared out all our rhododendrons. A certain amount of benefit was got by saucering the earth round each plant to receive the water. Afterwards a 6in. flower pot was sunk in the earth as close as possible to each root—two to some of the larger ones. This method, by taking all the water 6ins. below the surface, needed less labour and was more effective, as the sun could not evaporate the moisture so easily. The rhododendrons were all watered each day till they had recovered, and about twice a week afterwards, and all were saved. Perhaps some of your other readers would be glad of this suggestion.—R. H. CHAMBERLAIN, *Birmingham.*

THE BRIDGE END GARDEN, SAFFRON WALDEN, AND ITS BOX.

A FEW days ago I was in Saffron Walden and, remembering that a short article had appeared in *Country Life* on the Bridge End garden there, I went to see this strange old example of the Dutch style. The curious scrollwork of the beds round a central fountain had, I think, been trimmed and perhaps replanted by someone who had no idea of making scrolls and curves match, which were evidently intended to be in pairs. They were as intricate as the pattern of a Tudor Knott, about which we have been hearing a good deal lately, but the *smell* of the box in which these scrolls and ornaments were carried out was most offensive. Is there a box which is particularly disagreeable in this respect? If so, I feel sure many of your readers would be glad to have the name of the variety in order to avoid it. The leaves appeared to possess an unpleasant catlike odour. It was not confined to the plants that were in flower; but, possibly, as the leaves grow older the odour disappears, or it may depend on weather conditions. Any information would be gladly welcomed by H. H. W.

A CURIOUS PARASITIC PLANT.

THE accompanying illustration represents a parasitic plant which grows in the sand dunes near the sea at Karachi, India. It has been identified at the Natural History Museum (Botany Section), South Kensington,

A QUAINT PARASITE RESEMBLING A PINEAPPLE.

as Cistanche tubulosa. The tuber resembles a pineapple in colour, size and form, and produces an amber-coloured flower very like a foxglove in size and sometimes scented. The tuber is covered with sand, and from its base comes an aerial root which comes to the surface and runs along the sand for 12ft. or 16ft. and attaches to a shrub with small succulent leaves, on which it feeds. The flowers produce seed-pods containing very fine black seed.—(Mrs.) C. A. CLARKE, *Karachi.*

[There are many interesting parasitic plants, and several have been described in these pages. It would be interesting to know whether this particular plant is edible. —ED.]

THE GARDEN AT BRIDGE END.

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CORRESPONDENCE

AN APPRECIATION.

SIR,—I have just read the article on cinerarias by H. W. Canning-Wright in the issue of THE GARDEN for May 17th, and feel I must give some expression of my appreciation. It is a very excellent article indeed, and I am sure all your readers who are interested in these delightful plants will much appreciate the practical hints it offers. My appreciation of THE GARDEN does not stop at this one article, however. I should like to say here how much enjoyment I get out of reading the paper week by week—enjoyment which has been considerably heightened since you remodelled it recently. It deals nowadays with the various phases of horticulture in a way which no other paper has yet attempted successfully, and there seems to be nothing left out of it which the practical gardening man could possibly need. Not only do I find it supplying me with useful information about the culture of all kinds of plants, but as often as not I find myself assimilating from it lots of really interesting and unusual data about their origin and history.—A VERY OLD READER.

GENTIANA VERNA.

SIR,—Had it not been for "Formakin's" interesting note on page 309, I too may have added yet another recipe for the successful cultivation of this gem of our alpine meadows. Now, however, it is laid aside; after all, a recipe is rather tiresome and sometimes quite useless in the hands of the inexperienced. I do not, of course, suggest that all failures are due to inexperience—far from it. No doubt we could all give instances when the discovery of some little detail has at once given us the key which relieves us from further anxiety and at the same time gives us just that confidence so essential in cultivation. Unfortunately, I have never yet seen Gentiana verna growing in the wild, although I am nearer to it than ever before; but for a while longer I must be content with the buttercups and daisies, which are to me just as beautiful, though less important, and supposing I saw an acre I do not think I should want to dig one up, but should be glad to help myself to seed were it seed time; neither would I buy collected stuff, however cheap: rather would I pay treble for a third of the quantity that had been raised from seed and established in pots. These I should plant in full sun at the foot of the rock garden in a good free soil. In the actual planting they would have to go down right up to the neck and be made absolutely firm: this does not mean ramming or trampling, but just what can be done with the hands. Now, I know if these plants are to be as successful as is possible for me to have them I must henceforth keep them down; never must I allow them to get far enough out of the ground to flop about, therefore they must be top-dressed at least twice a year—that is, once after flowering and again in autumn; but with what? Old potting soil, adding a goodly portion of heavy marl that has been dried and broken down, but not quite to powder; if clay is easier to procure, use it in the same way, but in a lesser degree.

Sometimes I consider G. verna to be short-lived, and sometimes the reverse. Probably this is where the difference lies between collected plants and those raised from seed. As regards the bellglass, if I saw one above verna I should feel like smashing it into a thousand fragments, for I believe it hates glass. Quite recently I have planted out from pots 400 odd from a batch raised from seed two years ago. During the whole growing period after germination, which was within six weeks from harvesting the seed, they were never more than a fortnight or so at one time under glass—this at pricking out time and again when first potted up. No doubt my employer, likewise his gardener, hopes to get some pleasure from these plantings, although to a certain extent I have had to adopt the unsuitable pocket method, for where will not their thread-like roots extend unless stopped or turned by some hard substance? For instance, turn a seedling verna out of its pot, and you will find its roots wound round and round its side by the yard.

One other point. Is not "Formakin" rather exacting in asking for a comparison with Anemone angulosa or Adonis vernalis?—J. T. H.

MISTLETOE ON A ROSE TREE.

SIR,—Mistletoe does not grow very frequently on a rose tree (see page 343), so that the record and illustration given are interesting. I have two records of mistletoe, however, on roses. The locality for one of these records was given by Mr. G. W. Stacey as Chorleywood Cedars, who stated that two strong bushes of mistletoe grew on roses there. My record for the other is up in town, and I cannot lay hands on it at present. If roses were larger-growing plants one might expect mistletoe to grow upon them, seeing how many of the same family support the parasite. I have records of it upon apple, crab apple, the two Siberian crabs, the common hawthorn and varieties of it, Cratægus orientalis, C. tanacetifolia, Pyrus Aucuparia, P. Sorbus, P. Aria, cotoneaster, Prunus Cocomilia, plum, pear, medlar and peach. All of the above belong to the rose family.—HORTULANUS.

SIR,—I was much interested in the note from Mr. Meade-King (page 343) on mistletoe growing on a rambler rose in his garden. The rose is certainly an uncommon host for mistletoe, but I have seen it growing on a wild dog rose in the Croft Woods, near West Malvern in Herefordshire. I cannot say if it still exists there, as it is about ten years since I was shown it. Mistletoe grew on a cotoneaster in a garden in Worcester and I knew of at least two instances near Malvern in which the hazel was the host. Does it occur anywhere in England on Scots pine (Pinus sylvestris)? In some of the mountainous regions of south-eastern France it is extremely plentiful on this tree, so that its apparent distaste for it in this country seems remarkable. Possibly the mistletoe on the pine belongs to a biologically distinct race, though in all outward respects it is identical with the familiar parasite of our apple orchards.—N. G. HADDEN, *Somerset*.

ALPINE PLANTS AT MURREN.

SIR,—In regard to the Soldanella alpina so beautifully figured on page 303 and which "R. B. C." suggests (page 344) is more like S. montana as described by Farrer, I fail to see why the plant illustrated does not come under the very variable S. alpina, of which the leaves, moreover, are sometimes as large as in the illustration. But, unfortunately, I have not Farrer's "English Rock Garden" and have little knowledge of S. montana, *Willd.*, except that it is not recorded from Switzerland, but is given in Nyman's "Sylloge Floræ Europæa" as from the Austrian Alps, Lombardy, Transylvania and Basses Pyrénées. Grenier and Godron state that, except for a greater development, the characters are the same as in S. alpina.

In Mr. Wacher's very readable article, "A Plant-hunting Holiday at Mürren," in which appears the illustration of the soldanella, he faithfully extols the beauty and accessibility of the Bernese Oberland, "which is inclined to be avoided by plant-hunters from the fact that it is dubbed a tourist resort to which it is no use going if one wishes to obtain the choicer alpine plants." All who know the Mürren district and its beautiful Blumenthal in June will agree that the ordinary attractive alpine flowers are a glory there, and it is a satisfaction to know they are still plentiful; but the fact remains that there are far more interesting rarities, many worth cultivating, in the Vallais south of the Rhone and in the Italian and Austrian Alps.

Notwithstanding Mr. Wacher's long and entertaining list, he does not mention any rare plants except Veratrum nigrum, Goodyera repens, Lloydia and perhaps Saxifraga cæsia, Androsace helvetica and Cypripedium Calceolus. Veratrum nigrum is only recorded in Switzerland from Monte Generoso and S. Giorgio in Canton Tessin in the south; and, as the big heads near Mürren were only "poking up," it would be very interesting to know if the finder is sure it was not V. album which he saw.

Very probably the "Gagea lutea" on baked ground near the Winteregg cowsheds, "quite recently a swamp," was G. fistulosa Ramond (G. Liotardi, *Schultz*), a most characteristic plant of such ground, whereas G. lutea in Switzerland is a plant of hedgerows, orchards and rich meadows at a lower altitude. Most of us have been deceived by these yellow stars on our first visit to the Alps.

It is extremely satisfactory that Mr. Stewart Wacher has successfully constructed part of his rock garden on the principle observed in nature, after seeing such a wealth of blossom in the swampy Schilt-thal and studying the conditions. There, we are told, the soil is not composed of stone chips with water flowing beneath, but of pure peat overlying rock, with grass roots everywhere to drain the surface, and 1ft. channels (floored with solid rock) cut for drainage of the natural swamp. And so it is in many another Alpine valley.—H. STUART THOMPSON.

SOLDANELLA ALPINA INJURED BY FROST.

SIR,—The case of injury to the above plant by frost, mentioned by "R. B. C." on page 344, reminds me of some of my experiences. I had a small bush of Salix Myrsinites established in the garden for some years. In this country the species ascends to an altitude of 2,700ft., and could be classed as one of the lower alpines. It came into leaf at different times in the garden, according as the late winter was mild or cold. One year it came into leaf rather early, and a late frost blackened and killed every leaf. The bush put out some leaves afterwards, but never fully recovered and soon died. A bush of the cultivated Japanese Salix gracilistyla came into full leaf in the garden one spring, but a late frost killed it. My conception of the occurrence was that the plant would have been safe if merely in flower, but that the leaves expanded in the lowland garden before the weather was safe for them, and that they had no natural covering, such as snow. It is true that many alpine flowers come into bloom as the snow melts and when the weather is mild, but I have seen them completely covered with snow within half an hour. In favourable weather alpine plants in gardens grow quickly, but the new growth of some of them is very tender.—J. F.

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NARCISSUS FORTUNE.

SIR,—I have just been reading in your issue of May 17th, the Rev. Joseph Jacob's notes on flowers at Birmingham. and I should like to say that I feel rather to blame for his somewhat disparaging remarks about this wonderful daffodil. The flowers he saw at Birmingham of this variety were some that I showed, and they were really quite out of condition; in fact, almost dead. Mr. Chapman said to me at the show that I ought not to have put them up, and I now realise that he was quite right, as they have given an unfair impression of the variety. Fortune is a first early variety, and this was an extraordinarily late season, and although I realised when cutting the flowers a day or two before the show that they were even then much past their best, I thought I should never again have a chance of showing it at Birmingham, and so put them up. Mr. Jacob, of course, could only judge from what he saw, but if he had realised that besides having travelled a long journey the flowers he was looking at had been more than three weeks in bloom, and if he could have seen the clear and intense brilliance of their perfectly formed deep lemon gold perianths, and the astonishing splendour of their great glowing deep flame orange-red crowns in my garden on April 1st, when nothing else was out except Golden Spur in the grass, I feel quite sure that he would have formed a very different opinion.—GUY L. WILSON, *Co. Antrim.*

THE USE OF GARDEN LABELS FOR ALPINES.

SIR,—There is no doubt that the Rev. Edward S. Lyttel (page 345) is an enthusiastic cultivator of alpines and loves them or he would not take so much trouble about the naming of the varieties, etc. But the reverend gentleman denies titles to others that he would claim for himself, personally. His second venture in the field of criticism does, however, show up more clearly the helpful hints contained in Mr. Gerald Hillier's original article (page 211) on the labelling of alpine plants.—G. G.

AMERICAN NOTES.

SIR,—In THE GARDEN, January 19, page 32, "W. I." dealt with various thalictrums, including the beautiful T. dipterocarpum. It might be of interest to know that this species is perfectly hardy in northern New Jersey, where the temperature has touched zero on several occasions since I planted it, three years ago. I have it planted on a north border on medium loam, and give it no protection beyond what other perennials receive, that is, a few old pea boughs and a little litter. It grows at least 7ft. and flowers beautifully. The last two seasons I have saved from half a dozen plants quantities of seed; last year I had several hundred young plants which, as I had no use for them, I gave to a nurseryman friend. The seeds were sown in the open in May, 1922, and made quite strong crowns by the autumn. My experience with the plant in Kent led me to expect dying out, but it would seem that T. dipterocarpum is absolutely hardy. I might add that various other things I expected would prove "miffy," including border and perpetual carnations, are quite equal to withstanding zero weather if given a little protective litter to break the bleak winds and warm sunshine that come along in March. While everything is buried in snow or ice all is well, but when this melts the dangerous time begins. Pansies and primroses laugh at the cold providing they have a little straw or litter shaken over them to prevent alternate thawing and freezing. I had quantities of pansies, violas, etc., under rough frames made of Cel-O-Glass, a material that is practically the same as Spondite—collodion-coated mosquito netting. This material without any other protection is keeping pansies and other plants in great health. Even snapdragon cuttings and sweet peas came through, although during this winter we had no protective snows as we did last year.

Reverting to thalictrums again, a firm over here is offering T. Fendleri, which I have never seen offered before and with which I am not acquainted. It is a native of the Western and Southern States, and apparently is not generally known, due probably to the fact that it is a dicœcious species and therefore shy at seeding. The concern offering it has apparently worked up its stock by division, as the plants are said to be males. That it is not common is evident from the fact that 5 dols. is asked for a plant. Bailey's Cyclopedia quotes T. Fendleri as being a strong grower with yellow and violet flowers, the foliage being somewhat akin to that of an aquilegia. A friend tells me it is not so fine as T. dipterocarpum, which, by the way, is very scarce this season.

Touching upon the question of blue hydrangeas, you may not be aware that the New Jersey Experiment Station has conclusively proved that acidity of the soil is responsible for the blueness. Experiments are not completed, but I have seen enough to convince me that the explanation is correct. Naturally acid soil or soil artificially made acid not only induces blueness, but by controlling the degree of acidity the flowers can be made to vary through all shades of rosy mauve, pastel shades to sky blue. Purely alkaline soils ensure pink shades. The deep-coloured varieties like Trophee yield a wide range of tints when treated with acids. A certain amount of details have already been published, but after this year's tests a complete bulletin will, I believe, be published by the Experiment Station.

Regarding Lonicera nitida, a few firms here have listed it for a number of years, but it is not widely known, and it is said not to be hardy in the north-eastern section. In the north-west it does well, and in California, around Los Angeles, it makes such rampant growth that some nurserymen have discarded it. No one, however, has suggested it as a hedge plant. I am giving it a test this season and do not anticipate much trouble, as my two 6ft. Pyracantha Lelandi planted a year ago suffered no serious injury. My only loss apparently is one new delphinium raised by a north-western enthusiast.

The little cornuta hybrid viola which I have named Jersey Gem has survived both in the open and in the frames. It began flowering nearly two weeks ahead of Geo. Mennig, which is a weedy thing compared with it. Jersey is a brighter blue than Papilio or Lord Nelson. The latter is a fine plant, but is too dark and too near a bedding viola to be a cornuta. Jersey Gem has petals slightly fluted. It is distinct from any cornuta form I have seen, and many florists see in it a substitute for Princess violets when the latter are past. Anyway, it will have a good testing this season, for after growing it three years I propagated several thousands last autumn, while a well known nurseryman catalogued it even to the extent of having a colour plate.

As you know, we cannot import plants these days, therefore to appease my appetite for violas I keep raising batches of seedlings. From Dobbies' seed I have secured several fairly good bedders, and one that is equal, I think, to Lady Knox, but I still await one like Moseley Perfection and W. H. Woodgate. Jersey Gem, by the way, came out of seed sent me by Mr. J. M. Bridgeford of Messrs. Watkins and Simpson. I am not sure as yet, but I suspect it is the plant they lost several years ago. Being something of a "crank" on violas, I am trying to raise V. bosniaca. V. Munbyana I am flowering shortly for the first time. It makes such enormous roots that I think it will be useful for this climate. I am also just about to flower Viola cucullata, a most pleasant thing. The plants I got from Virginia last season were full of seed and the seedlings are coming up in thousands.

Primroses are a great success this season, really for the first time, as last year I took the litter off too soon and the March winds ruined them. In the Munstead strain I have some practically pure vulgaris. I have also the blues, and quite good at that. In the frame I have seedlings of several of the hybrids and species of primulas, including japonica and rosea. The seed laid dormant nearly two years, but it is germinating, so I have hopes. Beesiana I expect to flower this season, as a friend sent me some plants last autumn.—T. A. W., *New Jersey.*

SOUTHAMPTON ROYAL HORTICULTURAL SOCIETY'S SHOW

THE Council of the above Society has every reason to congratulate itself on the high standard and excellence of its first spring show, which was held in the Pier Pavillion on May 13th and 14th. It is also to be hoped that it proved a success financially.

Judging by the many magnificent groups of rhododendrons and other flowering trees and shrubs, one could almost imagine themselves viewing a Truro or Falmouth exhibition. With the ever-increasing interest in hardy trees and shrubs, and the introduction of so many of these good plants from China, which can be as successfully cultivated in the many beautiful gardens in the South of England in the open air, just as well as in the gardens of the West, it is to be hoped that the interest and enthusiasm at this first attempt will in no wise be allowed to flag, but that another year competitive classes will be introduced, and sufficient interest taken, encouraged by this first attempt of a spring show in the South of England to make it a rival show to that of Truro and Falmouth in the West.

It was unfortunate that the date of this exhibition clashed with one of the fortnightly meetings of the Royal Horticultural Society at Vincent Square, otherwise the trade exhibits might have been more numerous. Rhododendrons and other flowering trees and shrubs were a feature of this exhibition. From the garden of the President, the Right Hon. Lord Swaythling, Townhill Park, Bitterne, Southampton (gardener Mr. F. Rose), came a beautiful exhibit, which comprised Rhododendrons Loder's White, Dr. Stocker, campylocarpum, campanulatum, Princess of Wales, Davidii, Standishii, and many seedlings and hybrids, backed with vases of berberis in variety, flowering cherries and brooms. This attracted much attention. (Large gold medal.)

Messrs. R. Gill and Son, Falmouth, had a very extensive exhibit of rhododendrons and other flowering shrubs, herbaceous plants, tulips and anemones, very fine vases of Rhododendrons Nuttallii, Edgworthii, Aucklandii, Ernest Gill, Falconeri, and some fine unnamed seedlings, together with Embothrium coccineum, Crinodendron Hookeri, a fine basket of the New Zealand forget-me-not, Myosotidium nobile, masses of Darwin and May-flowering tulips, and a grand lot of anemones of their well known poppy strain. (Large gold medal).

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Mr. W. J. Whitaker, Pylewell Park, Lymington (gardener Mr. W. F. Hamilton), had a very attractive group of flowering shrubs, schizanthuses and new seedling carnations. (Small gold medal.)

Messrs. Barr and Sons' contribution was a magnificent display of May-flowering and other tulips—over one hundred well filled vases in many varieties. (Large gold medal.)

Mr. T. H. Lowinsky, Tittenhurst, exhibited sixty trusses of his wonderful hybrid rhododendrons in many shades of beautiful colours, some trusses of R. Wightii and a plant of the rare R. Griersoniana in flower. This exhibit was much admired. (Large gold medal.)

Mr. Elisha Hicks staged a very fine exhibit of well grown roses, some of the outstanding varieties were Mme. Butterfly, America, Mrs. H. Wumett, Mrs. F. Hobbs, Clovelly, etc. (Large gold medal.)

From Mr. Lionel de Rothschild's garden at Exbury, was exhibited a magnificent lot of rhododendrons and other flowering shrubs, cherries, brooms, heathers and Illicium religiosum. (Large gold medal.)

Messrs. Hillier contributed a large group of flowering trees and shrubs, pyrus and cerasus in variety, and Fremontia californica; the group was furnished round the outside with baskets of alpines and herbaceous plants. (Large gold medal.)

Mr. E. M. Burnett, had a small group of cut flowering shrubs, rhododendrons, camellias, ericas and Daphne neapolitanum. (Silver medal.)

Messrs. Ladhams constructed some rockwork on either side of the entrance hall, which was well furnished with many choice shrubs and herbaceous plants and alpines, a very pleasing exhibit. (Large gold medal.)

A very large group of shrubs, herbaceous plants and alpines was staged by Mr. G. Reuthe; rhododendron hybrids and species were extremely good, a very meritorious exhibit. (Large gold medal.)

Messrs. Rogers occupied the whole of a small room adjoining the hall and displayed a very fine collection of choice alpines on rockwork, backed with fine rhododendrons, Japanese maples and other shrubs. (Large gold medal.)

Messrs. C. Smith and Son sent over from Guernsey a choice collection of cut flowering shrubs, rhododendrons species and hybrids, some choice camellias, magnolias, brooms and acacias. (Small gold medal.)

Messrs. Toogood and Sons staged a large group of May-flowering and other tulips, carpeted with forget-me-nots. (Small gold medal.)

Mr. C. Englemann staged a very choice group of carnations, which was greatly admired. (Small gold medal.)

Mr. G. H. Dalrymple occupied a large piece of staging with a very fine collection of well grown and well flowered Primula pulverlenta pink seedlings. (Small gold medal.)

Messrs. Blackmore and Langdon contributed some of their fine delphiniums, double begonias and some good baskets of polyanthuses and pansies. (Silver-gilt medal.)

Some good hydrangeas, crotons, Acalypha hispida, heliotropes, ferns and palms, together with some vases of tulips, were exhibited by Mr. E. Wills, Southampton. (Silver-gilt medal.)

Mr. B. Blampied of Guernsey staged a fine lot of May-flowering tulips and Spanish irises. (Silver-gilt medal.)

Mr. F. Longster, Southampton, constructed a large piece of rockwork, which was well planted with acers, dwarf phloxes, anemones and primulas. (Silver-gilt medal.)

Mr. E. J. Wiltshire, Netley, staged carnations, polyanthuses and auriculas. (Silver-gilt medal.)

Miss Rayner had a small collection of alpines. (Silver medal.)

ANSWERS TO CORRESPONDENTS

THE FLOWER GARDEN.

Darwin Tulips (C.).—If the buds from the small bulbs are removed, the bulbs should certainly be a better size for next year. If it is desired to sort the tulips into varieties or to make sure that there are no "rogues" among the different clumps, our correspondent must allow the flowers to develop and break them off as soon as it is decided that they are the same or different. The breaking off of flowers of tulips before they have had time to develop fully saves nourishment for the bulb because the ovary tends to grow while the flower is on the stem and the growth of the ovary monopolises the nourishment which would otherwise go to the formation of the bulb for next year.

TREES AND SHRUBS.

Cuttings of Box Edgings (E. B. N.).—Insert cuttings made of the young growths from August to October under cloches or in a handlight under a shelter of a west or north-west wall. A more frequent method of increase is to layer the old or leggy plants.

Wistaria Not Flowering (D. A.).—The wistaria is not a very suitable plant for culture in a cool greenhouse. Being a hardy climber the heat of a greenhouse encourages very vigorous growth and apparently no pruning has been done. The usual method is to cover the allotted space with main rods or branches and then keep all side growths pruned or stopped to three or four eyes to form flower buds. Wistarias are frequently grown in large pots or tubs for the decoration of large greenhouses and conservatories in early spring. The plants are moved inside a few weeks before flowering. When the blooms fall the plants are stood outside where the conditions are much more suitable for the growth of flowering wood.

THE FRUIT GARDEN.

Pear Doyenne d'Eté (Felsted).—There is only one point against this variety as a fruit; it does not keep long when in a fit condition to eat. Furthermore, the trees should be double-grafted. The fruits are small and borne on compact-growing trees, and are considered the best of the very early sorts. The other variety referred to (Laxton's Superb), is also a good one and keeps a little longer. Its parents are both first-class, the flavour is good, the fruits are handsome, they fill a gap between Doyenne d'Eté and Williams' Bon Chrétien and should be in all collections.

FRUITS UNDER GLASS.

Pruning and Stopping Vines ("Torquay").—As the vines have not been pruned in the usual way, it will not be safe to prune them now, as they would bleed freely and become weakened. The current year's shoots should be rubbed off, leaving only one at the base of each of last year's branches. Where such basal shoots are bearing bunches they should, in turn, be stopped at two or three joints beyond the point where the bunch is growing. All small shoots growing again on the denuded stem should be rubbed off when only 1in. long or so. After midsummer it will be quite safe to cut out all the denuded stems back to the one shoot retained of the current year's growth.

MISCELLANEOUS.

Making Use of an Old Well (J. W. M.).—The filling up of the disused well will not cause the water in it to rise 8ft., or so, to the surface. The 2ft. level of the water in the well is its normal level, and it will rise a little or sink according to weather conditions. In any case it is not likely to give trouble near the surface. Cementing would be necessary to retain 2ft. or 3ft. of water near the surface for the purpose of growing lilies; the rim at the top being constructed of stone. For a moraine, or bog plants, possibly puddled clay would answer well enough if the right material is used for the moraine plants.

Slug-Infested Soil (E. L. G.).—Unless slugs are placed in dry, unslaked lime or salt and retained there they will not be killed by applications of these ingredients. They slough themselves free of any dusted applications. The only way to deal with the pests now is to kill them around lettuce and similar plants and about three times a week scatter soot round each specimen. Gas lime would destroy many in the autumn where the soil can be left uncropped for two months afterwards. Digging deeply, so allowing frosts freely to enter the soil will hinder the breeding of slugs considerably and give seedlings a better chance to escape them in spring.

Insects for Identification (H. S., E Yorks.).—The creatures in the soil are white worms (Enchytracus sp.). They are apt to damage roots when the amount of organic matter in the soil is low, otherwise they feed on decaying vegetable matter. Heating the soil is the best way of killing them. Our correspondent might try watering the soil with water at 110° Fahr., not higher. This will not damage the plants.

Salt for Examination (W. R., Herts.).—The sample sent appears to be impure salt, which may be used for any purpose to which agricultural salt is put. It may also be used on gravel walks for weed killing.

How to Combat Slugs (G. W.).—The most satisfactory way of dealing with slugs is to trap them with such a trap as the V.T.H. slug trap. Another good way is to go out after dusk armed with a pair of scissors and a bright lamp and cut in half all that are seen. Hollowed out skins of oranges are good traps, so are cabbage or lettuce leaves laid on the ground, and hollowed out pieces of potato or carrot.

The Use of Sulphate of Ammonia (H. G.).—This chemical fertiliser is valuable applied to all garden crops, especially vegetables. Neutral sulphate of ammonia is a dry, crystalline chemical fertiliser and supplies a very large percentage of nitrogen. It should always be stored in a dry place. Applied in a dry state half an ounce per square yard will be a right quantity to use; in a liquid form, half an ounce dissolved in one gallon of water. As a surface dressing in a dry state apply 1 oz. per 4yds. run of row of plants and lightly hoe it into the soil. For established fruit trees, 3 oz. per tree. For pot plants 1 oz. dissolved in 2 gallons of water. Applied in a dry state, a small teaspoonful to a 10in. pot.

Peculiarities of the Arum (T. H.).—It is by no means an infrequent occurrence to find that the leaf below the spathe of an arum takes on similar coloration, and this is the case in the specimen sent. Why it should do so is a puzzle, but scarcely more of a puzzle than that the leaf which encloses the spike of flowers in the arum should be differently coloured from the rest of the leaves of the plant, or that the petals should be brightly coloured while the foliage of the plant is green.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Salads will require careful attention during the summer months, especially if we experience a hot dry spell of weather. Seed of mustard, cress and radishes should be sown weekly, choosing if possible a partly shaded border where plenty of moisture can be afforded to encourage a quick and free growth. Lettuce seed should be sown every fortnight on good ground, as the plants soon become useless if the soil is poor and dry.

Seakale.—The "thongs" that were planted a few weeks ago are now sufficiently advanced to enable the necessary disbudding to be done. The strongest shoot should be chosen, and the remainder rubbed off. A dusting of soot between the rows will be beneficial, and a few weeks hence a sprinkling of agricultural salt may be applied.

Thinning Crops.—This operation is most important, and all crops ought to be thinned directly they are large enough to handle. Many crops are partially ruined by overcrowding, while the quality is always inferior. Among those that will need attention are parsnips, onions, beet, carrots, turnips and spinach. The latter rarely gives satisfaction in the kitchen unless it is well grown. Frequent sowings of spinach are necessary to keep up a supply, and if not already done the New Zealand variety should be sown. This will produce a useful crop when others fail through dry hot weather.

Cauliflowers.—If the weather proves dry, the plants put out a few weeks ago will need water, and liquid manure may also be given. As plants become large enough they should be planted out.

THE HARDY FRUIT GARDEN.

Newly Planted Trees.—At this season we occasionally get a dry spell of weather, and then newly planted fruit trees will require water, expecially those at the base of walls. A mulch of short manure will help to conserve moisture in the soil and thereby reduce the labour of watering. Mulching is strongly advised for fruit trees growing in a shallow, hot soil.

THE FLOWER GARDEN.

Seed Sowing.—Now that the frames are empty, a start may be made with sowing seeds of most perennials and many alpine plants. Provide the pans or pots with ample drainage, and the compost should consist of fibrous loam 3 parts and leaf-mould 1 part, to which add a liberal sprinkling of sharp sand. Cover the seeds with finely sifted soil; but, before sowing, the pans should be well soaked with water. Keep the pans shaded, and afford water carefully so as not to disturb the seeds. When the seedlings are large enough, prick them off in boxes or in prepared nursery beds in the open.

Flowering Shrubs.—When these have passed the flowering stage, any necessary pruning should be carried out. Some of the growths will need thinning and cutting back to prevent overcrowding, and to produce well balanced specimens. Lilacs are improved by cutting out a lot of the old wood, and thus allowing space for the young shoots to develop. Many plants of a semi-climbing nature planted at the base of walls may also be dealt with, at the same time tying in growths needed for extension and filling vacant spaces.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Celery.—Plants in boxes and frames should not be allowed to suffer through not having sufficient space or root room, therefore they should be set out in the trenches at the first opportunity. It is wise to examine the plants and make certain that they are sufficiently moist at the roots before lifting. The plants should be raised from the soil in such a way that each one will have a good ball of earth, then planted with a trowel, 9ins. apart each way in the trenches. For a week or two an occasional watering should be given the plants in the late afternoons or evenings.

Hoeing.—The hoe should be kept constantly in use, not only to keep down weeds but also to stir the surface soil, among the growing crops. By frequent hoeings a fine tilth is created on the surface soil; this acts as a kind of screen and prevents in dry weather undue evaporation, thus conserving the moisture in the soil. Weeding, too, among the various young crops will require to be done by nimble fingers.

Potatoes.—In gardens where the potato haulms are sufficiently grown, the soil should be drawn up on either side of the rows. Some knowledge is even necessary to do this work properly. The soil on top of each row after earthing up is done should be left in a concave or grooved formation, so that the potato roots near the surface will obtain moisture when rain falls.

Vegetable Marrows.—Frames which have been cleared of bedding plants may be prepared by having small pits taken out in the centre of each, and about a barrowload of well decayed farmyard manure placed therein, over the manure spread sufficient good loamy soil to form little mounds, and then make firm. Plant the marrows or cucumbers on the mounds. The frame lights should be kept closed except when the sun is shining on them, and the plants and sides of the frames should be frequently sprayed to create a genial growing atmosphere. This practice should be continued until the plants are well grown.

THE FLOWER GARDEN.

Gypsophila elegans.—Where beds of young pinks are rather thin, and a good deal of black earth showing, one may with advantage scatter thereon the seeds of Gypsophila elegans. After sowing, cover the seeds with a little fine soil. This hardy annual will not only fill up the spaces, but it will expand its finely branched stems and dainty flowers when the pinks are out of bloom.

Narcissus Poeticus plenus.—Those who wish to have narcissi flowers in June should grow the double white or as it is sometimes called, the gardenia-flowered narcissus. They look very effective when grown and associated with variegated grass and catmint. Unfortunately, it has a nasty habit of producing flower buds which never open. I have counted as many as twenty-four flower buds on a clump of plants and only four blooms opened. Overdryness at the roots may possibly cause such bud blindness.

Sweet Peas.—It will be necessary now to have the large poles erected by the sweet pea plants, so that the trainers or wire netting, whichever is to be used, may be fixed thereto, and thus give the plants their needed supports.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.)
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Chrysanthemums.—If not already done, soil should be prepared for the transference of chrysanthemums into their flowering pots. It is an advantage if the soil is prepared at least a week before it is required, and it should also be turned over once or twice during that time. A good medium loam is best for the purpose; and whether any or a little leaf-soil is added depends on the character of the soil. A heavy loam will benefit by the addition of some leaf-soil, or some old mushroom-bed manure may be used instead. A 6in. or 7in. potful of fine bone-meal should be added to every bushel of soil, with enough coarse sand or other gritty material—according to the character of the loam—to keep the whole open and porous. A dusting of lime should also be added, as potting soils are usually cut from old pasture land that has too often been neglected as regards liming. The required number of pots should be washed and crocked in readiness; the size will depend on the size of the plant it is desired to produce. If single-stem plants are grown for the production of large blooms, pots 8ins. in size should be large enough for ordinary purposes. Large blooms are not so generally in favour, but although some people do not care for them, they are valuable for the decoration of large rooms, where the smaller decorative varieties would be somewhat lost. Coming to the decorative section and singles, they may be grown singly in 9in. pots, or two in a 10in. pot. If larger specimens are required, three plants should be placed in a 12in. pot. The plants should be potted firmly, and are best stood close together at the bottom of a wall. Here they may remain for several weeks, until they get well away at the root. Standing close together, a moister atmosphere is maintained than if they were stood out at once in their summer quarters. Water should be carefully afforded at the roots until they get a hold of the new soil. Plants in 6in. or 7in. pots for the stages should also be potted up, taking care to use the varieties that are best suited for this purpose. They should be kept well pinched to keep them dwarf and bushy.

South African Bulbs, such as nerines, freesias and lachenalias, as they ripen off and their foliage dies down should be stood together in cold frames where the lights can be kept over them during the summer. Nerine Bowdeni is more or less evergreen and should never be dried off completely as in the case of the other species and varieties.

Daturas are very useful and handsome when planted out in a large conservatory. Excellent specimens, however, can be grown in large pots or tubs. These plants are best grown as standards some 5ft. or 6ft. high, as their drooping, trumpet-shaped flowers are displayed to best advantage. They are readily propagated at this time by means of the smaller side shoots, which root readily in a close case with slight bottom heat. They grow quickly and soon make useful plants.

J. COUTTS.
Royal Botanic Gardens, Kew.

OBITUARY

E. A. MERRYWEATHER.

IT is with deep regret that we learn as we go to press of the death of Mr. E. A. Merryweather, of the well known firm of Messrs. Merryweather and Sons of Southwell. Mr. Merryweather had a very long and painful illness.

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THE GARDEN

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THE GARDEN

VOL. LXXXVIII.—No. 2742. JUNE 7, 1924

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THE GARDEN

JUNE 7, 1924.

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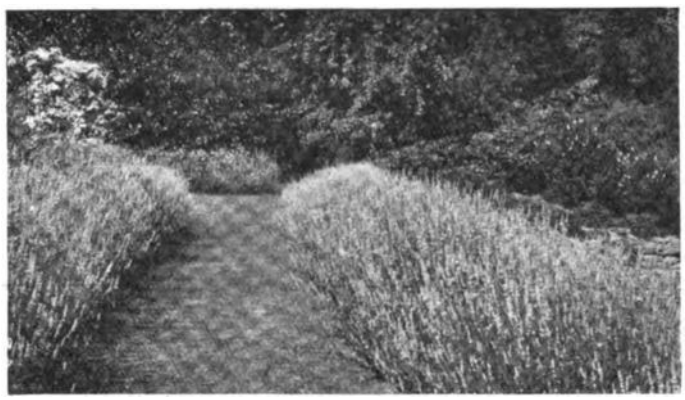

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GOOD COOKING

AS a palliative after the excitements and wonders of Chelsea, we are beginning in this issue a section devoted to the cooking of vegetables and fruits. In this country we are supposed to grow both vegetables and small fruits equal to, if not better than, any other country on the globe, and yet our use of vegetables is deplorable. In little restaurants in the country on the Continent you can always be certain of having a good egg dish and the vegetables well cooked. What more can even the greatest of epicures want than a perfect omelette, a dish of peas cooked to perfection, a salad and some cheese, and some ripe pears and coffee to end up with? It is a meal fit for the gods, and yet it is almost unknown in this country.

As a nation we are deplorable in our lighter cooking. Roast beef and kippers we can deal with better than anybody else, but who wants to keep their entire body and soul together by eating roast beef and kippers? There are such things as salads and vegetables which are not boiled in gallons of water and thrown in a dish to be served with the meat. There are such things as vegetable dishes served alone and served with due pomp and ceremony—and yet they are seldom given in the British Isles.

I happen to be fond of good cooking, and even have made a hobby of the preparation of good food, so I feel that I am upon firm ground, which is just as well, as discussions upon cooking are just as fast and furious as those on such subjects as rare alpines or the best rhododendrons. Apart from everything else, we have to eat to live, and we might as well eat palatable and good tasting food as not. This is not greed, only sound common-sense. Almost every doctor will tell you that food you enjoy is food easily digested, whether it be pigs' feet, porridge, or *pâté de foie gras.* Readers may rest assured that I am catholic in my tastes. I like every vegetable with the one exception, a parsnip, and to that I have a violent and perhaps unreasonable objection. Mention of parsnips may be few and far between in the pages of this paper, for the very thought of them gives me a sinking feeling, but for every other vegetable and fruit, whether grown above or below ground, I have a distinct partiality, and for them my digestion functions properly.

I should like, at this point, to mention one fact, and that is that cheese should be used with moderation and caution in the cooking of vegetables. Few English cooks know how to use cheese in cooking in the proper proportions, and that dish which is labelled something "au gratin" is usually a waste of good cheese and of good vegetables. Cheese is noticeable for its strong taste and vegetables for a delicate flavour which lingers pleasantly on the palate. The flavour of cheese kills all good vegetables. One vegetable has a bad name in this country owing to ill usage, and that is garlic. Nothing is pleasanter than a faint trace in salads, and yet few know how to use it properly. It is quite sufficient to rub the inside of a dish once around, but two turns might ruin what might be a perfect salad. Garlic will make or mar a dish and should be used with respect and discretion. An article will be given later on the use and misuse of garlic.

The first recipes deal with vegetable soups and are followed by—but why should we give away our secrets? The material for this and the following articles is supplied by M. Elles of the Maison Basque in Dover Street and by his chef. This is a restaurant that specialises in good French cooking, and so our readers may rest assured that all dishes mentioned in these articles are not only excellent to taste, but are also nutritious.

But this talk of food whets my appetite, and I am away to my dinner. We only ask that if any reader has a particularly fine vegetable or fruit dish on his menu, he—or she—should be willing to share it with other enthusiasts and should write to us, giving full particulars, so that we may broadcast it in our columns. We also have ways and means of testing dishes, jams, pickles and so on, and shall be delighted to give advice upon this most important subject. E. H. M. C.

We should like again to remind our readers that the Mrs. Edward Harding Peony Cup is offered for award at the next show of the Royal Horticultural Society, to be held at Vincent Square on June 11th. This is awarded for the best exhibit by an amateur of three flowers each of six varieties of peony. It is hoped that many amateurs will send in exhibits and so help to popularise this fine plant.

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SOME LILIES IN THE JUNE BORDER

THE BEAUTY OF LILIES AS BORDER PLANTS HAS ALWAYS BEEN RECOGNISED, BUT THEY ARE, PERHAPS, A LITTLE NEGLECTED IN OUR GARDENS. THIS ARTICLE BRINGS TO YOUR NOTICE SOME OF THE MORE POPULAR VARIETIES.

JUNE is a month of many competitive flowers, when Nature—in prodigal mood—showers her treasures into the arms of the gardener. Yet, in the midst of it all, one flower—the lily—continues to rise resplendent, triumphant, all-conquering over all. She is a conservative flower that does not spend all her varieties at once; others, no whit less beautiful, none the less fragrant, are in reserve—right up to the September days when LL. auratum and speciosum will signal the termination of a long pageant of glory. But to-day she is generous enough and the garden is aglow with many a brilliant hue, the air is heavy with a powerful fragrance, the lover of beauty and form is filled with delight at the profusion with which he is surrounded.

Looking backward to the cool, moist days of October, with the dying leaves swirling round us in a continuous shower, it does not seem long since we committed those bulbs to the earth in hope. To-day, even though we knew to a large measure what to expect, it is far more difficult to realise that so rich a feast of wonder lay dormant within those fleshy bulbs. A miracle seems to have happened—yet it is a miracle that will happen again, for anyone who may wish it repeated. Let us cast aside all thought of the cultural aspect of the matter and merely enjoy the present and the flowers that be or soon are to be, for budhood is in many varieties but little less attractive than actual flowering.

Here in partial shade we discover a good example of this budhood, for those are Lilium Coridion, the flowers of which will not expand until the last days of the month. When they do open they will become flowers of a rich clear yellow. It has suffered from a reputation of being difficult to grow. However, it is not difficult when planted in loamy soil to which some peat and sand have been added, combined with regular moisture and partial shade. As we turn from contemplation of this choice little plant we are left in no uncertainty as to whether L. croceum, the cottager's orange lily, is in flower. Through the trees comes a glint of fiery gold that could only be produced by that common old garden favourite. No need to worry over proper soil for this. Give it sunshine and an open position away from trees, but where the base of the stem is buried among other plants, and it will annually increase in numbers, rising upwards to a height of 5ft. to 7ft., with a large number of fiery orange flowers on every stem. How the children love to be lifted up to smell and to bury their noses amid the dangling stamens, withdrawing with shrieks of laughter at the fact that their faces are stained with the golden dust.

A FINE JUNE BORDER LILY, L. DAURICUM.

The Dahurian lily, L. dauricum, has an interesting story, and those who take a definite stand as to whether varieties should be ranged under dauricum, umbellatum, Thunbergianum or elegans must be prepared for either contradiction or agreement. Originally the lily came to us from Siberia and was named dauricum by one and spectabile by another, so that its very advent was marked by dissension. Then the growers took a hand and raised improved forms, which they named umbellatum. To-day we stand the possessors of a heritage which lights the June border with a splendid array of vivid colour that, good as it is *en masse*, is worthy of still closer scrutiny. Here is dauricum Prince of Orange, the earliest to flower, 1ft. high, with showy apricot flowers spotted with black. Here, rising to 15ins., is elegans Orange Queen, a clear bright orange plentifully dotted with small black spots. There, still taller and reaching 1½ft., elegans sanguineum in deep red.

Umbellatum varieties are such strong growers that we have placed them in the shrubbery to display their glorious colour against a dense background of deep green glossy leaves, and they thoroughly appreciate the cool shade at their roots, provided these are not too dry and the heads can rise clear into the strongest sunshine. Our choice has fallen upon Diadem—one of the very best of all—in bright crimson, each petal having a central yellow streak. Grandiflorum, in light orange red; erectum, red flushed with orange; and Sappho, light orange tipped with red. These are all of the grow-themselves order, and one cannot claim any special credit for their fine condition; but they do look well.

Back again to the border, however, and right down to the sunniest end where, with a full south aspect and a kindly brick wall at the back, we have ventured three bulbs of L. longiflorum. Even if their coming be delayed to July, however, it is worth growing them. The lower leaves are slightly touched by late spring frosts, but the giant white buds are in condition and, whether it be June or July, those elegant fragrant white flowers will expand into magnificent trumpets of spotless purity. The reward is worth the risk, and if—another time—failure comes, well, we shall probably try again.

Here is Lilium monadelphum, according to Kew, though in many gardens there is confusion and the name colchicum and Szovitzianum are both in use. The type is rich yellow and more or less copiously spotted,

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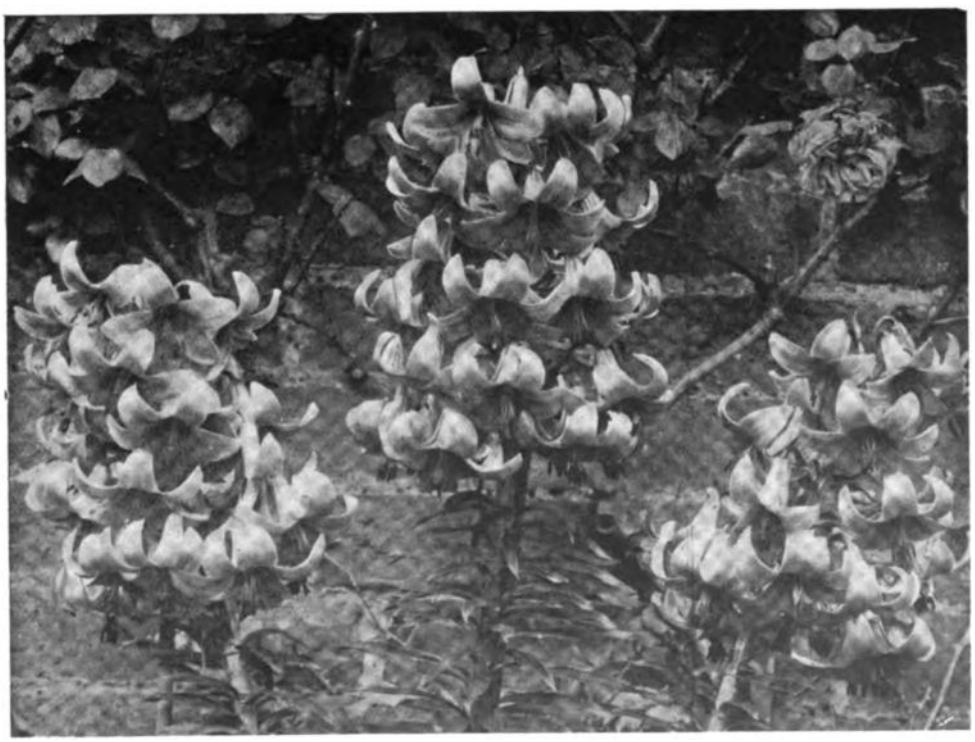
while the stamens are joined at the base. In Szovitzianum the flowers are larger, paler in colour, with bright red anthers and the segments less recurved. The latter at its best is a glorious plant, and where it takes kindly to a position increases its bulbs freely. Pyramidal clusters containing as many as thirty flowers are sometimes produced when the bulbs are well established. The clump we are examining has been planted five years, which accounts for the large number of blooms. The first spring after planting I always fear that something has gone wrong, for the plant appears just to stand still and makes no progress whatever; but time will prove this false and the second year will give you bloom, and then there are the succeeding years, too, rich in compensation for one year's wait.

Very beautiful, very easy and very early are fair descriptions of the Yellow Turk's Cap, L. pyrenaicum. The leafy stem alone is full of beauty, and then there is the crown of pendent flowers, in yellow shaded with green, dotted by black and illuminated by a touch of brilliant scarlet on the anthers. This, standing at a height of 3ft. in a close tuft, forms an outstanding feature of chaste and delicate beauty of which one never wearies. L. rubellum is another of our experiments, for truth compels the confession that it is not reliably hardy, especially as it blooms so early, for—in a forward season—one may see the flowers fully expanded in May. Success is only achieved by surrounding the bulbs with rubble and stones so that they never come into contact with the soil, otherwise they disappear by rotting during the winter. A partly shaded spot with a good body of leaf-mould and loam round the rubble will do the rest, and your reward will be deep rose flowers of exquisite beauty. There may be a surprise in store here, for it is not uncommon for the first flowers to come nearly white, the rose colour only developing in later years when the bulbs have become established.

Brilliant colour—glossy scarlet—a slender graceful habit and easy of culture in most soils, these are the amiable characteristics of L. tenuifolium, a charming little lily, 1½ft. tall, of the Turk's Cap order. If you want to be especially kind to it, here is its chief requirement: it loves a little bit of peat added to the natural soil, and the welcome shade of a companion plant that shelters the lower third of the stem will be appreciated.

LILIUM CANDIDUM, THE MADONNA LILY.



THE FIRM RICH YELLOW HEADS OF LILIUM MONADELPHUM.

Finally, and with a query mark against it as to whether it will be late June or early July in its flowering, we do admit pride in our noble clumps of that old-fashioned glory of the cottager's garden, the Madonna lily, L. candidum. There are two secrets behind those splendid examples, one at planting time, the other merely a question of leaving alone. When we procured our bulbs, we put them into a bag filled with powdered sulphur and shook all up together and then planted them thickly covered with the yellow dust. No gardener but Nature has handled them. A spadeful or two of manure, very old and so rotten that it was quite black, has been carefully spread over the bulbs in late July, and to-day you see the result. Stems towering upwards 4ft. to 5ft. high, thickly furnished with fifteen or more giant buds crowning the apex of every stem, of which there are more than twice as many as when the original planting was done. H. W. CANNING-WRIGHT.

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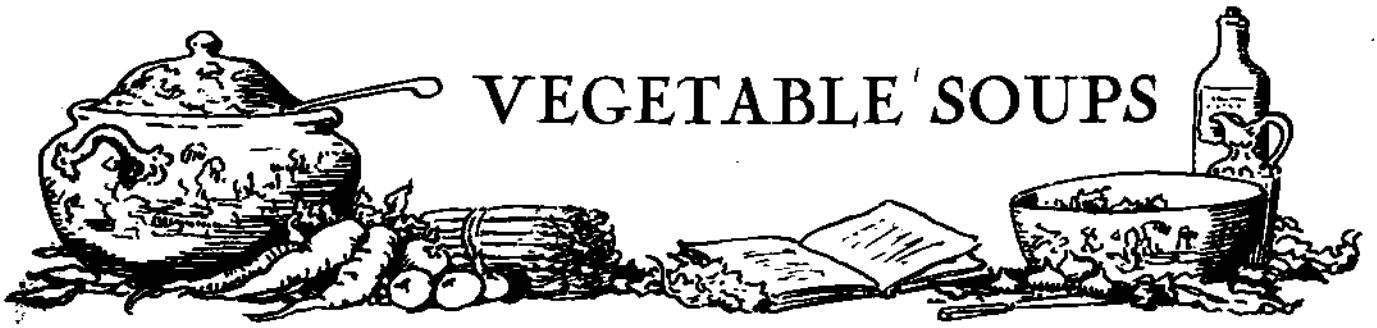

VEGETABLE SOUPS

THERE are two vegetable soups in which we, as a nation, excel; these are Scotch broth and Cock-y-leeky, both, by the way, of Scotch extraction and perhaps one should say that Scotch cooks excel in them. All the same our use of vegetables in soups is not so universal as it might be. Apart from the flavour, vegetable soups are extremely nutritious and easily digested, so much so that the French and Belgians are accustomed to give an essence of leeks or onions, made by boiling down the vegetables in water, with salt to taste, in cases of gastric catarrh, influenza, severe cold and so on. They not only act as a mild antiseptic, but also are extremely nourishing.

The following recipes are all of soups such as the ordinary bourgeois on the Continent are accustomed to eat as everyday dishes. There is nothing elaborate about them; they are extremely easy to cook and are just as tasty—horrid word—and nourishing as the most elaborately prepared soup. In these recipes water is the only liquid mentioned, but they are all improved by using chicken consommé as a foundation. This is not so alarming as it seems, for "chicken" is a euphemism. Any old hen may be used for stock purposes or even an old game bird or rabbit, as long as it is fresh and has not been allowed to hang too long. Veal may also be used. Naturally, such a stock need not be made immediately before use: it will keep quite well for twenty-four hours even in hot weather, provided it is kept in a cool place. If stock is used, salt will have been added in its making, so salt should be added cautiously in the final preparation of the soup. The proportions are such as are required for four people.

1. POTAGE POIREAUX ET POMMES (Leek and Potato Soup).—Take three leeks and cut them in small pieces as for a julienne. Wash them thoroughly to remove all impurities. Peel 2lb. potatoes (floury for preference) and cut them in slices. Cook the leeks and potatoes with salt to taste, slowly in a saucepan in a quart and a half of water for two hours. Then pass the vegetables through a fine sieve. Add 2oz. butter just before serving.

2. POTAGE SANTE (Sorrel Soup).—2lb. of potatoes treated as above and same quantity of water and salt to taste. Cut one onion in very fine slices and chop fine ½lb. of sorrel. Cook the onion and sorrel with 2oz. of butter in a pan for ten minutes without letting them brown. Mix together with the potatoes, which are already cooking, and let them cook slowly for about an hour. After thoroughly cooking pass them through a sieve. Add one small teacupful of cream just before serving.

3. POTAGE CRESSONIERE (Watercress Soup.)—Same as above but with watercress instead of sorrel.

4. SOUPE AU CHOUX (Cabbage Soup).—Take one Savoy cabbage, 2lb. potatoes and one carrot; chop them in small pieces; wash well and place them in a saucepan with ½lb. of pickled pork. Let the mixture cook slowly for about three hours. Take out the pork and serve immediately. No salt need be added to this soup.

5. POTAGE PAYSANNE.—Cut up in small squares two carrots, two turnips, one onion and a few beans. To these add one lettuce cut very fine, and one teacupful of fresh peas. Put them in a saucepan with 3oz. of butter and let them cook gently for half an hour. Then add salt to taste and three pints of water and let the soup cook slowly for one and a half to two hours. Just before serving add a little butter and some chopped parsley and chervil. This soup is improved by adding small thin slices of stale bread at the moment of serving.

6. POTAGE PARMENTIER (Potato Soup).—Boil five floury potatoes in salted water. Drain them and pass them through a sieve. To the potato purée add a little butter, half teacupful of cream, salt, pepper and some chopped parsley and chervil. Add three pints of water or consommé and let it simmer for half an hour. Serve with croutons of fried bread. This soup is vastly improved by using consommé instead of water.

7. SOUPE A L'OIGNON (Onion Soup).—Take two medium-sized onions and slice them finely. Then fry the slices in butter until they are fairly well browned. Pour on to them three pints of boiling water and add a dessertspoonful of salt, and let the mixture simmer for a few minutes. At the bottom of the soup tureen place toasted slices of well crusted French bread and on the top of them sprinkle four tablespoonfuls of grated Gruyère cheese and two of Parmesan. Pour the soup on the top and serve immediately. This is for an ordinary onion soup for everyday use. If something with more body to it is required, stock should be used instead of water and a wineglassful of white wine can be added, but this should not be of a sweet variety.

These soups sound very simple, perhaps too simple for the ordinary cook, but they have been used and relished on the Continent for centuries and are all excellent. It will be noticed that they are composed entirely of vegetables, even in the thickening. For cream soups the thickening consists of what is called Roux Blanc (White Roux). This is made by melting on a slow fire a piece of butter the size of an egg and stirring in slowly a tablespoonful of flour. This is cooked for a few minutes, but not browned. Into it is poured a little milk or consommé; the cooking is continued until the roux thickens. It must be absolutely smooth and if inclined to be lumpy should be passed through a sieve. On the amount of roux added to the soup depends its consistency. A trial or two will soon show how much should be added for particular tastes.

8. CREME AUX TOMATES (Cream of Tomatoes).—Six tomatoes and one sliced onion are fried in butter for a few minutes. Three pints of consommé or water are added and the mixture is boiled slowly for three-quarters of an hour. After passing it through a fine sieve a cupful of roux is added, also a dessertspoonful of sugar and a trace of nutmeg. It is much improved if a cupful of cream is added just before serving. Tinned tomatoes are just as satisfactory, but in this case they do not require to be fried. Croutons of fried bread are served with this soup.

9. CREME SAINT-GERMAIN (Cream of Peas).—One and a half pints of shelled peas are cooked in water with one onion or shallot and with the knuckle-bone of a ham or some bacon with the rind on; the rind is necessary to give the very faintest smokey flavour, and also to keep the fat from melting too much and forming a scum on the top. The peas are then passed through a sieve. Consommé or milk should be added to form it into a consistency rather thinner than that of the finished soup. One cupful of roux is added and the mixture allowed to boil gently for twenty minutes. A dessertspoonful of sugar and a cupful of cream or milk is then added. Fried croutons are served with this soup.

10. CREME D'ASPERGES (Cream of Asparagus).—Three pints of consommé and one cupful of roux are cooked together for a few minutes with a few leaves of sorrel and chervil. To them is added a pint of asparagus purée made by passing well boiled asparagus through a sieve. Let the mixture simmer for a few minutes. Then remove the sorrel and chervil and add a cupful of cream before serving.

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BEDDING OUT

NOW IS THE TIME TO COMPLETE YOUR BEDDING OUT PROGRAMME.

THE above heading will remind many readers of THE GARDEN that a very important work will, in a few days' time, call for attention, and upon the way in which it is carried out will depend, to a great extent, success or failure during the summer.

Thirty years ago carpet bedding was in extensive use. The formal designs in rich and subdued colours served a good purpose in those days, affording pleasure to all who favoured this form of bedding out. To-day, a less formal plan obtains; the beds of zonal pelargoniums, tuberous begonias and similar plants find much favour, and it is difficult to vary the matter of arrangement to any extent; but in the case of sub-tropical bedding and the combinations of dwarf and tall-growing plants in the same bed, very pleasing and charming effects can be obtained, and it is possible to have fresh combinations year after year. Many of these beds resemble groups for effect as seen in our conservatories a generation ago.

It is now too late to propagate more plants either from cuttings or seeds, but any shortage can be made up by purchasing plants ready to bed out. The cultivator should first decide on how the beds are to be filled and the number of plants required for each, then the extent of the stock in hand.

Every plant should be gradually hardened off to withstand full exposure in the open air. Some have already been placed out in groups, and many in frames, too, have been without the protection of the glass lights for a week or ten days. The next step is to space the plants farther apart, letting each one stand quite clear of its neighbour. Very careful watering is necessary; the soil in the pots and boxes should never be allowed to become dust-dry nor kept in a sodden state. In the southern counties it is safe to commence planting out the first week in June, beginning with the hardier subjects, such as zonal pelargoniums, fuchsias, marguerites, etc., and finishing with the more tender kinds, such as coleus, freesias, abutilons and begonias. The work may be completed by the middle of the month.

In the northern counties bedding-out should commence ten days later and be completed about the end of the third week in June.

It is not a difficult matter to get the soil in good condition for the reception of the plants where it is free of spring-flowering plants. Soil in good condition does not need the addition of much manure, a small quantity of well rotted dung and leaf-soil, mixed, will do splendidly in medium heavy soils and for plants that are required to produce handsome foliage. For those that are to be prominent as flowering specimens, scarcely any organic manures will be needed. For others that are to be regarded as low-growing and to be conspicuous as carpeting plants with richly coloured leaves, only a small quantity of rotted leaf-soil is desirable. The soil in beds occupied by spring-flowering plants will be more exhausted, and for every kind of summer-flowering plant some manure will be beneficial: applying larger or smaller quantities according to the kind of plant used, as referred to above. The spring-flowering plants needed for stock should be re-planted in nursery quarters that have been duly prepared for them.

BEGONIAS WITH SILVER-GREY CALOCEPHALUS.

A GOOD EXAMPLE OF THE [illegible] COLOURED FOLIAGE IN BEDS.

Light soils in showery weather are ideal for the reception of the plants at all hours of the day. Very dry ones in fine weather should be thoroughly soaked with clear water the day prior to planting and the plants should be watered forthwith, also an hour before they are turned out of the pots or boxes.

Naturally heavy clayey loams should be well broken up several days before any plants are to be placed in them. This action will allow them time to dry a little. To prevent soil adhering to the garden trowel or fork, rake the surface of each bed early on a fine day; the soil will dry up considerably in a short time, and the work of planting can be done much better.

Beds raised and with a rounded surface are ideal for plants if the soil is naturally tenacious of moisture. But in the case of light or sandy soils, perfectly flat surfaces are the most beneficial. It is always an advantage to take extra pains with the preparation of the soil, as the actual arrangement of the plants is so much more satisfactory.

All flowers and prominent flower buds should be removed from the plants

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before they are planted, as the flowers help to exhaust the specimens and hinder the growth of young shoots which are to bear the summer display of blossom. Put out the plants just so far apart that they will, when at their best, completely fill the beds without any undue crowding.

Where the plants vary much in size it may be necessary to pinch off a few prominent shoots. The smallest plants, of course, should be arranged near the edge of each border.

The general height of the plants should be governed by the size of each border. Tall ones would look out of place in a small bed; half-standards, as dot plants, would be more suitable in the smaller, and full standards as dot plants in the larger borders. The very large borders should contain both standards and half-standards as dot plants.

Then there is the question of edgings. A narrow band of plants would look better as an edging to a small bed, and a broad, bold band as an edging to a large one.

Colour schemes are often troublesome to cultivators. Good effects may be created by having distinct colours in each bed with distinct edgings or a mixture of colours that harmonise. In some instances, beds of this description look best without any edgings. Dot plants should not be planted too closely together. The following are samples of suitable combinations: Fuchsias, Bougainvillæa glabra, swainsonias, plumbago, sweet-scented pelargoniums, Ricinus Gibsonii, eucalyptus, Dracæna indivisa, Grevillea robusta and abutilons.

All standard and half-standard specimens should be securely and neatly staked as soon as they are planted. Surface mulching is very beneficial; this also should be done directly the plants are put out. Rotted leaf-soil and garden soil, sifted and mixed, will answer, but coconut fibre is the best and presents a neat appearance.

Pure white flowers and silvery foliage create a too cold display. Rich purple and lilac colours agree together. Primrose, white and yellow, in this order, should exist close to purple and lilac; and scarlets, yellows and pinks should not be too close to them. There is room for more blue flowers in the gardens of both town and country. They harmonise well with dark or light coloured foliage. Associated with white, pale yellow or primrose coloured flowers, both pale and dark blues are delightful.

The following will be found effective combinations:

(1) Pelargonium Paul Crampel with a groundwork of Alyssum minimum and a bordering of Pyrethrum aureum.

(2) Standard heliotropes and fuchsias with a border of dwarf marigolds.

(3) Double-flowered marguerites, dot plants of Lobelia Queen Victoria and Iresine Herbstii forming a broad border.

(4) Brilliant salvias with a border of Pyrethrum aureum.

(5) Pelargonium Golden Harry Hieover mixed with blue lobelia, fuchsias as dot plants, Alyssum minimum as a broad border.

(6) Pelargonium Flower of Spring, Lobelia cardinalis or Queen Victoria, mixed with Pyrethrum aureum, as edging.

(7) The centre filled with Alyssum minimum, dot plants of fuchsias with very broad bands of Gazania splendens.

(8) In partial shade, funkias and fuchsias.

(9) Chrysanthemums, groundwork of Viola Blue Bell.

(10) Pelargonium Ivy-leaf "Galilee," Viola Blue Bell.

(11) Salpiglossis, mixed.

(12) A mixture of Fuchsia fulgens, Coleus Verschaffeltii, plumbago, (blue), and Ivy-leaved Pelargonium Madame Crousse.

(13) Ivy-leaved Pelargonium "Galilee," Viola lilacina.

(14) A mixture of Fuchsia Mrs. Marshal, Heliotrope President Garfield or Mme. Bussey.

(15) Celosias and liliums.

(16) Artemisia arborescens, Cassia corymbosa.

(17) A bed of sweet-scented plants is sure to afford unlimited pleasure. Both old and young plants may be associated in this case and quite large borders filled. Sweet-scented verbena (Aloysia citriodora), myrtles, heliotropes, Nicotiana affinis, musk, mignonette, Matthiola bicornis, scented-leaved geraniums such as citriodora, fragrans, Pretty Polly, carnations, liliums, and sweet peas. Rose beds may be filled with annuals, such as stocks and asters, effectively without any harm to the permanent occupants.

Dahlias, gladioli, chrysanthemums, hollyhocks, cannas and Michaelmas daisies look extremely effective judiciously used in newly planted shrubberies.

GEORGE GARNER.

SEMPERVIVUMS—A PRELIMINARY NOTE

BY DR. LLOYD PRAEGER.

> Reason, in itself confounded,
> Saw division grow together;
> To themselves yet either-neither,
> Simple were so well compounded
>
> That it cried, how true a twain
> Seemeth this concordant one!

THESE perplexing lines convey with tolerable correctness the prevailing opinion among gardeners concerning those interesting, useful, but distressing plants, the sempervivums. They look delightful, they will grow anywhere (if only it is dry), but—so goes the tradition—their nomenclature is hopeless, and their identity beyond the wit of man to determine. Nay more, they change their mortal frame by feat of magic mystery, like the shadowy (and shadowless) father of the Ladye of Branksome Tower, assuming different guises according to the soil and situation, and thus providing in the vegetable kingdom a parallel to the transmutation of metals, long believed in by the alchemists, and now triumphantly and unexpectedly proved by modern science to be true.

But the sempervivums are not quite so black as they are painted. The transmutation legend may be at once dismissed. It arose chiefly from the fact that the houseleeks, like all the people who dwell in dry places, take care to conserve their water supply. When threatened with drought, the leaves curl inwards and enclose the growing point. This may cause the rosette to look very different from when it is expanded, especially since the back of the leaves is often of different colour and sometimes of different texture from the face. Accordingly, rosettes growing on a dry stone may have a different size, shape and colour from their fellows which have fallen down and are flourishing in damp half shade below. But in an admittedly difficult genus like sempervivum, where a quite unusual similarity of form pervades all the species, we cannot hope to be able to rely on mere general appearance for their discrimination. We must look closer. Size, shape and colour of leaf count for a good deal, but much more important is the distribution of hairs, both on the margin and on the upper and lower faces, and the characters of these hairs. We need to detach a full grown, but not too old leaf carefully at its base and to study all its features, for which purpose a low-power lens is essential. We shall find that the magnified leaf shows features the existence of which we had not suspected, often characteristic and frequently beautiful. The leaf of the common S. montanum, for instance, is densely covered, front, back and edges, with a forest of slender hairs, each tipped with a tiny globular gland. S. Tectorum in all its forms, on the other hand, is quite devoid of hairs save on the margins, where there are strong, tapering, semi-transparent, tooth-like ciliæ set in a close row. The geometrical cobwebby white hairyness of the arachnoideum group, again, takes on a new beauty and significance under the lens, as do also the fleecy tufts with which the leaf tips of a number of other forms, including many of the arachnoideum hybrids, are clothed.

We shall find that these critical characters remain, whatever be the situation, and light as to the true affinities of our plants will begin to dawn. Then, of course, everything connected with the flowering shoot and flowers is of equal or greater importance, and in the case of closely allied species is essential for purposes of identification; but so far as my observations have gone, most of the species can be named from the barren rosettes alone, with the aid of experience and a magnifying glass.

How many species have we to deal with among the hardy sempervivums? The evidence is most contradictory. If we take the Kew Hand-List of Herbaceous Plants we find no

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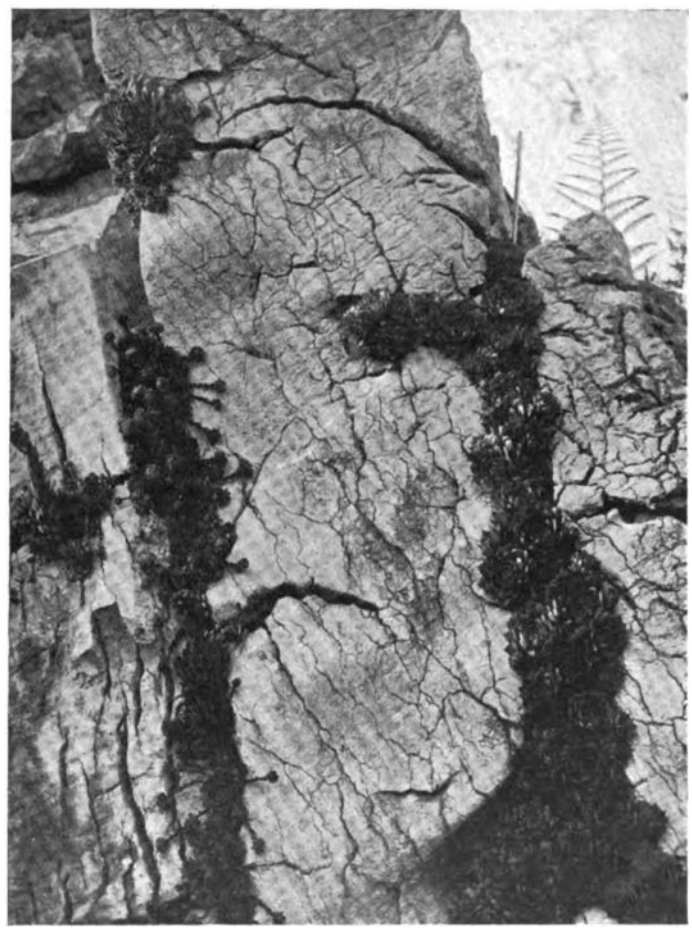
fewer than fifty-three specific names, of which six are italicised as being synonyms of the remainder. All but one or two of these are European plants, found on mountains from the Pyrenees to the Caucasus. Yet if we turn up the latest account of the flora of the whole region of the Alps, which forms the headquarters of the genus in Europe (Hege's "Illustrierte Flora von Mittel-Europa"), we find only eleven species admitted; while Koch's standard work on the Central European flora enumerates thirty-eight species for Switzerland and Germany alone! Such contradictory figures simply mean that there has been a great difference of opinion among botanists as to what constitutes a species among these perplexing plants. It also signifies that the same species has often been given different names by botanists working in different places and at different times.

This lamentable plurality of names is especially concentrated round that commonest and most variable of all the houseleeks, S. Tectorum. To this plant in its various forms, at least sixty names are attached, not more than a dozen of which—if so many—deserve to be retained even as varietal appellations, if we adopt the same standard that is usually employed for other plants. Rouy and Camus, who in their "Flore de France" take S. Tectorum very seriously, describe forty-three sub-species, forms and varieties of that species for France alone. But the French botanists attach more importance to the minor variations of plants than has usually been the case among English workers—perhaps to our own loss.

In gardens, of course, the reigning confusion is intensified, for here the names known to botanists, to which published descriptions are attached, are augmented by many others derived from heaven knows where: in some cases the gifts of enthusiastic but misguided amateurs, in other cases the result of errors of transcription and so on. The nurseryman likes a new name, and so these foundlings wander out into the world. In the end, a state of confusion ensues which is past belief. I have had occasion lately to go through a number of large English collections of sempervivums. Several consisted of a hundred or more plants all bearing different specific names. In some cases half of the total consisted of S. Tectorum in slightly different forms. In no case did the hundred or more plants represent more than twenty species; in some cases not more than a dozen!

Of course, it is admitted that some of the species vary a good deal, and varietal names may well be bestowed on the most marked departures from type. Also, hybridisation is common, both in nature and under cultivation, and the presence of these hybrid forms renders the task of disentangling the true species much more difficult. But the genus is sadly overburdened with superfluous nomenclature. In the whole of Europe—to which area the true sempervivums are confined—there are certainly not more than forty plants which can rank as species, in the usual application of that term. These forty species boast about 200 specific names. Probably another forty or less are worth distinguishing as varieties, at least for horticultural purposes, and the number of recognised hybrids is about the same.



SEMPERVIVUMS ON A GRANITE CRAG IN THE GENEVA BOTANIC GARDENS.

As has been said, it is the presence of these varieties and hybrids that makes it so difficult to identify the sempervivums of our gardens. The hybrids are not even in many cases straightforward first crosses between species, but themselves interbreed and crossed with the parents and even with other species. So we may have a Tectorum with just a trace of Wulfeni, or a montanum which is one quarter arachnoideum. Or we have forms like the well known but mysterious S. Funckii, for which the best European authority on sempervivums suggests the parentage arachnoideum var. doellianum × montanum sub-sp. stiriacum × tectorum f.—an appalling family tree! When it comes to this kind of thing, it becomes essential to study the plants in their native state. Anywhere along the range of the Alps one may do this, and once one has got into one's head a clear idea of the parent species, then the study of the intermediates becomes less difficult and very interesting. But to understand them thoroughly one must bring them home and grow them, so that one may observe them at all periods of growth.

From Switzerland last summer I brought back some 200 gatherings, representing the collective sempervivum flora of twenty to thirty separate localities, the set from each locality being kept together. Although only four species are represented—arachnoideum, montanum, Tectorum and Wulfeni—hardly two of the 200 plants look exactly alike. Since the possible parents present in each locality are known, it should not be impossible to decide the parentage, even when somewhat complicated, of the intermediate forms; some of them, indeed, can be analysed at a glance; and I think that with this as a basis on which to work, the sempervivums of the Central Alps will not appear quite so bewildering. In subsequent numbers I hope to be able to give some definite notes on these species and their hybrids.

As we go eastward from Switzerland the sempervivum flora changes. Most of the familiar plants dwindle out, and in their place we get a new set of forms. Some of the Austrian species, such as S. Pittonii, are very distinct and quite easily recognised; but in the Balkans, especially in Bulgaria, there are a good many which are as yet but little known. These Bulgarian representatives are often finely hairy and also yellow-flowered—a tint rarely seen among the Swiss species; they appear to occur to a great extent in separate areas, and from this one may hope that hybridisation is not so prevalent as in the Alps, and that one will not be confronted, as in some of the Swiss valleys, with several species and a multutidinous and complicated joint progeny extending to the *n*th generation.

FORTHCOMING EVENTS.

June 7.—Blackburn Horticultural Society's Meeting—Darwen and District Agricultural Association's Annual Show.

June 9.—United Horticultural Benefit and Provident Society's Meeting.

June 10.—Jersey Gardeners' Society's Meeting.

June 11.—Royal Horticultural Society's Fortnightly Meeting (two days). Lecture on the first day at 4 p.m. by Mr. E. A. Bowles, M.A., on "Uncommon and Interesting Plants."

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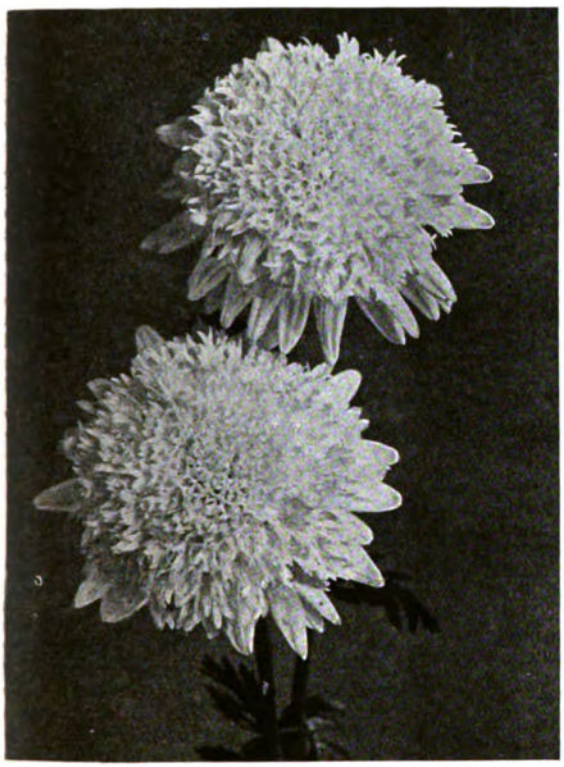
MORE ABOUT THE CHELSEA SHOW

THIS IS THE SECOND AND FINAL PORTION OF THE REPORT ON THE CHELSEA SHOW, OF WHICH THE FIRST INSTALMENT APPEARED IN OUR RECORD NUMBER LAST WEEK.

HARDY FLOWERS

(*Continued from page* 282).

A sort of horseshoe border, comprising gladioli, trolliuses, lavateras, primulas, irises, peonies, violas, alpine phlox, statice,



ONE OF MESSRS. KELWAY'S PYRETHRUMS, AS SHOWN ON THEIR CHELSEA STAND.

Cineraria maritima, Incarvillea Delavayi and other hardy plants made a welcome change as an exhibit, as arranged by the Maytham Gardens. The grass border and pathway between added very materially to the picture. This was to be seen at the Hospital entrace to No. 2 tent.

Another novel group in the same quarter was arranged by Mr. Thos. Carlile, and embraced such plants as geums, lupins, pyrethrums, wallflowers, verbascums, irises, perennial candytuft, Viola purpurea and numerous other plants. It was a grand mass and had many admirers. Near the same spot was a splendid exhibit of hardy flowers shown by Messrs. Maurice Prichard and Sons. Here were to be seen Oriental poppies and beautiful variety lupins, eremuri, pyrethrums, aquilegias, heucheras, geums, armerias, trolliuses, genistas, verbascums, white broom, irises, and a great host of beautiful things which want of space forbids us mentioning; it was a fine effort.

A dainty little circular group at the Hospital entrance to No. 1 tent was arranged by Messrs. G. Gibson and Co. The exhibitors showed Trollius Triumph, T. Fire Globe, T. Aberdonian, T. asiaticus, T. Mrs. G. Gibson, T. Lemon Queen, and other varieties, all very good. Also Giant Orange Iceland poppy, Daphne Cneorum, heuchera, Primula pulverulenta, saxifraga and other interesting plants.

An extremely elegant and artistic group of aquilegias came from Mr. V. C. Vickers (gardener, Mr. W. Watkins). The plants were well grown and bore in profusion spurred blossoms of the most dainty description, the colours being charmingly diverse.

A raised garden in tent No. 1, on which were arranged by Messrs. Bakers, Limited, beds of hardy flowers, flowering shrubs, acers, etc., together with hardy flowers of a varied description, made a beautiful exhibit. Delphiniums, heucheras, lupins, trolliuses, irises, aquilegias, spiræas, primulas and other plants combined to make a fine display.

A grand exhibit in No. 1 tent was set up by Messrs. Bees, Limited. Here was to be seen a plethora of beautiful things, such as lupins (varieties Delight and Sunshine), Campanula Telham Beauty, aquilegias in great variety, single pyrethrums, Meconopsis cambrica plena, geums, verbascums, acers and numerous other useful plants in the hardy flower garden.

In Messrs. Barr and Sons' group of tulips, irises, etc., there were many such things as peonies, aquilegias, lupins in variety and many dainty plants, all worthy of notice.

Messrs. R. H. Bath, Limited, had as a finish to their group of tulips, hardy plants, such as trolliuses and beautiful blue and white native hyacinths.

A very gay exhibit was that put up by Messrs. Harkness and Sons. Showy Iceland poppies in primrose, orange and yellow shades were very fine. So, too, were Polemonium Richardsoni, Trollius Orange Globe, heucheras, single and double pyrethrums, Viola cornuta purpurea, fancy pansies and other plants.

The delphiniums shown by Messrs. Hewitts had much to commend them. Tall and stately spikes of blossoms represented such varieties as Sister Clare, Mrs. Townley Parker (pale blue), Joy Bells (rich mauve), Smoke of War (deep mauve and blue), Mrs. Colin Macever (mauve and blue), Blue Boy (rich blue), Queen Mary (pale blue and white) and many others.

PINKS & ALLWOODII

Pinks, as exhibited nowadays (apart from the many beautiful alpine species of dianthus and their hybrids, which may best be described with other rock garden plants), are—if the Hibernian touch may be forgiven—either Herbertii or Allwoodii. Allwoodii look like pinks but have carnation "blood"; Herbertii resemble compact-habited carnations and are, to the best of their raiser's knowledge, pure-bred pinks.

Opposite their great bank of carnations, Messrs. Allwood staged a veritable garden of Allwoodii and the very real progress which they are making with the flower was more evident than ever. This year's novelties include the clear salmon-pink Elizabeth, a shapely flower and very free; Beatrice, deep salmon rose and, as massed, extremely effective; and Bryan, which is of the shade of pink we associate with Enchantress carnation and very full and carnation-like in appearance.

For the rest, the following attracted our attention, but many visitors will prefer an entirely different set:—Sybil, one of last year's novelties, improves on acquaintance—she is semi-single (a delightful condition!), soft pink, shapely and beautiful; Matty, rose pink, eyed maroon, may be described as an improved Rufus; Alfred, a splendid white, as an improved Harold—it is of much better habit; while another semi-single one, Dickon, attracts by reason of the large and

A GROUP OF MESSRS. ALLWOOD'S NEW VARIETIES OF ALLWOODII.

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conspicuous dark maroon eye to the bright rose shapely blossoms; Jenny is a delightful clear pale pink; Hugh, magenta-purple, is fine with its brilliant but quarrelsome colour; Barbara is as near true crimson as one can expect in a pink or near-pink. Another brand new one—Edith—attracts by reason of a distinct picotee edge, but is otherwise susceptible of improvement.

One could hardly miss Messrs. Allwood's garden of pinks, but, unless they specially looked out for it, many visitors will have missed Mr. C. H. Herbert's short length of tabling, on which were displayed his well known Dianthus Herbertii. A few of the very best on view were Bridesmaid, "Enchantress" pink, zoned deeper, very large, light, graceful and shapely; Mrs. C. H. Herbert, of similar form, but rose pink, zoned crimson-maroon; Mrs. Giffard Woolley, of similar colouring to Bridesmaid, but larger, fuller and quite distinct; the bright rose-pink May Queen, now well known, but in splendid form; Fire King, shapely and almost pure vermilion; Victory, black-crimson and more fragrant even than its delightfully scented neighbours; Prince of Wales, salmon; Lord Lambourne, crimson lake; Red Indian, purplish rose; and last, but certainly not least, Model, doubtless the most perfectly formed pink ever raised. Several good laced pinks were also on show.

Messrs. Andrew Ireland and Hitchcock made a brave splash of colour with their brilliant rose carnation-sweet william hybrid, Mascott's Dianthus.

DAHLIAS

A pretty table group, mostly of the star dahlias, was shown by Messrs. J. Cheal and Sons, Limited. The better star dahlias were White Star, Dorking Star (rich pink), Gatton Star (scarlet), Mauve Star (mauve-pink), Crimson Star (brilliant) and Primrose Star. There were many other representatives of this beautiful section. A fine decorative collarette named Novelty is a good brilliant scarlet with golden collar. There were other types of these showy flowers to be seen in this collection.

Dahlia (Single) Coltness Gem, a crimson sort, was shown by Mr. John Forbes. This is a valuable plant for the garden.

A unique group of dahlias of all types was shown by Messrs. Carter Page and Co., in tent No. 1. These showy plants were represented in diverse form and colour and gave an excellent idea of their value in the garden. Here were to be seen collarette, decorative, peony-flowered, single, camellia-flowered and the beautiful miniature peony-flowered sorts, all very showy and attractive. This was a splendid effort and did the exhibitors great credit.

GLADIOLI

This flower did not figure extensively at the Show. Messrs. Hewitt and Co. had two large varieties, Catherina and Brimstone, a very good combination, and the primulinus was represented by the popular favourite, Maiden's Blush, and that ever attractive Orange Brilliant. Messrs. Wallace and Co. had a few of the Nanus section, including Peach Blossom and Delicatissima. The Maytham Gardens showed the only novelties we noticed, in four varieties of the new race of Herald Gladiolus. Joost van Vondel, a scarlet with white blotch, and P. C. Hooft, a salmon orange, with white blotch. There is a slight violet tinge in both these flowers between the white and main colour of the flowers. These two were introduced from Holland two or three years ago. They do not go well together, but seen apart they form good pot plants for the conservatory. Two of later introduction are Erasmus and Leeunwenhoek, the former a pale pink and the latter a salmon rose with large white blotch. This variety also shows more plainly the Nanus blood, both in the bloom and foliage. Potted up in November and given the protection of a frame they will come into bloom just after the Nanus section.

VIOLAS AND PANSIES

Violas were exhibited by Mr. H. Clarke, who had many beautiful sorts in his collection, several of which were of exhibition character. Good bedding sorts were Oxhill Purple, Gladys Finlay, White Empress, Mrs. Chichester, Maggie Mott, Primrose Dame, Admiration, John Quarton, Bridal Morn, James Pilling and Moseley Perfection. The exhibition sorts were better seen in Master Banks, Drummer Wilson, Donald McDonald, Mrs. A. Stevenson, Mrs. J. MacEwan, Rebecca, Lady Knox and Mrs. W. R. Milligan. Violas and a few fancy pansies were shown in grand form by Mr. F. J. Bell, but, unfortunately, in the old method of sprays, which is against the best interests of these plants. Of the violas the better sorts appeared to be Mrs. Jamieson, Edward Bell, Annie Hamilton, Mrs. F. J. Bell, Maud Bell, Willie Stevenson, Mrs. J. Ritchie, Orange Perfection and Miss Fisher. The fancy pansies are not very attractive, although they are interesting.

A large and comprehensive display of violas was made by Mr. William Yandell. They were arranged in tins and pans in sand, associated with viola foliage, and gave the idea that the plants were growing. The more noteworthy varieties were Moseley Perfection, Primrose Dame, Admiration, Blue Bedder, Handsworth Perfection, W. H. Woodgate, Edina, Fred Williams, Mauve Queen, Master Banks, J. V. Macdonald, Maggie Mott, Archibald Grant and Mrs. Chichester. There were also several varieties of Viola gracilis.

Messrs. Jarman and Co. exhibited a number of baskets of Viola gracilis in varieties and some of the better garden violas. The better forms of the former species were Purple Robe, Compacta, Wyndley Gem, Gold Crest, Moonlight, Violet Queen, Golden Spur, Butterfly and Heavenly Blue.

Bowls of violas were shown by Mr. John Forbes, including such sorts as Perdita, The Mearns, Blanche, Miss Fisher, Moseley Perfection, Maggie Mott and Mrs. Chichester.

Messrs. Carter Page and Co. had as an edging to their dahlia group a large number of the better violas in good form and condition. Such sorts as Moseley Perfection, Maggie Mott, W. H. Woodgate, Mrs. Chichester, Swan, Mrs. Marrison, John Quarton and many other sorts were splendidly represented.

TULIPS

Flora's summing up when all the flowers had appeared before her and pleaded their cause hits off the Chelsea Show of 1924 to a T.

> "I in all this num'rous throng must own
> I see no head but what deserves a crown,
> On what one flower can I bestow my voice,
> Where equal merits so distract my choice."
>
> (*Cowley, Of Plants, Book IV.*)

Tulips, even in this very trying year, contributed their quota to Flora's commonwealth, as a visit to the various exhibits in which there were tulips proved. The most extensive and varied was that of Messrs. Barr and Sons. Here were the magnificent scarlet Marksman and the new dainty pale yellow Honeymoon; Zomersshoon the Ancient rubbed shoulders with another "rose," Striped Flag—both examples of what are known among tulip people as rectified flowers. The rich deep scarlet-crimson Sprengeri, with its yellow anthers represented the species. The deep plum-violet Bacchus and Golden Bronze were typical of the old Dutch breeders or selfs, and so on and so on. Messrs. Dobbie and Co. had a wonderfully clean exhibit for this disastrous year. They were not those tremendous blooms which the firm in the past has accustomed us to, but they were none the worse for that. Ordinary people can grow tulips with the self same result. Orange Perfection is a pretty shade of salmon flushed with orange. Then there were the dark blood red Eclipse, the pure white Cottage Carrara, the rich deep yellow Avis Kennicott, the dark Faust, and Prince Charming, which might well be styled the prince of tulips for cutting. Messrs. R. H. Bath had many novelties in their exhibit which have never before been seen in England. Some were under numbers, but "Oranges and Lemons" and Sundew have been named. This last variety was certainly *the* tulip novelty of the Show. It is a medium sized red with all the edges of the petals to a depth of an eighth of an inch or so armed with excrescences which suggest the tentacles of the fly-devouring Sundew. Oranges and Lemons is a sort of "cottage" Cottage Boy, with the two colours strongly differentiated. Both these have been raised in Holland. Messrs. Ernest Paul and Co. were new exhibitors. They had a lot of well grown stuff, including the old favourite The Fawn and a very fine example of Louis XIV. Eclipse and Honeymoon were both very good here. The Welsh Bulb Fields can grow tulips and there was an excellent exhibit of their produce. Their La Merveille, Lord Cochrane (lake brown) Goldfinder (scarlet with pure yellow base), Amber (pale buff and rosy apricot), and Ida Scott (a violet-mauve with a white base) were all A 1. Someone once described the weather-spotted tulips as tulips with the measles. The Welsh flowers had fortunately escaped the visitation. There was a beautiful specimen of Prince Charming and a splendid vase of Prince of Orange. Messrs. Artindale and Son had an irregularly shaped group of ordinary varieties on the ground. Among them were Europe, Pride of Haarlem, Margaret and Viking. Odd "species" tulips cropped up here and there as, for example, Persica in Mr. Maurice Prichard's and Messrs. Gavin Jones and Ingwersen's rock plant displays. They did well to call attention to its at-homeness in such surroundings. Messrs. Hewitt and Co. had a nice little selection in which were included Boadicea, Zulu, Baronne de la Tonnaye and Beauty of Bath. There may have been odd vases in mixed groups here and there, but the burden of the tulip was borne by the firms whose names have been mentioned. Visitors will have seen for themselves they have earned a creditable place for this most famous flower in Flora's Commonwealth at Chelsea, in the year of our Lord, 1924.

FRUITS & VEGETABLES

A large collection of fruit trees in pots was shown by Messrs. T. Rivers and Son, Limited. Here were to be seen peaches, nectarines, plums, oranges and lemons. The trees were heavily laden and the fruits of excellent colour. The accompanying illustration shows the fruiting capabilities of the lemon tree.

A magnificent exhibit of apples was that by Messrs. George Bunyard and Co., the fruits being tastefully displayed in baskets.

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A FINE TREE OF IMPERIAL LEMONS ON MESSRS. RIVERS'S STAND.

Notable varieties were Cox's Orange Pippin, Wellington, Allen's Everlasting, New Bess Pool, Blenheim Orange, Chatley's Kernel, Calville, Malingre, Lane's Prince Albert, Sir John Thornycroft, Aromatic Russet and Old Royal Russet. The fruits were of very fine colour and form. There is no secret regarding their storage, Messrs. Bunyards simply wrap each fruit in a piece of paper and store in a cool building. This exhibit created a great deal of attention and many visitors were amazed at seeing fruits in such perfect condition. It is really quite simple to store apples if a little care and forethought are exercised. Sound specimens, careful handling and a dry, cool storeroom are the essentials of successful storage.

A very tempting display of strawberries was shown by Messrs. Laxton Brothers. Their new variety Tit-bit is of good colour, size and flavour. Here, too, were Laxton's Majestic, a good cropper and of excellent flavour; Lord Beatty, an ideal main crop variety; Victory, The Duke and Abundance.

Mrs. Delmé-Redcliffe had two dishes of strawberries. These were not named. The fruits were of good size and colour.

A wonderful collection of vegetables came from the gardens of the Hon. Vicary Gibbs. The exhibit was excellent in every way, and Mr. Edwin Beckett is to be congratulated for his skill in producing such high-class vegetables. Here were radishes, (including Forcing White Olive), marrows, peas, turnips, cucumbers, broccoli, tomatoes, kohl rabi, lettuces, mushrooms, celery—but why enumerate? It would be difficult to find a vegetable that was not represented.

Several dishes of fine potatoes were shown by Messrs. Dobbie and Co. Such sorts as Tinwald Perfection (late), Arran Chief (maincrop), Majestic (early maincrop), Di-Vernon (early) and Midlothian Early were to be seen. The tubers were in excellent condition. There were also potato plants in pots.

HARDY PRIMULAS

Among the *cognoscenti* to think of hardy primulas is to envisage Dr. Macwatt. We remember that the worthy Doctor threatened that last "Chelsea" would record his absolutely last appearance with his favourites "on the London boards," but visitors had yet another opportunity of making the acquaintance of most of the really choice primula species at present in cultivation. Among the bold masses of alpine, show and border auriculas, many gems were worthy of note.

The golden Primula Forrestii, of which so much was hoped, but which will, alas! never be a good garden plant, was here. So were several of the sikkimensis clan, including the type species, P. pseudo-sikkimensis (of more slender build), P. flexilipes more slender still and the bells rather up-tilted), P. bi-serrata (tiny, small-umbelled and deeper in colouring), and the purple secundiflora. Whole colonies were set up belonging to the involved muscarioides set, but where Dr. Macwatt hesitated to commit himself, we shall not venture to particularise further than to say that conica and deflexa types were in evidence.

P. Sino-listeri, of the obconica clan; PP. Veitchii (in excellent form) and lichiangensis of the cortusoides set; PP. chionantha and sino-purpurea of the nivalis group—the former a very robust species; and P. anisodora, which we omitted to smell, but which has handsome foliage and quite ineffective tiers of brownish-crimson flowers, called for notice. Other uncommon ones included PP. Parryi (well known, but still rare), seclusa nutans (handsome, though not in flower), florida (a quite tiny purple kind), erythrocarpa (of the denticulata set, but not at all "cabbagy"), and pulchelloides (rosy-mauve—more rare than beautiful).

The rather work-a-day P. involucrata was interesting as being one of a small group of very nearly allied species and Dr. Macwatt had, in addition to the typical creamy form, one of quite bright but pale lavender colouring, which has curiously mottled foliage, but otherwise comes near some of the forms of P. sibirica (also shown). Many consider P. Wardii only a form of P. sibirica, but a plant of the true species—unfortunately not in flower—showed the foliage to be very distinct.

Dr. Macwatt's exhibit inspected, the primula fancier had to wander far in the big tent, content if he found a little group of treasures here and there among more general exhibits. Mr. Allgrove had bold groups of that best of Candelabra primulas, P. pulverulenta, and even finer masses of its delicate pink form—the sensation of the Great International Exhibition in 1912—Mrs. R. V. Berkeley. Having feasted our eyes on this mealy loveliness, we made our way to Mr. Dalrymple's pink pulverulentas (staged by Messrs. M. Prichard) and noted the added and beautiful range of colouring. A very interesting article might be written about these pink forms of P. pulverulenta. Messrs. Maurice Prichard themselves set up in a very choice and cunning exhibit of alpines, that brightest of the Cockburniana-pulverulenta hybrids—Red Hugh, as well as PP. sikkimensis, japonica and Veitchii. Messrs. Gavin Jones and Ingwerson had a delightful little group of the muscari-like P. deflexa and that strongest of the "birds'-eyes," P. frondosa. Primula Lissadell hybrid and the more upstanding, but fewer flowered Unique were everywhere, but P. Beesiana was only found in Messrs. Wallace's lily garden, where they also had some nice plants of muscarioides, including a pretty pink one. Messrs. Prichard and Co. (the West Moors firm) had P. pulverulenta, Messrs. Wells and Co., frondosa and luteola, Messrs. Waterer, Sons and Crisp, Veitchii, and Messrs. Carter Page several vigorous kinds, but what has become of that golden giant, helodoxa—we did not find a plant of it, though Messrs. Oliver and Hunter had a delightful colony of the giant form of P. Littoniana.

ROCK PLANTS

The steadily growing popularity of rock plants was well served at Chelsea by an increase in the number of exhibitors and the general high standard and variety of the plants shown. If there were comparatively few absolutely new introductions there were a great many valuable new varieties and improved forms of plants in general cultivation, and a large number of plants still seldom seen in gardens but appealing for more general recognition.

DR. MACWATT'S PRIMULAS.

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The little indoor rock gardens seemed more than usually brilliant this year; they are frankly *jardins de fantaisie*, and, bound by no strict rules of cultural propriety, are full of fascinating and amusing combinations that no permanent garden could ever show. Calcifuge and calcicola forget their differences, rampant trailers associate on terms of paradisal equality with the most diffident high alpines, and woodlanders and shade lovers flourish side by side; the general effect has the inconsequent beauty of a dream, and no one will be unreasonable enough to carp at its unrealisability.

It was interesting, after a general look round, to measure the popularity of some plants of fairly recent introduction. Wahlenbergia serpyllifolia, especially the sumptuous major form that is said to have originated in the garden at Ingleborough, is evidently widely appreciated; and, for the alpine lawn and moraine, the three little Balkan pinks, Dianthus microlepis, Rumelicus and Musalæ (the last received an award of merit among the new plants). The biennial habit of Meconopsis Prattii does not prevent it from being popular, and there seems every possibility that this magnificent group will soon be more generally grown. Meconopsis pseudo-integrifolia, an enormous pale sulphur-yellow, and M. primulina in silky violet-purple (shown by Mr. A. K. Bulley) were put in the cage with the new plants and looked like prisoners convicted of undue brilliance in some horticultural Erewhon.

One of the largest and most interesting miniature gardens was that of Messrs. Tucker and Sons, a little cliff shelving down to patches of alpine lawn made up of Ranunculus alpestris, Dianthus microlepis, Phlox Douglasii, etc., with several flourishing flowering plants of Gentiana bavarica. At one end a subtle and delicately coloured group was composed with old double rocket (so seldom seen in southern gardens), a pure cold white occasionally flushed with lavender, against a crushed strawberry hybrid mullein (Verbascum Cotsall Queen) and the pale tea rose colouring of Lilium regale.

The centre of interest in Clarence Elliott's indoor exhibit was a magnificent group of Aquilegia glandulosa, squired by the modest Aquilegia ecalcarata in dusty purple, in a grove of dwarf conifers. In the foreground a plant of Geranium Farreri, pale apple blossom pink with black anthers, and the general appearance of a refined and better coloured G. Pylzowianum, of which it was at first thought to be a high alpine form. Shown by Mr. A. K. Bulley, it received an award of merit, but it was afterwards found to have been previously decorated as G. Donardii. Another very attractive plant, recently introduced, was Wahlenbergia serpyllifolia Malby's White, not a negative albino, but a distinguished form with narrow lines of violet on the ridges of the corolla. Malby's Amethyst is similar, but the ground colour is pale purple.. Several good specimens were shown of a rare native, the little Burnt Orchid (Orchis ustulata), of which the greyish lavender, faintly flushed with pink, and purple-black buds, combine into the rather remote suggestion of a burnt stick.

Messrs. Maurice Prichard and Sons made a miniature rock garden of cliff and stream, with various forms of Papaver alpinum looking very much at home in a patch of scree. A large group of pink Sedum pilosum made a pleasant picture with the grey and white of achillea. An unusual plant was Malvastrum Monroeanum, a flopping trailer with saucers of a curious dull cherry-red, but probably only hardy enough for a dry wall in a mild district.

Messrs. Frederick Wood, having made a demonstration of colour with mimulus hybrids of their and the impermanent scarlet chamædryoides, achieved a quieter effect with a pale French grey form of Veronica gentianoides and the hybrid Heuchera tiarelloides. They also showed a small pavement planted with Thymus Herba Baronæ, Menthella Requieni, Mazus rugosus and Linaria pallida alba.

Amos Perry showed a rare jewel in Nomocharis pardanthina Farreri, a lily flower in pale shell pink with a circle of light purple-brown freckles at the base of the petals round a ring of pale green, and a green style rising out of a black furry centre. This is one of the last of the late Mr. Farrer's introductions, and if it proves tractable in cultivation it may well be one of the finest.

Messrs. Skelton and Kirby showed a bold grouping of Delphinium nudicaule, azalea and Aquilea jucunda, also a neat form of Dianthus cæsius of their own raising.

Mr. W. Wells, jun., showed Primula luteola and an effective group of the smoky pink seed heads of Geum montanum.

Messrs. Cheal showed well grown specimens of Lewisia Howelli and Ourisia coccinea, also a particularly good form of Geranium cinereum, a pure pale pink, delicately and regularly veined.

Messrs. Reuthe, as usual, brought a large number of rare and curious plants. The curious Phyteuma comosum with fantastic horns of blown glass, a sinister codonopsis (ramondioides) with large dark hairy leaves, Androsace spinulifera and the very beautiful pink form of Ramondia pyrenaica. A very rare native is the little Cornus suecica, with cool "woodland" flowers in black and white.

Messrs. Laird and Dickson's exhibit was exceptionally well spaced showing the individual plants to great advantage, appreciated by Meconopsis brevistyla (pale sulphur-yellow) and M. rudis in rather steely blue.

Messrs. Maxwell and Beale showed Potentilla nitida in the white and dark carmine form (atrorubens), the curious and tender Lavendula stoechas, and the new hybrid Dryas Sundermanni, of which the straw yellow, acquired from the American D. Drummondi, scarcely compensates for the loss of the grace and neatness of D. octopetala, its other parent.

Mr. H. Helmsley gained an award of merit for a deep, rich blue variety of Linum narbonnense, slightly flushed with violet, an interesting break from the type.

Messrs. Gavin Jones and Ingwersen showed Saxifraga caterhamensis, a fine silver saxifrage with a dense ring of carmine spots, but not very different from MacNabiana; also a good form of Arenaria montana with large and regular petals.

Messrs. Rogers showed Cupressus tetragona cæspitosa and minima, minute mossy conifers of their own raising and good specimens of Haberlea Fernandi Coburgi.

Messrs. Prichard and Co. showed a collection in pots which included an attractive dwarf form of Veronica pimeloides, a small flat-topped shrublet flowering freely, and a semi-double form of Lithospermum prostratum, blotched blue and white (Prichard's Variety), which is hardly an improvement on the type.

Messrs. John Waterer, Son and Crisp showed fine plants of the white sweet-scented Daphne caucasica, an improvement on D. alpina and said to be of at least equally easy culture. Potentilla Farreri in bright yellow made a pleasant combination with the shrubby Pentstemon Bridgei. The quaint little water violet Erpetion reniforme was a welcome and seldom seen stranger.

The collection of Messrs. Bowell and Skarratt was exceptionally rich in hardy terrestrial orchids. Orchis papillionacea, from Italy, is an especially fine species, seldom met with in gardens, with a broad labellum netted like an onco-cyclus iris in mauve and lilac. It seems a pity that this attractive group is not more widely grown. Viola pedata, with its thrown-back upper petals giving it a curious sulky look (only too often borne out in cultivation), was shown in its two forms, the pale lilac type and the fantastic but less pleasing bicolor variety. The white form of Polygonum viviparum, a tiny furry spike of dead white, is a choice and curious little plant for good company, and several vigorous little plants of it were shown.

Messrs. E. Staplehorn showed a large group of the rare Silene Hookeri, probably the finest of all the silenes with its relatively enormous, deeply divided petals of pure rosy pink.

Messrs. Oliver and Hunter showed fine specimens of Meconopsis nepalensis and Prattii, with the trailing pink Viola bosniaca, the true Aquilegia alpina and Omphalodes Luciliæ.

STOVE AND GREENHOUSE PLANTS

Messrs. Sutton and Sons again excelled with these. Towards the centre of tent No. 1 this firm arranged an exhibit of plants grown under glass, comprising many of the best greenhouse flowers as well as beautiful half-hardy and hardy annuals. This exhibit was arranged in the form of a Maltese cross, and included in the display were no fewer than sixty-one distinct groups of different plants. Especially noteworthy among them were grand examples of Clerodendron Fallax, tuberous-rooted and other begonias, cinerarias, superb examples of herbaceous calceolarias, gloxinias beautifully marked, Primula obconica, beautiful streptocarpuses and numerous other plants. There were also, in excellent form and condition, Phlox Drummondii, salpiglossis, schizanthus, viscaria, clarkias, lobelia and a host of charming plants far too numerous to mention. The different groups were arranged most effectively.

Another especially noteworthy exhibit was set up by Mr. H. J. Jones. This was to be seen in a very conspicuous position in tent No. 1, near to the Chelsea Hospital entrance. It was the finest and most comprehensive exhibit of hydrangeas ever put up in London, and occupied some 400ft. The plants were shown in splendid form and condition and represented all the better sorts in cultivation and many superb novelties. As arranged on the western side of the tent, this somewhat unique bank of plants caught everybody's eye. The large and massive heads of blooms were shown in every tone of the paler blue colours, and these contrasted with the delicate pink and rose coloured sorts made a display that will long be remembered. Some of the better varieties were Etincelent, Marechal Foch, Krimhild, Parsifal, Mme. Truffant, Triumph, Lovely, Mme. Mouilliere and the huge sort Niedersachsen—altogether a superb display.

Messrs. James Carter and Co., set up a very large and beautiful almost square group comprising a great variety of greenhouse plants and hardy and half-hardy annuals grown under glass. The plants were in the pink of condition, being freely flowered and the colours pleasingly diverse: it was one of the brightest displays of its kind. The group was composed of a number of other smaller groups of regular and irregular formation and as a whole was a thing of beauty. Calceolarias were superb, as were cinerarias in Bouquet and Brilliant Prize forms. The streptocarpuses were beautiful, as were the schizanthuses, gloxinias and tuberous-rooted begonias. Lovely, too, were the examples of Primula obconica, petunias, Spanish irises and Antirrhinum Carter's Pink and A. Nelrose Improved.

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Bowls of sweet peas on tall stands gave an effective finish.

A large group of flowering plants grown under glass was shown on the east side of tent No. 1 by Messrs. Webb and Sons (Stourbridge), Limited. The centre comprised a huge bank of cinerarias in diverse forms and colours, all flowering profusely. In the same exhibit there were also banks of superb schizanthuses and herbaceous calceolarias, both groups representing splendid types of these plants. There were also mounds of such plants as begonias, beautiful gloxinias and other flowering plants, all of which made a noteworthy exhibit. The front of the group was neatly finished off with ferns etc.

Mr. E. J. Henderson, gardener to Baron Schröder, set up one of the finest exhibits from a private garden in the whole Show. The group was arranged in semicircular form and comprised magnificent specimens of well grown, free-flowering schizanthuses in a great variety of colours and markings. This grower has a very fine strain of these plants. There were also beautiful examples of Calceolaria Clibranii and a large number of handsome plants of the herbaceous calceolaria. Beautiful palms as a background and pterises as an edging in the front, together with the capital arrangement of the group, left nothing to be desired.

The Chelsea Show would not be regarded as complete without an exhibit of tuberous-rooted begonias from Messrs. Blackmore and Langdon, who arranged one of their inimitable table-groups of these wonderful flowering plants. They have done so much to improve the begonia that the public have come to regard this firm as in duty bound to produce something new and choice each season, and the public were not disappointed this year, notwithstanding the difficulties of the present season. Superb examples of the respective varieties were seen in every instance, a few of the more noteworthy being Hilda Langdon (shell pink), Lucy V. Toner (deep rose), Lady Cory (superb orange salmon), Mrs. J. Davidson (deep yellow), Peace (cream, almost primrose), Mrs. Calthrop (lovely salmon-pink), Nurse Cavell (white), Lord Lambourne (orange-salmon), Mrs. T. Crawford (frilled pink), Royal George (glorious velvety crimson-scarlet) and Mrs. F. Bedford (blush). The basket begonias were also very pretty, three of the best being Eunice (pink), Mollie (blush) and Mrs. Bitkey (salmon-orange). It is a matter for regret that more space cannot be given to a description of this fine exhibit.

Dwarfed Japanese trees and miniature landscape gardens were shown by the Yokohama Nursery Company. A rare specimen of the tufted form of Thuya obtusa was noteworthy, reputedly 100 years old. There were numerous specimens of the ordinary form of Thuya obtusa and other specimens of Ginkgo biloba (maidenhair tree), Pinus pentaphylla, Juniperus procumbens and acers, oaks and azaleas in variety. This exhibit was shown in No. 2 tent.

At the Embankment end of tent No. 2 Messrs. W. Cutbush and Son, Limited, showed, among other things, a group of hydrangeas and ericas pleasingly disposed in undulating fashion among acers, palms, etc. Erica magnifica was well shown, as were Hydrangeas Marechal Foch, Lorely, Parsifal, Helge and General Viscomtesse de Vibraye.

About forty bunches of zonal pelargoniums were shown by Mr. R. J. Case, The best of the single-flowered sorts were Staplegrove Pride, Taurus, P. R. Johnson and Pride of the West. Double-flowered sorts were best seen in C. Heomans, Mme. A. Roseleur, Emperor Nicholas and Golden Glory.

A PORTION OF MESSRS. BLACKMORE AND LANGDON'S MAGNIFICENT BEGONIAS.

We were particularly charmed with the beautiful dwarf free-flowering plants of the newer type of schizanthuses shown by Mr. Alfred Dawkins. He had a table group of these floriferous plants that may be regarded as second to none in this great Show. Th ediverse colouring of the dainty flowers and their charming markings stamped them as of ideal quality. Fascinating aptly describes them, and they were much admired. The new calceolaria New Buttercup is really a most lovely yellow acquisition.

Choice ferns as exhibited by Messrs. Ellisons, made a superb table group. The plants were in the pink of condition and were set up in most attractive fashion. Especially noteworthy were Lastrea lepidum, Cheilanthes hirta Ellisiana, Gymnogramme Peruviana argyrophylla, Didymochlæna lunulata, Adiantum Hillii, A. Faulkneri, A. elegantisimum, Davallia fejeonsis robusta, D. Speluncæ, D. tenuifolia stricta and a plethora of most beautiful plants all worthy of mention.

Messrs. Jarman and Co., as usual, showed zonal pelargoniums in bunches, and they were highly attractive and pleasing. A few of the better single-flowered varieties were Maxim Kovolesky (a rich vermilion), Cassiope, Uranus, St. Louis, General Wolseley and Cymric. Semi-double and double-flowered sorts worthy of note were Paul Reboux, Lave, F. Poitvine and Ville de Poitvine, and were conspicuous.

A beautiful group in No. 1 tent was shown by Messrs. John Peed and Son, comprising both foliage and flowering stove and greenhouse plants. Caladiums in the centre of the group were good, and included most of the better sorts, charming streptocarpus, well marked gloxinias, hydrangeas, amaryllis, petunias, etc., all maintained the reputation of this well known firm.

Messrs. Godfrey and Son, staged a table group of show, regal and fancy pelargoniums in round baskets, in which small plants look quite well. The be

SOME OF THE STOVE AND GREENHOUSE PLANTS SHOWN BY MESSRS. J. PEED AND SON.

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varieties appeared to be Fashion, Lieut. Warneford, Fire King, Fascination, Magnate, Topsy, The Prince, Negro, Devonshire Cream, The Queen and some good seedlings. There were also some schizanthuses.

Messrs. Stuart Low and Co., made an exhibit of miscellaneous plants in the form of a table group, included in which there were many useful and interesting plants. Plants worthy of mention were Boronia polygalifolia, Aotus gracillima, Boronia heterophylla, Bougainvillæa Mrs. Butt, Eutaxia myrtifolia and numerous other interesting things.

Messrs. L. R. Russell, Limited, worthily maintained their well deserved reputation with the large and massive group of stove and greenhouse plants in great variety, which they exhibited near to the Hospital entrance of No. 2 tent. The character of the display was most comprehensive, and included, among other things, excellent examples of the beautiful Codiæums, which are popularly known as Crotons. These included such varieties as Thompsonii, resplendens, B. Comte, Weismanii and Reidii. Other noteworthy plants were Dracænas Lord Wolseley, Prince Manouk Bey, Sanderiana and Victoria. Caladiums Mrs. L. R. Russell, Mrs. Laing, Rising Sun and candidum, seedling anthuriums, the fine anthurium Lord Lambourne, and the beautiful ruby-flowered Gloriosa Rothschildiana. There were numerous other choice plants which space will not permit us to mention.

A small table group of hydrangeas was shown by the Maytham Gardens. The plants were freely flowered, the only named variety being Mme. Mouilliere.

Caladiums as shown by Mr. Henry B. Brandt, Surrey (gardener, Mr. H. Cook), made an attractive group in No. 1 tent. The grouping in colours was distinctly effective with such sorts as John Peed, Mrs. L. R. Russell, Triomph de L'Exposition and Mikado. Other good plants were Pintato, Itapocii, Capabaribe, C. E. Dahle, Mrs. Laing, Duchess of Teck, Angustura and the dainty little Argyrites. With foliage plants as an edging and others interspersed the effect was quite good.

Schizanthuses as exhibited in a small group by Messrs. Watson and Simpson, Limited, were as near perfection as possible. There were only thirteen plants, but every one was good. The colours and markings were superb, the plants freely flowered, and their habit excellent. This firm has a splendid strain of these plants.

SUCCULENTS

Quaint forms of vegetation have an attraction to even the most "arty" of gardeners, and though comparatively few understand their points or have any real wish to collect them, few can pass by a collection of succulents without staying to admire the vegetable hedgehogs, and so forth.

The best collection of these xerophytic types was staged by Mr. Sydney Smith, and his plants included a very nice piece of Mamillaria micromeris and another of the woolly M. plumosa, a fine plant of Echinocactus recurvis, and a quantity of perfectly grown, though not necessarily large, specimens of Opuntia cylindrica and its quaintly dissimilar variety cristata, O. leucotricha and others of the prickly-pear clan, Cereus longisperma and others, Ariocarpus retusus, gasterias, cotyledons, and so forth.

Miss Worth also had an interesting and useful group, which included an Old Man cactus (Pilocereus) said to be fifty or more years old, Analonium fissauratum (attractive), cereus in several forms, echinocereus, echinocacti, cotyledons and mesembryanthemums. Some of the mesembryanthemums were from seeds which went down with the ill-fated "Kinfauns Castle," and, as the packages were saturated, it would appear that salt water is not detrimental to seed of mesembryanthemum.

Mr. H. A. Ellison showed some small cacti of various types as a foreground to a group of Japanese fern monstrosities (Davallia bullata).

It is a little strange that the hardy cacti—opuntias and so forth—do not appear more frequently in the hardy plant exhibits. They would at least attract attention to other (and perhaps better) things.

PALMS AND CYCADS

If memory serves us aright, this is the first time that this heading has been necessary for a report of the Chelsea Show; that is, unless we consider the Great International Exhibition of 1912 as the first "Chelsea."

A SMALL SECTION OF MESSRS. CHARLESWORTH'S COLLECTION OF ORCHIDS.

True, there was only one exhibit on this occasion, but that one was a particularly fine one, comprising more than thirty kinds. The exhibitors were Messrs. Robert Green, Limited, and the species shown in quantity were Kentias—Belmoreana, Forsteriana and Dumoniana—Cocos flexuosa and Phœnix canariensis; but there were notable specimens of other kinds. Four specimen Kentias dominated the whole, the best of these, we should say, being a perfectly balanced K. Forsteriana quite 20ft. high. Of smaller specimens, the bamboo-like Cocos flexuosa was worth noting, so were the finely cut but very hardy Phœnix Rœbelini—one particularly good specimen on show—the graceful Cocos Weddelliana, two hardy species of trachycarpus and some greenhouse forms of the nearly allied genus chamærops, the quaint Cocos Yatay, a quaintly stodgy and yet uncharacterised plant of Ceroxylon niveum (a species which, apparently, does not hurry to "put its hair up"), Arenga saccharifera and Caryota sobolifera with curious trapeziform foliage. Of the cycads, a particularly fine piece of Cocos flexuosa was on view. In these days of Belgian palms it is pleasing to know that these were British grown from seed and to see how very favourably they compared with their Continental rivals.

ORCHIDS

The fact that the Sherwood Cup for the most meritorious group in the Show was awarded to orchids proves that these beautiful plants have fully maintained their reputation as the aristocrats of the floral world.

Messrs. J. and A. McBean were awarded the Sherwood Cup for a most praiseworthy exhibit of various species and hybrids. The group occupied one end of the orchid tent, and contained many remarkable odontoglossums, such as O. crispum var. Pearl McBean, with large white flowers, and O. c. var. Priscilla. Blotched odontoglossums were equally fine, as also were the many richly coloured odontiodas. Mention may be made of Odontioda Queen Mary, of bright red colour, of O. Radiant var. majestica, which received a F.C.C. at Chelsea last year, and of O. Dovere, which on this occasion received an award of merit. The centre of the group was composed of cymbidiums and white odontoglossums, while neatly arranged in the bays were fine varieties of Cattleya Mossiæ and many superb lælio-cattleyas. Miltonias of the vexillaria section were in excellent condition and included many of the blotched forms

Messrs. Charlesworth and Co. had an equally large exhibit, containing in the centre a mass of Odontoglossum Wilckeanum aureum with golden yellow flowers effectively arranged with the soft mauve blooms of Lælio-Cattleya Fascinator. At each end were selections of newer hybrids, including many odontonias, in which the large labellums stood out prominently. Brasso-Cattleyas were a feature, and included the large B.-C. Pallas, as well as B.-C. Apollo. Cymbidiums and oncidiums were effectively staged, and pretty effects were produced by carefully staging tall plants of Vanda teres. Among the cymbidiums that known as Landrail var. citrinum bore flowers of an unusual citron-yellow colour, while along the front rows were several distinct forms of Miltonia vexillaria and its hybrids. White cattleyas were represented by C. Mrs. Myra Peeters, and the coloured ones by C. Tityus.

Sir Jeremiah Colman, Bt., had a magnificent collection of rare species and pretty hybrids. The former comprised the curious Eria ornata, the rose-tinted Sarcopodium Lyonii, a varied selection of quaint masdevallias and Cattleya intermedia var. Aquinii, in which the petals are flushed with purple, as normally seen on the labellum. Brightness was given to the group by including many yellow-flowering odontoglossums and choice odontiodas of scarlet tints. Among the albinos were well developed flowers of Cattleya Skinneri alba, white hybrids of the genus, and superb examples of the Brasso-Cattleya Gatton Lily. The pretty blue-flowering Dendrobium Victoria Reginæ, as well as new hybrids of the D. nobile section, were placed in prominent positions, and along the back row were selected cymbidiums and various oncidiums.

Messrs. Sanders showed an extensive exhibit of excellent cymbidiums, the tall and richly coloured spikes making a most attractive feature of the Show. Deserving of mention were Cymbidium Ceres var. Empire and C. brugense var. Rosy Queen. Among the numerous hybrids were handsome odontoglossums of the blotched section, such as Magpie and Everest, while among the pretty lælio-cattleyas that distinguished as Isabel Sander var. Glory stood out prominently, and L.-C. Erica Sander may also be mentioned on account of its pleasing qualities.

Messrs. Cowan and Co. had a fine exhibit, the cattleyas and odontoglossums being outstanding features. The former included C. Tityus, unusually well developed, and the latter the handsome

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O. Amazon (crispum × mirum). At each end were batches of cypripediums, the albino forms well represented. Miltonias and lælio-cattleyas added to the attractiveness of this exhibit.

Mr. H. T. Pitt staged the best exhibit by an amateur. Meritorious plants were Odontioda Duchess of York with a spike of twenty-one orange-red flowers, the handsome Miltonia William Pitt, Sarcopodium Lyonii with three many-flowered spikes, a large plant of the quaint Nanodes Medusæ and also of Angulos Clowesii.

Messrs. Stuart Low and Co. showed a large group, choice cattleyas being well represented by C. Mendelii var. Stuart Low with three large pure white flowers. An interesting plant was Cattleya Suavior var. Gracy, the tips of the petals heavily flushed with purple, as usually seen on the lip. Lælio-cattleyas were seen in Aphrodite and Fascinator, while odontoglossums were well staged in Princess Yolande, rich purple, and in Felix, which secured an award of merit. A charming hybrid was Odontioda Evangeline, the segments margined with rose, the petals prettily spotted. Dendrobium dixanthum with bright yellow flowers and Vanda Parishii came in for appreciation.

Messrs. Cypher and Sons had an effective group containing many rare species, such as masdevallias and epidendrums. Cypripediums were at their best in Maudiæ and Rothschildianum, while lælio-cattleyas were represented by Canhamiana, Aphrodite and Fascinator. White cattleyas comprised Dusseldorfei Undine, and other members of the genus were seen in Adula and Mossiæ. Miltonia vexillaria is always a popular plant, and many pleasing varieties and hybrids of it were here included.

Mr. J. J. Joicey staged a meritorious exhibit containing the fine Epidendrum prismatocarpum, nice examples of Angulos Clowesii, popularly known as the cradle-orchid, and various cypripediums. A feature of this group was two specimen plants of the old Selenipedium Dominianum, with long-tailed petals, while another orchid that attracted equal attention was Odontoglossum crispum var. Joiceyi with a spike of six large, white flowers, the margin of the segments prettily toothed. Brasso-cattleyas were staged in Caligula and St. André, while Miltonias of the vexillaria section included many of the blotched section.

Mr. Harry Dixon had an attractive exhibit embracing many popular orchids. Fine varieties of Cattleya Mossiæ, the interesting Maxillaria tenuifolia and various miltonias were all well staged. Among the lælio-cattleyas was one called Sunbeam, with flowers of golden apricot colour. Lælia tenebrosa and several richly coloured varieties of Odontioda Charlesworthii came in for well merited praise.

Mr. J. J. Bolton staged a selection of handsome odontoglossums, including O. crispum var. Renown, O. eximium var. Leonara with reddish blotching, and O. eximillus, very pretty. Among the odontiodas that known as Coronation stood out prominently.

Messrs. Mansell and Hatcher had a fine exhibit comprising many pleasing varieties of Lælio-Cattleya Fascinator. One had no fewer than seven flowers on the spike, and there were several with five. Miltonia Venus and M. Bleuana were in excellent condition, as also were some brasso-cattleyas and various cypripediums. Odontoglossums were staged well in Lenore and a promising novelty called J. Hacking.

Mr. R. Gerrish exhibited Odontoglossum Belenus (amabile × Olympia) and Odontioda Laura (Brewii × Coronation), both meritorious plants and well cultivated.

NEW & RARE PLANTS

ARISÆMA CANDIDISSIMA.—A dwarf arum-like plant which responds to the same treatment. The spathe was of unusually good shape for the genus. It is pea green coloured from the base half-way up, when it is milky white. The veins are prominent throughout. The large palmate dark green leaf is set almost at right angles to the stalk. Award of merit. Shown by Mr. A. K. Bulley.

CARNATION CAROLA STRIATA.—The name fairly describes this novelty, for it has the form of the well known Carola with reddish-purple lines on the petals. Award of merit. Shown by Mr. C. Engelmann.

C. SIR PHILIP SASSOON.—This magnificent dark crimson perpetual-flowering variety has often been admired at Vincent Square during the winter and spring. Award of merit. Shown by Messrs. Stuart Low and Co.

DIANTHUS MUSULÆ.—A very dwarf, compact, almost congested little pink which in bloom becomes a mass of small rosy mauve flowers. Award of merit. Shown by Mr. A. K. Bulley.

GERANIUM FARRER'S PINK.—A compact little plant not more than 4ins. high and bearing plenty of flowers quite an inch across and of delicate silvery pink colouring. Award of merit. Shown by Mr. C. T. Musgrave.

IRIS CARMELO.—A lovely tall species of delightful soft blue colouring. The long drooping falls are delicately lined. Award of merit. Shown by Mr. W. R. Dykes.

LINUM NARBONNENSE TILGATE BLUE.—The habit is somewhat tall and weedy even for a linum, but one forgives this for the beautiful flowers of Browallia speciosa size and colouring. Award of merit. Shown by Mr. H. Hemsley.

MECONOPSIS PRIMULINA.—A very uncommon "Himalayan Poppy." It is a plant of rather delicate appearance. The leaves are narrow, smooth and dark, making a neat rosette from which spring a clean-stemmed nodding, rounded flower of bluish mauve colouring. Award of merit. Shown by Mr. A. K. Bulley.

MECONOPSIS PSEUDO-INTEGRIFOLIA.—A much sturdier species. The pale green leaves and stems are hairy and more erect, and the branched inflorescence carried several large widely expanded primrose yellow flowers of delicate beauty. First-class certificate. Shown by Mr. A. K. Bulley.

PIERIS FORRESTII.—Several species of pieris (generally known in gardens as andromeda) have beautifully coloured young leaves, but none is so delicately tinted as this, nor so lovely. The flowers were almost over, but they are large for the species and appear to have been white. But if only for the gorgeous young foliage it is well worth growing. Award of merit. Shown by Mr. A. K. Bulley.

PINK FIRE KING.—A compact and fully double flower almost of carnation size and rich scarlet colour. Award of merit. Shown by Mr. C. H. Herbert.

PINK MRS. GIFFARD WOOLLEY.—Another splendid new pink. The perfectly formed flowers are even larger than those of the foregoing. The colour is soft pink and the flowers are deliciously fragrant. Award of merit. Shown by Mr. C. H. Herbert.

RHODODENDRON GRIERSONIANUM.—A very vividly coloured species which seems to flower at an early age. The loose truss is made up of goodly sized orange-scarlet flowers which have tiny maroon spots. The young stems and undersides of the leaves are tomentose. First-class certificate. Shown by Mr. T. H. Lowinsky and Mr. Lionel de Rothschild.

SYRINGA MARECHAL LANNES.—This is a single-flowered garden lilac which has a very large truss made up of plenty of large "pips" of pale lilac colouring and reddish exteriors. Quite a giant among the lilacs. Award of merit. Shown by Mr. R. C. Notcutt.

SYRINGA PASTEUR.—Another giant single lilac. In this case the colour is a deep vinous red and the large pips are incurving. Award of merit. Shown by Mr. R. C. Notcutt.

TULIP AMBER.—A beautiful May-flowering tulip of large size, good form and rosy amber colouring. Award of merit. Shown by the Welsh Bulb Fields Company.

TULIP PRINCE OF ORANGE.—Another good May-flowering tulip. The interiors of the flowers are rich orange-coloured, while the outsides are heavily flushed with red. Award of merit. Shown by the Welsh Bulb Fields Company.

GERANIUM FARRER'S PINK.

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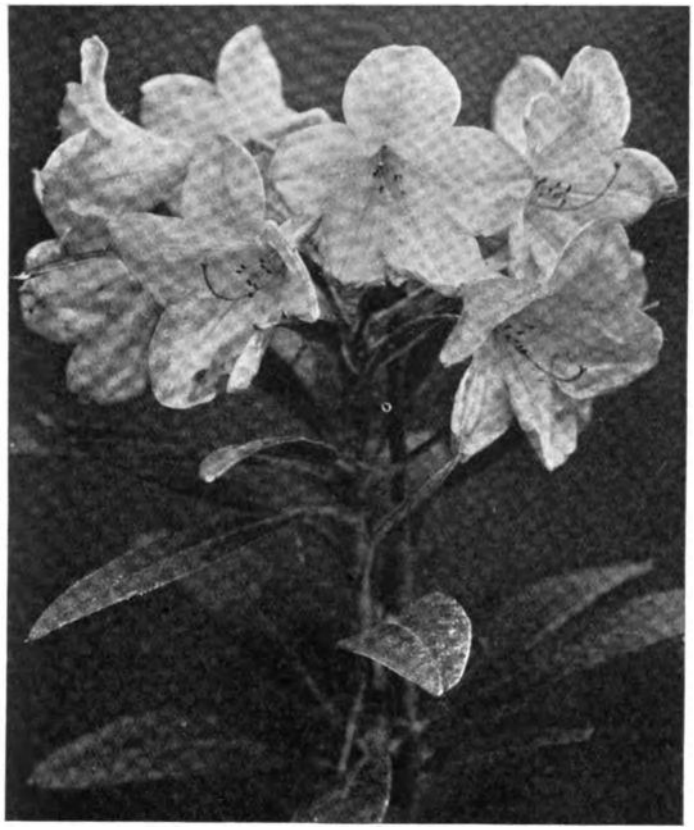
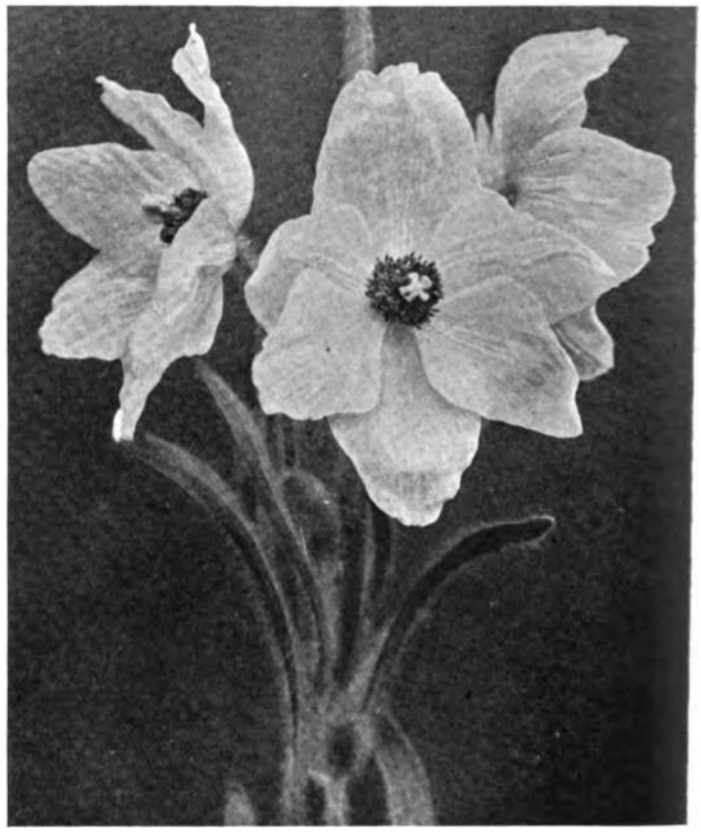


A FINE RHODODENDRON SPECIES; R. GRIERSONIANUM WITH BRILLIANT ORANGE-SCARLET FLOWERS.



MECONOPSIS PSEUDO-INTEGRIFOLIA, PRIMROSE YELLOW; OF GREAT DELICACY AND GRACE.

ORCHIDS

FIRST CLASS CERTIFICATES.

ODONTOGLOSSUM MONARCH (Aglaon × majesticum), from Messrs. Cowan and Co. A handsome hybrid bearing a spike of six large flowers, white, tinged with rose in the central area of each segment, and effectively spotted with red, the lip broadly developed.

ODONTOGLOSSUM CRISPUM VAR. EVANSLÆ, from Mr. John Evans. One of the finest forms of this popular species, the arching spike carried nine flowers, much above the normal size, of creamy white texture, the only colour being an occasional reddish spot on the labellum.

AWARDS OF MERIT.

CATTLEYA TITYUS VAR. QUEEN MARIE (Octave Doin × Enid superba), from Messrs. Cowan and Co. A grand hybrid; the spike bore two large flowers in which the segments were well developed, especially the broad petals, in colour blush rose, the expansive labellum deep purple and with an orange-yellow throat.

CYMBIDIUM CERES VAR. EMPIRE (I'Ansonii × insigne), from Messrs. Sanders, St. Albans. The tall, erect spike carried eight finely developed flowers of crimson-pink colour tinged with red.

ODONTIODA IDUNA (Odontioda Chanticleer × Odontoglossum illustrissimum), from Mr. Gerrish, (gardener, W. Sorrell). This hybrid carried a spike of six flowers of moderate size and of deep reddish scarlet colour.

LÆLIO-CATTLEYA DOMOS MAJESTICA (C. Mossiæ × L.-C. Dominiana), from Messrs. Cowan and Co. One of the best forms of this hybrid, the large flower of rosy mauve colour, the broadly developed labellum mottled with darker tint.

ODONTOGLOSSUM CRISPUM VAR. HARVEST MOON, from Mr. H. T. Pitt. A very beautiful form of this Colombian species. The bending spike bore six large flowers, in which the outstanding feature was the breadth of the snow white segments.

ODONTOGLOSSUM FELIX, from Messrs. Stuart Low and Co. This well grown plant, of unrecorded parentage, carried a tall spike of ten large flowers, cream tinted, the sepals marked with a bold reddish purple blotch, the petals prettily spotted.

ODONTIODA DOVERE (Odontioda Diana × Odontoglossum illustrissimum), from Messrs. J. and A. McBean. A charming hybrid, in which the arching spike carried thirteen flowers, the segments having a broad margin of deep mauve colour, the central area blotched with reddish scarlet.

ARISÆMA CANDIDISSIMA.

ONCIDIUM PAPILIO VAR. ATLAS, from Messrs. Charlesworth and Co. Probably the finest form yet seen of this attractive species, the butterfly-like bloom of which attracted much attention.

HORTICULTURAL SUNDRIES

Sundries were as numerous as ever this year, and, as usual, the exhibits were situated down the Lime Avenue and in close proximity to it.

A large collection of watering cans of all shapes and sizes was displayed by Mr. Haws of Clapton.

Messrs. McDougall and Robertson, Limited, of Manchester, showed their well known insecticide Katakilla and a large assortment of insecticides, fertilisers and weed killers.

The famous Acme labels were shown by Mr. John Pinches of Camberwell. Here, too, were to be seen his "Radiate" stands. These are very popular with exhibitors as they are suitable for almost any flower. His "Corona" flower displayer attracted the attention of the ladies; it is ideal for rose bowls. Exhibition boxes (as used by the National Rose Society), vases of all descriptions in zinc and tin, pergola chains, together with a large assortment of other good things, were also shown.

Cascade nozzles for water cans were shown by Messrs. Webster and Sons of Stock.

Fibrous yellow loam was exhibited by Mr. A. B. Johnson of Cranleigh.

Various fumigants, fertilisers, weed killers and mildew washes were displayed by Messrs. H. Scott and Sons of Woodside.

Fertilisers were shown by the Radium Fertiliser Co. of Woodford Green.

A varied selection of garden tools, syringes and garden furniture was displayed by Messrs. T. Gunn, Limited, of Fore Street, E.C.2.

Messrs. Wm. Cooper and Nephews, Limited, of Berkhamsted, exhibited their well known spray fluids, weed killers and fungicides.

Folding garden furniture was shown by Messrs. Abbott Bros. of Southall.

Horticultural washes, insecticides and guanos were displayed by Messrs. Voss and Co. of Millwall.

The well known Atco Motor Mower was shown by Messrs. C. H. Pugh, Limited, of Birmingham. Last year we had under trial one of these machines and it proved very satisfactory.

A large assortment of garden ornaments was displayed by Messrs. Pulham and Son of Oxford Street. Here were to be seen sundials, stone garden seats, well-heads and bird baths.

The J. P. Super Lawn Mowers, Limited, exhibited their well known lawn mowers.

A large assortment of patent extension ladders and platform steps was displayed by Messrs. Drew, Clark and Co., of Leyton.

Messrs. Ransomes of Ipswich exhibited their well known mowing machines, including the "motor" variety.

Garden pottery was displayed by the Potters' Art Guild of Guildford.

Horticultural washes and sprays were shown by the famous Jeyes' Sanitary Compounds Company, Limited, of Cannon Street.

Spraying machines and syringes were exhibited by the Eclipse Spraying Company of Birmingham.

Messrs. Prentice Brothers, Limited, of Stowmarket showed their well known tomato fertiliser Tomorite and other fertilisers.

Messrs. E. H. Taylor of Welwyn displayed their well known beehives and appliances.

Beehives were also exhibited by Messrs. C. T. Overton and Sons of Crawley.

Garden tools comprised the exhibit of Messrs. Holtzapffel and Co. of the Haymarket.

"Neuespraya" for watering cans were shown by Mr. J. Singleton of Fulwood. It is claimed that these do not become clogged like the ordinary rose.

The Stewart "Rain King" lawn sprinkler was shown and demonstrated by the Cooper Stewart Engineering Company, Limited, of Bloomsbury. This sprinkler is ideal for lawns, especially tennis lawns and bowling greens.

Overhead watering machines and rotary sprinklers were shown by the British Overhead Irrigation, Limited, of Shepperton.

Messrs. H. Pattison and Co. of Streatham displayed their famous horse boots. They also showed water sprinklers and Sarel's patent spiked roller. The latter is exceptionally useful for golf courses. It drains and aerates the turf and it does not tear the grass. This firm also showed rollers suitable for hard tennis courts.

Mowing machines, both of the motor and "push" varieties, were displayed by Messrs. A. Shanks and Sons of Cannon Street.

Propagating frames and wall frames were exhibited by the Woodworkers, Limited, of Letchworth.

Fibrex pots were displayed by Mr. J. N. Harvey of Evesham.

An exhibit which drew considerable attention from the ladies was that of Dryad cane furniture shown by the Dryad Cane and Metal Works of Leicester.

A varied assortment of garden tents was shown by Mr. H. E. Pocock of Salisbury.

A very large collection of spraying machines and syringes of all descriptions and for all purposes was shown by the Four Oaks Spraying Machine Company of Sutton Coldfield.

Garden furniture was displayed by Messrs. T. Syer and Co. of Wilson Street, E.C.

Messrs. Carter and Co. of Raynes Park had an extensive exhibit of horticultural sundries. Here were to be seen garden tools, sprayers, hose, mowing machines, garden pottery and garden furniture.

Greenhouses and heating apparatus were shown by Messrs. Hayward and Co. of Brockley.

Mr. H. C. Slingsby showed ladders, wheelbarrows and trucks.

Spraying machines, fertilisers and insecticides of all descriptions were exhibited by the Stonehouse Works Company of West Bromwich.

The Willmott plant stakes were shown by Mr. H. J. Greenwood of Bracknell.

Motor lawn mowers were displayed by Messrs. Dennis, Limited, of Guildford.

A large collection of sundials, nesting boxes and bird baths were exhibited by Messrs. A. H. Moorton, Limited, of Buckingham Palace Road, S.W.

Both ordinary and motor mowing machines were displayed by the Godiva Engineering Company, Limited, of Slough.

Messrs. Geo. Monro, Limited, of Covent Garden exhibited spraying machines, garden tools and pottery. This firm is *wholesale* only.

Carnation food, supports, labels and insecticides were shown by Messrs. Allwood Brothers of Hayward's Heath.

Garden furniture was displayed by the Papworth Industries of Cambridge.

Garden tools, hose, nozzles, spraying machines and syringes were exhibited by Messrs. R. Melhuish, Limited, of Fetter Lane.

"Metro" chemical products were displayed by the South Metropolitan Gas Company of the Old Kent Road, S.E. Sulphate of ammonia was conspicuous on this stand.

The well known Red Spider Death, Niquas non-poisonous insecticide, lime sulphur wash and fungicide, and lawn sands were shown by Messrs. Corry and Co., Limited, of Covent Garden.

The Key Fertiliser Company of Chelsea exhibited a small lawn which had originally been meadow land. This had been treated with their Key Fertiliser for a little time and, judging by the results obtained, this fertiliser should soon become very popular.

Insecticides and fumigants, including their well known Gyp and nicotine spraying fluids, were shown by Messrs. Ed. Cook and Co., Limited, of Bow.

Garden rustic work, tools and stone were shown by Mr. W. Unwins of Woodside.

The Wilkinson Sword Company of Pall Mall exhibited their well known pruners, including some new models.

Bird baths, sundials and other garden ornaments were displayed by Messrs. Kelly and Co. of Marylebone Road.

The famous Abol syringes and Abol insecticides and fungicides were displayed by Messrs. Abol, Limited, of Paddock Wood.

Their patent continuous cloche was shown by the Chase Continuous Cloche Company of Chertsey.

Spraying machines, portable pumps and syringes were shown by Messrs. Martineau and Smith of Birmingham.

Messrs. Robinson Brothers, Limited of West Bromwich (Staffs) exhibited their well known Multiple plant food. This firm also showed lawn sands and various fertilisers.

Messrs. Hughs, Bolckow and Co., Limited, exhibited garden furniture.

A very extensive exhibit of heating apparatus was by Messrs. Chas. Kinnell and Co., Limited, of Southwark Street. This included their well known boilers the Horse Shoe, the Bison and the Rochford. They also showed their new twin boiler.

A large collection of garden tents, hammocks and garden furniture was shown by Messrs. Piggott Brothers of London E.C.2.

Messrs. Duncan Tucker and Sons, Limited, of Tottenham showed a large collection of garden frames for all purposes. Also small greenhouses and an admirable conservatory.

Wire tension greenhouses were exhibited by Messrs. Skinner, Board and Co of Bristol.

An extensive exhibit of garden ornaments, including vases, sundials and bird baths was exhibited by Messrs. Sander and Co. of Regent's Park.

Garden furniture, mowing machines and rollers were displayed by Messrs. Gamages.

Messrs. Messenger and Co. of Loughborough displayed their well known Loughborough boiler. They also showed greenhouses and garden frames.

Mowing machines of all descriptions, garden tools, spraying machines, syringes, greenhouses, frames, garden furniture, bird baths and garden urns were exhibited by Messrs. Wm. Wood of Taplow. They also showed their well known plant food Le Fruitier.

Garden furniture and summer-houses were shown by Messrs. Harrods.

Messrs. Boulton and Paul of Norwich showed garden frames, including span-roof sorts, ironwork archways suitable for roses, water barrels with pumps, and many photographs depicting the work that they have carried out in the construction of greenhouses in all parts of the country.

Messrs. Gaze showed garden figures, urns, bird baths, stone seats and a miniature hard tennis court.

OFFICIAL LIST OF AWARDS

CHALLENGE CUPS.

Sherwood Cup, for the most meritorious exhibit in the Show: Messrs. J. and A. McBean for a group of orchids.

"*Daily Graphic*" *Cup*, for the best rock garden: Messrs. T. R. Hayes and Sons.

Orchid Challenge Cup, for the best exhibit of orchids by an amateur on a space not exceeding 60 sq. ft. Only those may compete who employ not more than three assistants in orchid houses (including the head gardener): Mr. H. T. Pitt.

SPECIAL CUPS.

Allwood Carnation Bowl, for the best group of carnations exhibited by an amateur: Mr. F. W. Seymour.

Sutton Silver Cup, for the best amateur exhibit of vegetables: The Hon. Vicary Gibbs (gardener, Edwin Beckett).

Orchids.—Gold medal: Charlesworth and Co., J. and A. McBean, and Sir Jeremiah Colman, Bt. (gardener, J. Collier). Silver cup: Sander's. Silver-gilt flora medal: Cowan and Co., J. Cypher and Son, H. T. Pitt, and Stuart Low and Co. Silver-gilt Banksian medal: J. J. Joicey (gardener, J. Mackay), and Mansell and Hatcher. Silver Flora medal: H. Dixon. Silver Banksian medal: J. J. Bolton.

Fruit and Vegetables.—Gold medal: Hon. Vicary Gibbs (gardener, Edwin Beckett), for vegetables. Silver cup: G. Bunyard and Co., for fruit; and T. Rivers and Sons, for fruit trees in pots. Silver Hogg medal: Laxton Bros., for Strawberries; and V. C. Vickers, for raspberries. Silver Knightian medal: Dobbie and Co., Limited, for potatoes. Vote of thanks: Mrs. Radcliff, for strawberries.

Delphiniums, Tulips, etc.—Silver-gilt Flora medal: Blackmore and Langdon, for Delphiniums; G. R. Downer, for lupins; and Dobbie and Co., for tulips. Silver-gilt Banksian medal: V. C. Vickers, for aquilegias. Silver Flora medal: E. Paul and Co., and W. A. Watts, for tulips; W. Yandell, for Violas; and Reamsbottom and Co., for anemones. Silver Banksian medal: H. Clarke, for violas.

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Sweet Peas.—Gold medal: R. Bolton and Son and Dobbie and Co., Limited. Silver-gilt Flora medal: A. Dickson and Sons, Limited. Silver-gilt Banksian medal: Andrew Ireland and Hitchcock. Silver Flora medal: J. Stevenson, and Sutton and Sons.

Dahlias.—Silver Banksian medal: Carter Page and Co.

Rock and Formal Gardens.—Gold medal: T. R. Hayes and Sons, and G. G. Whitelegg, for rock gardens. Silver cup: James MacDonald, for grass garden. Silver gilt Flora medal: Backhouse Nurseries, Limited, Clarence Elliott, Limited, and Pulham and Sons, for rock gardens; W. H. Gaze and Sons, J. Cheal and Sons, and R. Neal and Sons, for formal gardens. Silver-gilt Banksian medal: Hodsons, Limited, for rock garden; Kent and Brydon, Limited, and Italia House, for formal garden. Silver Flora medal: W. Cutbush and Son, Limited, for rock garden; J. Carter and Co., and H. Brook, for formal gardens.

Primulas.—Silver Flora medal.—Dr. MacWatt.

Shrubs.—Gold medal: Lady Aberconway, for rhododendrons; R. C. Notcutt and R. and G. Cuthbert, for shrubs; G. Jackman and Son, for clematis; Waterer, Sons and Crisp, for shrubs and rhododendrons. Silver cups: J. Cheal and Son, for shrubs. Silver-gilt Flora medal: A. Charlton and Sons, Fromow and Sons, R. Reuthe, and E. Hillier and Sons, for shrubs; M. Koster and Sons, for rhododendrons; L. R. Russell, Limited, for ornamental trees and shrubs; R. Wallace and Co., for rhododendrons, azaleas, etc. Silver-gilt Banksian medal: Donard Nursery Co., for shrubs; Yokohama Nursery Co., for Japanese trees; J. Klinkert, for topiary. Silver Flora medal: W. Cutbush and Sons, and Fletcher Bros., for shrubs; T. Lewis, for rhododendrons, etc. Silver Banksian medal: R. Gill and Son, Orpington Nurseries, Sir Arthur Vivian (gardener, A. A. Cavanagh), W. Watson and Sons, and G. G. Whitelegg, for shrubs; R. Green, Limited, for bay trees.

Mixed Groups.—Gold medal and congratulations: R. Wallace and Co. Silver cup: G. Bunyard and Co., W. H. Rogers and Son, Limited, and F. G. Wood. Silver-gilt Flora medal: Bees Limited, J. Cheal and Sons, and Amos Perry. Silver-gilt Banksian medal: J. C. Allgrove, Baker's Limited, Barr and Sons, G. Jackman and Sons, M. Prichard and Sons, Orpington Nurseries, and Storrie and Storrie. Silver Flora medal: R. H. Bath, Limited, Oliver and Hunter, and Waterer, Sons and Crisp. Silver Banksian medal: Godfrey and Son, Hewitt and Co., Maytham Gardens, Carter Page and Co., R. Reuthe, T. Carlile, Harkness and Sons, E. Scaplehorn, C. Turner, and W. Wells, Junr.

Various Groups.—Gold medal: Blackmore and Langdon, for begonias. Silver cup: Sidney Smith, for cacti. Silver-gilt Banksian medal: G. G. Whitelegg, for irises. Silver Flora medal: R. J. Bastin and Sons, for begonias; and Miss Worth, for succulents. Silver Banksian medal: H. N. Ellison, for cacti.

Roses.—Gold medal: J. and C. Allen. Silver cup: Elisha Hicks. Silver-gilt Flora medal: B. R. Cant and Sons, and W. E. Chaplin. Silver-gilt Banksian medal: F. Cant and Co. Silver Flora medal: W. Cutbush and Sons, and E. Paul and Co. Silver Banksian medal: George Prince.

Alpines.—Gold medal: R. Tucker and Sons. Silver cup: Clarence Elliott, Limited, and M. Prichard and Sons. Silver-gilt Flora medal: Bowell and Skarratt. Silver-gilt Banksian medal: Waterer, Sons and Crisp, Maxwell and Beale, Prichard and Co., and Skelton and Kirby. Silver Flora medal: G. Jones and Ingwersen, and G. G. Whitelegg. Silver Banksian medal: H. Hemsley, and Laird and Dickson. Bronze Flora medal: K. and E. Hopkins, and Sheppard's Sawhurst Nursery.

Carnations.—Gold medal: Allwood Bros., and C. Engelmann. Silver-gilt Flora medal: James Douglas and Stuart Low and Co. Silver Flora medal: Lieutenant-Colonel the Hon. George Herbert, Keith Luxford and Co., F. W. Seymour, and C. H. Herbert.

Hydrangeas, Stove and Greenhouse Plants.—Gold medal: H. J. Jones, for hydrangeas; L. R. Russell, Limited, for stove and greenhouse plants; Sutton and Sons, for flowering plants. Silver cup: J. Carter and Co., for flowering plants. Silver-gilt Flora medal: H. B. Brandt, for caladiums; J. Peed and Son, for stove and greenhouse plants; R. Green, Limited, for palms. Silver gilt Banksian medal: Alfred Dawkins, and Watkins and Simpson, Limited, for schizanthus; Baron B. Schroder, for schizanthus and calceolarias. Silver Flora medal: Stuart Low and Co and E. Webb and Sons, for greenhouse plants; Wm. Cutbush and Son, for hydrangeas. Silver Banksian medal: Godfrey and Son, for pelargoniums and lupins; Maytham Gardens, for hydrangeas. Vote of thanks: R. J. Case, for pelargoniums.

ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Treatment of St. Brigid Anemones (W. J. O.).—The planting season extends from September to April; it is best to plant only when the weather and soil conditions are favourable. The corms should be lifted and carefully dried and stored. It would be necessary to prepare the soil on the boundary of the wild garden, clearing away the grass from, at least, small spaces. These anemones will survive and grow satisfactorily in heavy ground if the latter is well drained. A light, rich soil in which there is plenty of leaf-soil, watering in dry weather and providing shade from bright sunshine are ideal conditions for these plants.

TREES AND SHRUBS.

The Japanese Cydonia (Cherry).—As the trees of Pyrus japonica have been badly neglected, it will be preferable to spread the hard pruning necessary over at least two years. It is late to do much this year, the end of March or early April being the best time for hard pruning. As, however, the growths are very thick, it will help matters to cut out a few of the oldest shoots at once. Next March cut half the long shoots right back, removing the oldest. Bend the remainder and tie in to the wall. By the next spring there should be sufficient young wood for you to be able to cut out most, if not all, the remaining old wood. In succeeding years do a little pruning each season after flowering to maintain a supply of healthy young growths.

Spruce Trees Attacked (J. G. W.).—Our correspondent's description of the trees suggests that they are badly attacked by the spruce aphis (Aphis abietina). There is some truth in the local information, as it is usual for the trees to be badly attacked one year and it then takes a couple of years to furnish the trees with new leaves. The best remedy is spraying with a paraffin-soap emulsion. Just now it must not be used as strong as in winter because of the new growths. When no spraying is done ladybirds have been known effectively to clear the trees of the green fly or aphis.

ROCK GARDEN.

Gentiana decumbens (C. J. G. D.).—The true Gentiana decumbens is a good plant with rosettes of strap-shaped leaves and decumbent branches, with long sprays of blue to white flowers. Probably the late Reginald Farrer did not see the true plant but only G. cruciata, which sometimes does duty for it in gardens.

FRUITS UNDER GLASS.

Mealy Bug on Grape Vines (W. J., Glamorgan).—Our correspondent could not have done better than he did in using Gishurst Compound during the winter months. The bugs conceal themselves in crevices and cracks and, unless the insecticide reaches them in such places, some are left to increase the stock the following spring. It generally takes several winters' work to completely eradicate mealy bug in bad cases. The pests move about freely on sunny mornings, and all found on the old wood should be touched with a tiny camel-hair brush dipped in paraffin. Next winter the pure Gishurst should be used to fill up all cracks on the hard wood, as it would mean certain death to all insects inside.

FRUIT GARDEN.

Pears Unsatisfactory ("Newlands").—The young leaves are not mildewed, but have the appearance of being damaged slightly by frosts and storms. Also, the caterpillars of the moth have done harm to the flowers. If there is a really good set of fruits, judicious thinning-out will do good; but it is too soon to commence this work, as many fruits, naturally, at a later stage of development, turn yellow and fall off.

MISCELLANEOUS.

Names of Plants.—M. W.—Lopezia coronata.——D. C.—Sedum Kirilowii.——H. C.—1, Spiræa arguta; 2, Azara microphylla; 3, Juniperus Sabina var.; 4, Skimmia japonica; 5, Choisya ternata.

TRADE NOTE

"THE GAZEWAY," SURBITON.

THE QUEEN OF RUMANIA, accompanied by her sister, The Infanta Beatrice of Spain, spent nearly an hour the other day in the show house and gardens known as "The Gazeway," Surbiton. Her Majesty expressed great pleasure with all she saw, but possibly the gardens pleased her most. They are looking particularly delightful at present with the varying shows of tulips and rock plants, and Her Majesty was so interested in some of the varieties that she is placing an order for a consignment to be sent out to her in Rumania. The Children's Garden also called for particular attention, and the very fine "All-Weather" hard tennis court (for which the firm of Gaze have become so famous and with which Her Majesty was already familiar) provoked much interest. The house itself, with its choice selection of antique and modern furniture set out in rooms decorated particularly to show the value of colour used in the home, next called for attention. Her Majesty very much admired the collection of lustre-glass and made full enquiries with a view to purchasing a selection. Photographs of the party were taken before Her Majesty left the grounds, and when leaving the Queen expressed to Mr. Sidney Gaze her great pleaure in the visit, and also her hope that she would be able to come to "The Gazeway" again before leaving England.

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CORRESPONDENCE

DAFFODILS SENTINEL AND MITYLENE.

SIR,—The Brodie of Brodie has written to me to say that he was not the raiser of these two very beautiful Leedsii varieties (page 335, May 17th), but that he only possessed the main stock of them. They were raised by the Rev. G. H. Engleheart. Sorry for the error. The Brodie also tells me that he has some Queen of the West daffodil. I wonder how it does with him.—JOSEPH JACOB.

THE SPURGE LAUREL.

SIR,—Since I was recently taken gently to task in THE GARDEN for describing Daphne Laureola as scentless I have diligently sniffed the blossoms at frequent intervals and under various conditions without success in detecting the faintest fragrance. The discussion has brought me several letters on the subject, among them one from a friend which settles the question as far as I am concerned, for I know him to be a careful and experienced observer. He tells me that he was surprised to read my statement that the flowers of spurge laurel were scentless, because he thought that he had enjoyed their fragrance in the past. He asked his gardener whether they had any perfume, and he replied that they were very sweet. He then gathered some of the flowers, found them scentless, and so they remained throughout the evening after being brought into the house. About a fortnight later, on May 15th, my friend was taking an evening stroll through his grounds when he perceived a deliciously fragrant scent, which he traced to its source in a bush of Daphne Laureola. I accept this without hesitation as proving that I was wrong in describing this plant as scentless; but I think it is clear that the fragrance is intermittent—so intermittent as to lead such trained observers as Bentham, Sir Joseph Hooker and Mr. W. J. Bean to record it as scentless. Can it be that the fragrance coincides with the ripening of the pollen or the condition of the stigma?—HERBERT MAXWELL, *Monreith*.

THE PROPAGATION OF CHOISYA TERNATA.

SIR,—Seeing there is so much controversy about Choisya ternata in THE GARDEN, I am enclosing herewith a chart which will possibly prove of interest to the readers of your paper who have had difficulty in propagating this plant. You will observe that only during four months of the year have cuttings failed to root. These cuttings were inserted in a cool sand frame with an average temperature of 48° Fahr.—L. B. STEWART.

SEDUMS.

SIR,—With reference to Dr. Lloyd Praeger's recent article on sedums in THE GARDEN, would not it be possible to arrange for an exhibit at Chelsea, or one of the Royal Horticultural Society's other shows, of some of his or other people's sedums in their proper classifications? It would be of the utmost value. As a New Zealander I have been trying to follow out his classification, but can only get a very small way.—N. R. W. THOMAS, *Antrim*.

COLOUR SCHEMES.

SIR,—I always enjoy reading in THE GARDEN of other peoples' colour schemes, and now I am so delighted with one of my own that I am sending it to you so that you may prove it. So few people grow or care for the purple wallflowers and I usually find when offering to my friends in the autumn any surplus plants, they say, "Thank you, but I have plenty of gillies"; not realising what a lovely bowl they make when mixed with forget-me-nots and a few sprays of the crimson Brompton stock, and they are even more beautiful by lamplight. Also, for filling in a bed of grey, pink and purple it is very good. In a border with a wide front edging of stachys with pink tulips and drifts of the crimson aubrietia the purple wallflowers fill in all bare places; yet the crimson aubrietia and Brompton stocks are usually difficult to place successfully.—ANNIE JONES, *Worcestershire*.

FRUIT PROSPECTS.

SIR.—Throughout a wide district in Southern Hants there is a profusion of blossom on the apple and cherry trees. Pears, where they escaped the close attention of the bullfinches, are also well clothed with flowers. Gooseberries, red and white currants, also raspberries and loganberries, are very satisfactory and, being late, may escape serious injury from frosts. In some districts the bullfinches practically cleared all buds from pears and gooseberries in about one week. The lilac buds shared the same fate in many gardens. Strawberry blossom is late, but strong, and the foliage is well up, forming in some instances a natural protection against frost.—HANTS.

HELENIUM CRIMSON BEAUTY.

SIR,—A new Helenium—following upon the traditions of its family and named Crimson Beauty, thereby giving an indication of its flower colour—is by no means a plant to pass by, especially if you are fond of dense colour masses towards the front of your border. This will not disappoint you from whatever aspect you view it, for it is of the cut and come again order and will provide you with sheaves of flowers for cutting, in addition to the splash it makes where it grows. In height, Crimson Beauty is about 2ft. and bears masses of flowers of a rich ruddy crimson that are curiously shot with gold.—SANDSTONE.

Year.	Inserted. Date.	No.	Callused. Date.	No.	Rooted. Date.	No.	Dead. Date.	No.
1920	January	6	—	—	—	—	13.5.20	6
1920	February	6	—	—	—	—	11.5.20	6
1919	March	6	9.4.19	6	26.6.19	3		
					4.8.19	3		
1919	April	6	30.4.19	6	3.7.19	4		
					10.11.19	2		
1919	May	6	3.7.19	6	11.11.19	2		
					28.1.20	2		
					22.4.20	2		
1919	June	6	1.9.19	6	30.9.19	2		
					12.10.19	4		
1919	July	6	17.8.19	6	6.10.19	3		
					11.12.19	3		
1919	August	6	28.8.19	6	1.9.19	4	12.10.19	2
1919	September	6	12.10.19	6	17.12.19	5	17.12.19	1
1919	October	6	1.1.20	6	11.5.20	1	11.5.20	5
1919	November	6	—	—	—	—	11.5.20	3
							2.8.20	3
1919	December	6	—	—	—	—	9.4.20	6

OBITUARY

E. A. MERRYWEATHER.

ERNEST ARTHUR MERRYWEATHER has passed away. He was known as "a real good sort" to those around his family hearth, to those around the larger hearth of his father and to an ever-widening circle of friends, which, like the circles caused by a stone thrown into a still pond, went on ever widening until it embraced horticulturists of the Continent and America.

He was born in 1872, educated at Southwell Minster Grammar School, served two years with Messrs. Hurst of Houndsditch, but gained most of his nursery experience on the nursery of his father, who still lives and takes an active part in the business.

His social activities in his native town were many. He has held all the principal

THE LATE E. A. MERRYWEATHER.

offices in the Parish Council, the Southwell Traders Association, the Southwell Rural District Council, the Board of Guardians. During the war he was Commandant of the Men's Section of the British Red Cross, and worked constantly at the Burgage Hospital. Such an array would have been sufficient for most men, but his horticultural offices were even more extensive. He was a member of the R.H.S. Fruit Committee, on the Council of the Chamber of Horticulture; ill-health had only prevented him accepting the position of president of the Horticultural Trades Association. He was an active member of the National Rose Society, and was always in request as a judge of fruit and roses both here and on the Continent, and will be known for years to come as the raiser of the roses Henrietta, Crimson Chatenay and Mary Merryweather, all roses of sterling worth, the first named still holding a position in the front rank and obtaining a gold medal at Bagatelle. This is a record that any man could be proud of and few attain, and to a man who acted on the proverb "Silence is golden" and had no publicity agent either in himself or anyone else, is a record that will keep his memory green, a memory that will be a proud one for his relations and friends.

He was buried at the historic Southwell Minster, being followed by all the employees, the principal residents of the town and many representatives of the various horticultural societies.—RICHARD PINCHES.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Celery.—During the present month the main crop of celery should be planted in trenches. Lift the plants with a good ball of soil, and get them planted at once to prevent the roots becoming dry. When the work of planting is completed, well water the trenches, and afford a little shade if the weather is hot. Pea sticks or a few branches of evergreens are excellent for this purpose. An occasional dusting of soot will stimulate growth and hold in check the celery maggot.

Peas are making good headway, and the soil between the rows should be hoed occasionally, while a liberal sprinkling of wood ashes will be beneficial if given during showery weather. A further sowing may be made, those sufficiently advanced staked, and the tall varieties mulched with manure or grass from the lawn. If the soil is dry, peas will repay an occasional good soaking of water.

Potatoes.—Keep the hoe going between the rows, and the soil may be stirred more deeply than for many crops. Those varieties that are ready should be earthed up without delay.

FRUITS UNDER GLASS.

Peaches.—In the early houses the fruits will begin to show signs of ripening, and at this stage it is advisable to discontinue the use of the syringe. A little damping down will still be necessary to hold in check red spider, but when the fruits are almost ripe it should cease. More air may be allowed, and both the front and top ventilators may be more or less open both day and night. If the weather is wet and cold, a little warmth from the hot-water pipes will be beneficial. There is a tendency in most gardens to overcrowd the peach trees, and in consequence much of the fruit is shaded with foliage. When such is the case, the leaves should be drawn away from the fruit, while a few could be removed, but not to any great extent. Later trees should receive attention, such as disbudding, tying in the young growth, and thinning the fruit. Keep the trees clean, and it should be borne in mind that the house should never be fumigated when the fruit is well advanced.

THE FLOWER GARDEN.

Aquilegias.—The long-spurred hybrids are a great improvement on the old columbine, and they produce a fine display in May and June. Seeds may be sown in the open ground in lines 1ft. apart, and directly the seedlings are large enough they should be pricked out, choosing an open site in the kitchen or reserve garden.

Staking.—The plants in the herbaceous border should be given some support before they are beaten down by wind or rain, and for general purposes the ordinary pea stick will be found the best. Little or no tying will be needed, and if properly carried out they will not be an eyesore. Gladioli are liable to injury during high winds, and for this reason each plant will require support. The same remarks apply to hollyhocks. Keep the border free from weeds, and any vacant spaces should be filled up with annuals.

The Pleasure Grounds.—Trees and shrubs that were planted late this season should be examined at intervals to ascertain if they are suffering from dryness at the root, and if so a thorough watering should be given, afterwards afford a liberal mulch of manure. Standard trees recently planted may need re-tying and the stakes making firm.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

New Potatoes.—The joy that is experienced over the first new potatoes from the garden should soon be forthcoming, and those who planted first earlies on a warm south border should have tubers ready for the cook. The Epicure is a fine first early, but is rather soft. If, however, it is left and dug up later in the season the tubers improve in texture and become drier. We have grown Epicure for a number of years and, although scheduled as a non-immune variety, it keeps free from all diseases. Pea pods on the Pilot should be filling up rapidly and a picking should be had shortly. Succession rows of peas should be staked, also seed of lettuces, radishes and spinach sown.

Carrots.—Lawn mowings are useful for spreading between the carrot lines. This will act as a mulch and so conserve the soil moisture in dry weather; it is also said to help in preventing the carrot fly from getting near the top portion of the roots. The mowings or short grass should be well pushed in and around the carrots.

Tomatoes.—Now is the time to top-dress the plants with some good loamy soil or partly decayed farmyard manure, when the trusses are heavily laden and the tomatoes swelling. All side shoots should be pinched out and the plants kept well supplied with water at the roots.

THE FLOWER GARDEN.

Roses.—The aphidæ or green fly family seem very partial to the rose. The Clensel spray, however—a quart bottle of Clensel to four gallons of water is a safe strength—will check their ravages and eventually clear the plants. This insecticide has a marked effect upon the foliage, as the leaves appear so healthy and decidedly more glossy.

Seedlings.—Dimorphotheca aurantiaca, Gypsophila elegans and Alonsoa Warscewiczii sown thinly in boxes some time ago should be pricked out now in the flower-beds. These plants are useful when set out between English or Spanish irises, and should brighten up the beds with bloom after the irises have gone out of flower.

THE HARDY FRUIT GARDEN.

Apricots.—When the trees flower freely and set well there is as a rule an over-abundance of fruits, which are usually borne in clusters. These should be further thinned out. Not only will the thinning relieve the tax upon the strength of the trees, but it will allow of more nourishment being supplied to the remaining fruits, and thereby we should get larger and better fruits. Liquid farmyard manure should be applied to the trees and, indeed, to all fruit trees bearing crops. Should green fly prove troublesome on the trees, spray with Clensel.

FRUITS UNDER GLASS.

Peaches.—There may be more than one variety of tree in the early house, and so one tree may be almost cleared of fruits, while another, such as Royal George, will be ripening. It is advisable, therefore, to suspend a net or tiffany underneath such trees so that any fruits which happen to fall will be secured undamaged. Trees cleared of fruit should be syringed daily if this can be done without injuring those bearing ripening fruits. Continue to train and tie in the shoots of later peach and nectarine trees.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Bouvardias.—Young plants propagated this spring should be potted on as they require it, stopping them at every second leaf to form a good foundation. They grow freely in a moist intermediate temperature. These plants are subject to attack by mealy bug, which should, however, be kept in check by a vigorous use of the syringe. The begonia mite also attacks these plants, so occasionally the sulphur vaporiser should be used. If so desired bouvardias may be planted outdoors for the summer months, lifting them during September and placing them in suitable sized pots, or if large quantities of cut flowers are required, they are best planted out on raised beds in a low pit. Bouvardias are so beautiful and useful that it is surprising they are not more generally grown.

Jacobinia chrysostephana, with its rich orange yellow flowers is very showy for flowering during the winter. If not already done, cuttings—which root readily in a warm case—should be inserted without delay. In common with most of the indoor Acanthaceæ this plant roots readily by means of internodal cuttings. In this case cuttings with two shoots can be used, which is an advantage with this plant as it is best when grown on without pinching; thus, where good specimens are required, it is best to grow three plants in a pot. This plant requires an intermediate temperature during its growing season, and requires careful watering at all times.

Jacobinia coccinea is another beautiful winter-flowering species that requires the same treatment as the foregoing plant. Both plants are subject to attacks by mealy bug and begonia mite, which should be guarded against. Both the species mentioned have a definite flowering season; whereas Jacobinia magnifica and its variety carnea will flower at almost any time, which is a distinct advantage as a batch of cuttings may be put in at any time they are available. The plants which grow freely in an intermediate temperature are very useful for furnishing the stages of the conservatory during the summer months. They also make fine large bushes where they can be planted out in a bed in the conservatory. The variety velutina is a much taller-growing plant, attaining a height of 6ft. to 8ft. when grown in 10in. pots; this makes it very useful for large bold groups.

Eranthemum indicum is a valuable winter-flowering plant, with beautiful blue flowers. It roots readily by means of cuttings at this time if placed in a case with slight bottom heat. During the summer it grows readily in a warm greenhouse, with a temperature of some 55° to 60°. Plants grown on for the second year make fine large specimens. If grown in a close, moist temperature this plant develops warty excrescences on the leaves and this can be prevented or cured by spraying with a rose-coloured solution of permanganate of potash.

Strobilanthes isophyllus is another useful winter-flowering plant which should be propagated by means of cuttings at this time. These will root readily in a close case. Cuttings root freely in an ordinary greenhouse during the summer months. The young plants should be pinched several times to induce a bushy habit.

Peristrophe speciosa is still another winter-flowering plant which should be propagated at this time by means of cuttings. This plant is a native of the Himalayas and grows freely in any cool greenhouse, its successful cultivation presenting no difficulty.

Royal Botanic Gardens, Kew. J. COUTTS.

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THE GARDEN

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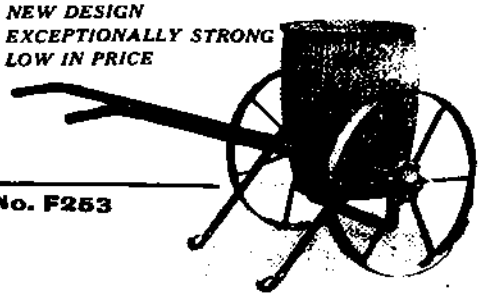

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THE GARDEN

VOL. LXXXVIII.—No. 2743. JUNE 14, 1924

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THE GARDEN

JUNE 14, 1924.

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ENCOURAGEMENT

"THE GARDEN" in its new dress has now been running for four months. We have received innumerable letters of congratulation, some so eulogistic that the Editorial staff have actually blushed with pleasure. We are delighted that THE GARDEN seems to satisfy its readers, for, after all, that is the aim of every journal.

One or two letters of criticism we have certainly received, and the criticism has always been that we cater perhaps a little too much for the advanced gardener. We hope that this criticism is not justified, for we make a sincere effort to supply information about every form of gardening and to satisfy every gardener, whether he has a small garden or a domain of many acres. In order, however, to allay any fears that subscribers, or potential readers, may have that we are ignoring the interests of the small gardener or beginner or young gardener, we are starting in this issue a new feature; this is a weekly page of simple gardening notes, dealing with matters of topical interest in gardens. These notes, which are written by an old and valued contributor who has had a long and intimate knowledge of gardening of every description, are entirely different from our "Gardening of the Week" columns, which give timely reminders of all work to be done during the week; rather do they take the form of paragraphs giving in simple and concise language full details of some gardening matter of immediate interest. Although primarily intended for the person whose knowledge of gardening lore is not equal to his enthusiasm, yet even the most learned exponent of this fascinating hobby will probably be able to glean useful information from the page of "Simple Gardening."

We are also delighted with the numbers of letters sent to us asking for information upon various gardening subjects. Their numbers are increasing week by week, which shows that the information given is of use. This exchange of correspondence is particularly satisfying, as it is of immense assistance to us in gaining that personal connection between paper and reader which we consider to be of such importance. We are always delighted to give all information in our power on any subject connected with gardening, however trivial it may seem.

On the other hand, our readers will understand the difficulties in the way of running a paper which we know to be good and hope to improve week by week. It will be of the greatest assistance if our readers could bring THE GARDEN to the notice of friends who may not be acquainted with or realise its merits. However much the circulation of a paper may increase, there is always room for additional readers, while the corollary is obvious; the more readers a journal has the better it will become, because there is more money to spend and so more information can be disseminated through its columns.

There is another way in which readers can help THE GARDEN, and incidentally advertisers and themselves, and that is by mentioning the name of the paper when ordering or writing about advertised subjects in our advertisement columns. A modern paper of high class is expensive to run, and a considerable amount of revenue is provided by advertisements. Advertisers are assisted by being able to judge the value of their advertising expenditure, while, as I mentioned above, the readers in the long run are the greatest gainers, because the larger the revenue of a paper the more information will be at their disposal.

This is very frank, but we feel that gardening and a love of plants is so intimate and so personal, that we are anxious to bring the paper in even closer touch with its readers. I hesitate to mention the word co-operation again, as it has been used so often in these columns, but there is no other word which expresses my meaning so well. E. H. M. C.

MR. W. J. BEAN.

We feel sure that all readers will join us in congratulating Mr. W. J. Bean, Curator of the Royal Botanic Gardens, Kew, upon the honour conferred on him by His Majesty the King, creating him a Companion of the Imperial Service Order.

Mr. Bean is one of our oldest and most valued contributors. For over forty years he has worked at Kew, during which time he has published his important work on "Trees and Shrubs Hardy in the British Isles" (two vols.), which is famous throughout the world. In 1917 the Council of the Royal Horticultural Society conferred the Victoria Medal of Honour in Horticulture—the blue riband of the horticultural world—on Mr. Bean.

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LARGE-LEAVED SAXIFRAGES

THE MEGASEAS ARE PLANTS WITH HANDSOME FOLIAGE AND ARE EFFECTIVE AT ALL TIMES OF THE YEAR.

THE broad-leaved saxifrages of our gardens constitute quite a distinct section of this large and popular family, so different from all others that they have been accorded a genus all to themselves under the name of bergenia, but are more commonly known as megasea. From all other saxifrages they are recognised by their massive size and breadth of leafage, and most of them, being of an evergreen character, are very effective as hardy foliage plants at all times of the year. All are strikingly beautiful, with large trusses of rose, purple or white flowers in early spring. Some kinds, like S. ligulata and its variety speciosa, are so early as to be liable to damage by frost; but if judiciously planted in sheltered positions partly under low bushes of a deciduous nature they escape damage to a great extent.

One great charm of the megaseas is the rich and vivid autumnal and winter colouring of their foliage, SS. ligulata and purpurascens being especially rich and lovely with leaves suffused with crimson and brown among other colours. They are excellent for portions of the rock garden, where their evergreen leaves are of much value in furnishing during the winter, while from March to May the various kinds produce their large trusses of flowers in abundance. In the wild garden, planted in large groups, S. cordifolia and its numerous varieties are very handsome.

The cultivation of this group of plants is, with the exception of S. purpurascens, very easy, and they will thrive in almost any position, while not at all particular as to soil. On dry rocky ledges they are quite at home, and here they assume a much richer colouring in autumn than when planted in richer soil. They may be propagated to any extent by division during the autumn and early spring; every crown broken with a few inches of stem will grow. S. purpurascens and some of the newer Chinese forms require a moister position than the others and better soil. All the different kinds produce seed freely and may be easily increased in this way; the whole constituting a group of valuable foliage and flowering plants that deserve to be grown to a larger extent than they are at the present time.

All the megaseas have their home on the great mountain ranges of Central Asia, extending from the Himalayas into China and northward to Siberia. The distinct species are few in number, but they vary a great deal, and numerous forms have received specific names.

One of the most robust kinds, with large, handsome, evergreen leaves, is S. cordifolia, a native of Siberia which has been grown in gardens since the year 1779. The rosy red flowers are produced in large, dense trusses at the latter end of April, borne on stout stems well above the leaves. For planting in large masses in the wild garden or open woodland it is extremely valuable, making a most effective display with its beautiful flowers in spring and charmingly tinted leaves in autumn and winter. Also from Siberia comes S. crassifolia, which, although closely related to the above, differs by having obovate leaves that are not cordate at the base. It bears large panicles of somewhat pendent, rosy-purple flowers in April. On the whole, it is not so robust, but the smaller leaves assume richer autumnal tints. A plant known as S. orbiculare is a form of this, with somewhat rounder leaves; while S. pacifica is an earlier-flowering form. S. crassifolia is one of the oldest in cultivation, having been grown in gardens since the year 1765. A handsome plant is S Delavayi from western China, which grows from 9ins. to 1ft. or more high. It has obovate leaves that are olive green above and rich crimson on the under side. The pendent clusters of rosy pink flowers are borne on stout red-brown stems during the month of May. Forms of this species, which are found growing in moist rocky situations at elevations of over 12,000ft., are SS. Beesiana and yunnanensis. They are all closely related to the Himalayan S. purpurascens.

S. ligulata is a handsome Himalayan plant often going under the name of S. Stracheyi and one of the earliest in flower, so unless planted in a very sheltered position is liable to injury by frost. The leaves are not so persistent as those of the Siberian species, and it often loses nearly all of them during the winter. Under favourable circumstances, however, its flowers are very handsome and freely produced in large trusses in April. They are of good size, and pink or nearly white in colour. The plant is seen to best advantage in the rock garden, rambling on a rocky bank among the boulders. A more evergreen form or hybrid of this species, called S. ligulata speciosa, commences to flower in March, and as it retains its foliage the trusses of rosy purple flowers have the advantage of protection during the early stages of their growth. A distinct form of this species comes from Nepal and Kumaon, with very hairy leaves and almost white flowers. It is sometimes classed as a distinct species under the name of S. ciliata, but it is undoubtedly only a form of S. ligulata, which is found all over the temperate Himalayas from Bhotan to Kashmir, at altitudes of from 7,000ft. to 10,000ft. S. ciliata is less hardy than the typical plant, but under cover makes enormous leaves and produces large trusses of beautiful flowers.

S. Milesii is also a Himalayan plant, and is one of the latest in bloom, sometimes not flowering till the end of May. It is in the way of Stracheyi, but has much larger leaves and pure white flowers. From the same region comes S. purpurascens, a beautiful species that is not often seen in good condition. This may partly be accounted for by its affecting very high altitudes in the Himalayas, being found up to 15,000ft. above sea level. It owes its name to the richly tinted foliage it possesses, which is one of the greatest charms of this species. It has very pubescent

MEGASEA LIGULATA IS THE FIRST TO FLOWER AND SO REQUIRES CONSIDERABLE SHELTER.

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panicles of nodding purple flowers in early June or sometimes in May. It likes a sheltered position in rich well drained soil.

One of the smallest megaseas is S. Stracheyi, with smooth obovate leaves and panicles of pure white or pink-tinged flowers. It is compact in habit and useful for the rock garden, and is sometimes grown in gardens under the name of S. afghanica, a totally different plant. Coming into flower early in April, it lasts for a considerable time in good condition, as the flowers are of good substance, little affected by the weather.

There are many hybrids in cultivation, chiefly the result of crossing S. cordifolia with S. purpurascens. They are all of robust habit, very floriferous, and several possess the charm of rich autumn colouring of the leaves. Some of the best include Brilliant, with large richly tinted leaves and purple flowers; Compacta, dwarf, rounded leaves and rose-coloured flowers; Distinction, dwarf, with large heads of pink flowers; Progress, very robust, with large trusses of rose-coloured flowers on tall stems; and Sturdy, more compact, with rose-coloured flowers. W. IRVING.

ONE OF THE MOST ROBUST SPECIES, MEGASEA CORDIFOLIA.

APHIDES OF THE FRUIT TREES

APHIDES ARE ONE OF THE GREATEST ENEMIES TO OUR FRUIT CROPS. THIS IS A SEASON OF THE YEAR WHEN THEY CAUSE GREAT DAMAGE AND SO HAVE TO BE FOUGHT WITH EVERY POSSIBLE WEAPON.

THE aphis, green fly or blight is an insect belonging to the Order Hemiptera and the family aphidæ, in which there are about a dozen genera with a similar life-history, which is peculiar and almost unique in the animal world.

Certain females of the aphidæ hibernate through the winter and others hatch in spring from eggs laid in the preceding autumn. In either case the insect, which commences its active life as soon as the warmth of the season permits, is a female and parthenogenetic, that is, she has no partner in the work of reproduction. In fact, no male aphides remain at that time. The female aphis at once starts her double life work. She feeds on the saps of her food plant and commences depositing eggs or young aphides on the stem, leaf or roots; at once if she has hibernated, and shortly if she has just come from the egg. Her newly hatched progeny in their turn commence to feed at once and delay but little before, in their turn, starting the work of celibate reproduction. Scientists differ in opinion as to the length of this delay, statements varying between two days and twenty. Temperature and species must be taken into account, but the rapidity with which a clean plant may be covered with blight from a few isolated aphides favours the general belief of a very short time.

Parthenogenesis, the rapid generation that requires but one parent, is the secret of the swift multiplication of the aphis. The parthenogenetic female is either produced alive or from an egg that hatches very quickly. It absorbs sap, growing rapidly for a short time, and then starts depositing eggs or young aphides. These repeat the same course for generations, till their host plant is getting overcrowded and some young females develop wings.

The winged forms seek new hosts and life goes on in the same way, wings only occurring occasionally till from some cause food becomes short. Then eggs are laid which hatch into the regular forms of male and female and a new cycle is started. This is generally in the autumn, and the new females lay eggs which remain through the winter and hatch in the spring, or hatch in late autumn. In either case the resulting aphides are parthenogenetic females. In the matter of hibernating, the ant is believed to interfere with considerable effect. It is said to carry certain kinds of aphides to its nest and supply them with food, especially in the case of those that can live on the roots of plants, as do the currant-root and elm aphis. The ant is also credited with placing out its aphides on suitable trees when the weather is fit. In fact, from close observation it is believed that, using the honey-dew, which the aphides freely distil, either as a food or a delicacy, the ant tends and cares for herds of aphides as carefully as humanity shelters and feeds its cows.

The aphis has six legs, a small broad and rotund body, a long beak for piercing the cuticle of its food plants and sucking up their sap, and antennæ, rather long and thin. On the upper part of the end of the body are two processes, known as cornicles, the use of which is disputed. It is confidently asserted by some scientists that they are tubes through which the aphis exudes honey-dew, while others think this is not so, but that the honey-dew is thrown out by the alimentary canal. Miss Ormerod considers the cornicles "additional means of excreting fluid."

She gives five "tribes" of aphis, of which the largest, aphidina (which includes the species attacking plums, apples, beans, etc.), and the shizoneurinæ (which contains the American or woolly aphis) are those chiefly affecting fruit trees.

The blue bug or rosy apple aphis (Aphis malifolia) does much damage to apples and pears, especially to the former. It sucks the sap from the buds and young leaves of the tree attacked, causing them to turn brown and produce gall-like growths. In bad aggressions the leaves will fall, as well as the greater part of the fruit. In colour this aphis is dark blue, grey or pink, and inclined to be mealy.

The green apple aphis (Aphis pomi) also affects the leaves and their functions, but less seriously; while the oat apple aphis (Sipho-coryne avenæ) does little harm to the leaves but sometimes attacks the fruit blossoms and causes some loss.

The leaf-curling plum aphis (Aphis pruni) causes curling of the leaves and unfits them for their ordinary functions

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of digestion and respiration, occasioning injury to the growth and premature failing of the crop.

The mealy plum aphis comes later and does less harm except by distilling honey-dew, which clogs the stomata of the leaves and injures the health of the tree.

The hop damson aphis (Phorodon humuli) is hatched on the damson. Afterwards winged forms appear and migrate to the hops in May returning to the damson in autumn. They weaken the damson and on hops are dreaded as "the blight."

Currant and gooseberry aphides (Aphis grossularia) attack bushes from May, invading the younger growth and causing variously coloured blisters on the leaves, migrating when the winged forms appear to the lettuce and other plants, returning to their original host bushes in autumn.

Another species (Myzus ribis) affects currants and gooseberries later in the summer, blistering and curling the leaves; while Macrosiphum lactuca attacks currants, migrates to the lettuce, and returns to the currant in autumn.

The currant root and elm leaf aphis (Schizoneura ulmi) curls the elm leaves till late autumn when it may leave and attack the currant, gooseberry and other plants by infesting their roots, at which time it produces a woolly substance with which it covers itself. This, like other species of the schizoneura, has no cornicles. It is an insidious pest, and may easily be overlooked, so that in cases of bushes not doing well when no reason is obvious it may be advisable to apply remedies against it.

American blight, the woolly aphis (Schizoneura lanigera) appears like cotton wool stuck on a branch or twig. It attacks the wood of the apple tree, especially in places where it has been injured. The aphides are of a deep purple covered with a secretion looking like wool, but said to be wax. In winter they go down to the roots of the tree and return to the branches in summer.

In dealing with these pests the pamphlets of the Ministry of Agriculture will be found most practical, and thanks are due to them for some of the information used here.

The aphis needs to be numerous, for it feeds many hungry assailants. Tomtits dispose of a large number and the larvæ of many insects live principally upon it.

The larva of the lady-bird (family Coccinellida) should have our careful protection, though it is not always recognised as an ally. It is black speckled with orange. Its shape is a long oval pointed at head and tail. Stavely says it is like a little speckled crocodile. These creatures do much execution among the aphides and coccids or mealy bugs.

The lacewing (Chrysopidæ) in its larval state is also a diligent consumer of the aphis, as is the larvæ of Hemerobius. Both these are said to cover themselves with the empty skins of their victims. The hover fly of some species, both as larva and imago, is little behind the lady-bird in its voracious attacks on this pest.

In spite of their minute size some Ichneumon flies lay eggs in the body of the living aphis, the larvæ from which eggs grow to maturity upon the juices of their host. This may be seen occasionally motionless and dry-looking, and should be left that the useful ichneumon may hatch.

Remedies. — In the first place the natural enemies of the aphides should be encouraged and never destroyed if it be possible to avoid it. Lime wash may be applied early in the season.

Nicotine, pyridene, and paraffin may be used in conjunction with soft soap as a wash, which should penetrate curled leaves and other recesses. The admixture of soap with an insecticide makes it adhere to and clog the breathing holes of insects, and for this purpose the Rev. J. G. Wood recommends warm thick size to be painted on every patch of American blight, which if repeated daily for a fortnight he considers effectual.

Powdered tobacco or pyrethrum may be dusted on leaves, and where root aphides are suspected tobacco may be worked into the soil and will help to fertilise it.

In bad cases of root aphis on young stock it may be better to dig up and fumigate them, treating the soil with disinfectants before replanting. In addition there are several good proprietary insecticides.

Whatever remedies are used, special consideration should be given to the peculiar life habits of the aphis attacked, *i.e.*, if it be a leaf curler, an open sap-sucker or a root feeder, etc.

M. L. BROOK.

GREEN APPLE APHIS. LEAF-CURLING PLUM APHIS.

AMERICAN BLIGHT. CURRANT BLISTER APHIS. THE CAUSE OF AMERICAN BLIGHT.

NECTARINES AND PEACHES OUTDOORS

THESE trees are bearing good crops of fruit on walls outdoors, and the young growths are strong, clean and healthy. Disbudding, stopping where necessary and training the young shoots will need unremitting attention as the growth is more rapid. With care and forethought the winter pruning should be reduced so that very little will be required at that time. Examine the trees at short intervals and gradually reduce the number of the young growths until only just sufficient are left to fill up space and to replace any that have borne fruit this season which can well be spared to prevent overcrowding of the branches. When disbudding, retain the best young growths as near the base of the older wood on the upper side as possible, and others at intervals of a few inches. I make it a practice to tie early—that is to say, as soon as the young shoots have grown 3ins. or 4ins. in length. I place a tie about 2ins. from the base round the old wood and draw the young piece down towards it, which prevents an elbow at this point that would otherwise occur if the tying were left till the wood got harder and more brittle. For this early tying very soft damp raffia should be used, and great care taken not to injure the tender bark as the work proceeds. Retain the best leaders for building up an even, balanced head of all young trees that have not covered the allotted space, securing these at intervals neatly to the walls or wires before being damaged by rough winds, etc. When tying allow each shoot ample room in the ties for the growth to extend, as the fruits swell. Keep the foliage free from insects by repeated applications of nicotine wash or some other approved insecticide, not too strong at the first application. Do not overcrop and keep the roots well supplied in dry weather with water and liquid manure where the crops are heavy. With a little care and attention good results will follow.

H. MARKHAM.

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SIMPLE GARDENING

ARUM LILIES.

WE know how very effective these noble-looking flowers are in our greenhouses and conservatories, yet many cultivators do not obtain the best from the plants. It is at this time of the year that wrong treatment is frequently given—in other words, the plants are sadly neglected. When the flowers have faded and the leaves begin to sear, the plants are placed outside and allowed to become dust-dry. This is wrong; they should be placed upright and water gradually withheld from those that are to be dried off. Some may be planted out in an open border, kept growing throughout the summer, and then lifted and repotted early in September. Those retained in pots may be treated in two ways: one batch will require repotting in new compost in August, another batch to be top-dressed only in August. In the latter case it is advisable to turn out each plant and see that the drainage is sound. The best compost for a surface dressing is that made up of fibrous loam, a small quantity of leaf-soil and bonemeal. It is, also, a sound compost for full repottings. Complete rest for the roots will be secured by laying the pots on their sides from July 1st to August 15th. When repotting is done the plants may be separated. In the case of those planted out they should be separated at the time of planting, not when they are lifted. The top-dressed plants will flower first, the fully repotted ones next and the lifted specimens a little later.

CUCUMBER CULTURE.

I know how very successful some amateurs are in growing cucumbers and that many others fail. It is more difficult to succeed with plants in houses than with those in frames, so I strongly advise frame culture to start with; then make a trial with plants in houses next year. The cucumber plant requires a light rooting-medium and a consistently moist one. A layer of soil composed of fibrous loam and leaf-soil in equal proportions 1ft. deep on a bed of cool rotted manure will prove more successful than a thin layer of heavier compost on a dry bed of litter. It is a mistake to attempt to grow many plants in a small space. One plant is sufficient for a single-light frame, but three may be grown in a double-light one. Plant on a little mound of soil 4ins. higher than the normal level of the bed. Do not forget to shade from bright sunshine till the plants are well established. Cover with mats on cold nights, but remove them early the next morning. Where there is no steam from the hot-bed the lights should be closed at night; if there is steam, a small opening at the top of the frame will allow all rank gases to escape. The ventilation should be increased early and gradually every fine morning. Syringe with tepid water when closing the frame on warm afternoons. Allow the leader to grow 18ins. long, then stop it; the resultant side shoots should be stopped at one joint beyond the young fruits forming, and so on till the frame is filled.

WATER LILIES.

It is not too late to plant water lilies in ponds and tanks, and if the work is carefully done, the plants will succeed. They should be purchased growing in pots, shallows or baskets ready for placing in their permanent quarters. Where there is mud in ponds it is a very easy matter to sink a few old turves from 18ins. to 2ft. 6ins. below the water level, according to the kind of lily planted, and thus make a firm bed for the plant to rest on and also prevent it sinking too low in the mud. In the case of artificial—constructed—tanks, a fair bulk of good old loam in addition to the turves will be required. The whole of the bottom of the tank should be covered with the loam to a depth of 8ins., and the whole turves placed in small heaps where the plants are to grow. Gently lower the plants and place a few old bricks on the baskets or beside them to prevent displacement. Nymphæas are general favourites. Many bog plants may be grown in pots, the latter being placed in large saucers containing water. Alisma (water plantain), Acorus Calamus (sweet flag), Hottonia (water violet), Juncus (rush), Menyanthes (bog bean), Peltandra virginica (water arum) are a few suitable kinds.

ZONAL PELARGONIUMS FOR WINTER FLOWERING.

The successful gardener must look ahead and make preparations according to requirements. In the case of these plants it is necessary to do so quite a year ahead to ensure good plants from the time of inserting cuttings, and from six to nine months where young plants are purchased. The early stages of the growth of the plants being accomplished under glass, open-air treatment is essential from mid-June to mid-August. The final potting should be done while the plants are under glass, preferably in a frame, then there is no risk of a serious check when the plants are placed outside. Compactly grown sturdy specimens should be the aim of the cultivator, and such can be obtained by placing the plants on a bed of cinder ashes, tiles or boards in a sunny position sheltered from the north and east winds. All flower-stems should be removed regularly while they are small and the tip of the centre or leading shoot pinched off to ensure a well formed bushy plant. It may be necessary afterwards to stop some of the leading shoots also. Very careful watering is essential and also feeding. Bone-meal in the potting compost is very helpful, and weak soot and manure water in a clear state at every alternate watering after the pots are filled with roots. Amateurs should be sure to include some single-flowered varieties in their collections, as the blooms do not damp off as readily as those of the double sorts.

TEMPERATURES AND VENTILATION.

The time of the year has come when the regulation of temperatures by judicious manipulation of the ventilators and lights on pits and frames will call for much thought and action on the part of the cultivator. I will, first, refer to the ventilation of the greenhouse and conservatory, as both kinds of structures require almost identical treatment. More moisture may be needed in the greenhouse where plants are growing for the purpose of furnishing the conservatory with flowers; but if the greenhouse is to contain also the flowering plants, then the treatment should be the same as that required by the conservatory. While the plants are growing towards the flowering stage more moisture may be maintained in the structure. When the flowering stage is reached a more buoyant atmosphere and a lower temperature are advisable. Tomato houses require this treatment; cucumber and melon houses—except when melons are ripening—should be closed in the afternoon with a really moist atmosphere within. Grapes and peaches, while their fruits are swelling, need similar treatment. Seedling and young plants in frames require very careful handling in every way, but especially so as regards ventilation, as the small air space is subject to extreme and sudden changes. The increasing and reducing of ventilation should always be done gradually both morning and evening. For the benefit of growing plants a rising temperature means an increase of atmospheric moisture, and the latter is supplied by the sprinkling of water from a syringe or rosed watering-can on the borders or paths and bare walls of a house, especially so in the case of forcing houses.

WINDOW-BOXES AND BASKETS.

These, when suitably filled, enhance the charm of a lovely garden and dwelling-house. It is very important that suitable plants be used. Ferns will not be a success in a hot corner, but petunias, nasturtiums, zonal pelargoniums marguerite daisies, lobelia and antirrhinums will. In the partially shaded windows fuchsias, lobelias, stocks, asters, Clarkia elegans and heliotrope will do well; while in the windows with north, north-east and north-west aspects ferns, pansies, violas, Nicotiana affinis, the night-scented stock and Virginian stocks will thrive and flower freely. In the intermediate windows both fibrous and tuberous begonias will grow luxuriantly. As the space is limited the soil used should be of good quality. Suspended baskets should be well lined with live moss, the latter pressed firmly to the sides. Peat and leaf-soil soon become dry and should not be employed. Good fibrous loam is the best. It is a good plan to soak the whole basket in a tub or cistern of water weekly to ensure the whole soil being moistened. Ivy-leaved pelargoniums, fuchsias, nasturtiums, begonias, and single-flowered petunias, are good basket plants.—GEORGE GARNER.

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CORYLOPSIS GOTOANA

BY E. H. WILSON,
Of the Arnold Arboretum.

CORYLOPSIS are pleasing shrubs much too rarely seen in gardens. The best known are the Japanese C. spicata and C. pauciflora, but in recent years several new species have been introduced from China and there is one, or possibly two, from the Himalayas in cultivation in a few English gardens. All have delicately fragrant yellow flowers borne in pendent catkinate racemes or spikes.

The hardiest of the genus is C. Gotoana, which is native of the rugged mountains of central Japan, where, in 1905, Professor J. G. Jack collected seeds which he sent to the Arnold Arboretum. Our largest plant is now some 10ft. high and 12ft. through. It is a wide-spreading, much-branched twiggy shrub with the habit of a hazel bush. The flowers are lemon yellow, borne in catkinate racemes, each from 1in. to 1½ins. long, and have a pleasing fragrance suggestive of cowslips. It is a very free-growing, floriferous plant and one of the first shrubs to blossom in the spring. The flower-buds have never suffered winter injury in this Arboretum. The individual flowers are rather small, about ⅜in. across, with prominent glands rich in honey. The flower-buds of its fellow-countrymen C. spicata and C. pauciflora, which are native of Kyushu, the southern island of Japan, unfortunately, suffer more or less each winter, and as a rule those of the Chinese species are all killed. Corylopsis is purely an east Asiatic genus, being distributed from the Himalayas through western and central China to Formosa and Japan. No species is known from northern China, Manchuria or Korea.

CORYLOPSIS GOTOANA, 10FT. HIGH BY 12FT. THROUGH, IN THE ARNOLD ARBORETUM. From a photograph taken in April, 1923.

CORYLOPSIS GOTOANA WITH LEMON-YELLOW, FRAGRANT FLOWERS.

The best of the genus where properly hardy is C. pauciflora, with wide open flowers ⅜in. across and larger than those of any other species. Its name is not only a misnomer but also a gross libel on a very free blooming and charming shrub.

A NOTABLE BROOM

THE great charm of Cytisus scoparius pallidus, Moonlight Broom, does not seem to be as widely appreciated as it deserves to be; for, while one often sees most others of the scoparius set, a plantation of pallidus, or even a single specimen, comes as a surprise. The flowering of this form is contemporary with that of the common type, but the blossoms of pallidus are not only very distinct in colour—being a soft ivory-yellow, tending to cream in full sunlight—but they are exceptionally large and of a firm, almost waxen texture. The habit of the plant is also good, the bushes being less inclined to legginess and more compact than those of the type, and they are certainly longer-lived. For the half-shade of woodland this is the most desirable of its class, the self-colour and peculiarly delicate tint harmonising more pleasantly with natural surroundings than does the dapple of reds and yellows of the Andreanus section.

It is when the above, including the type species, are in full flower, as well as later on, that one realises how much we owe to Mr. T. Smith of Newry for giving us his late-blooming forms of scoparius. For while the former are to-day full of colour, the latter are as green as they were in mid-winter. It will not be until well after midsummer that these bushes will break into bloom, and I have seen them with a good show of blossom as late as August. These late brooms are, moreover, much sturdier than the type usually is. We have some old specimens 8ft. or more in height, with trunks as thick as a man's forearm, and they are heavily canopied by a robust growth of long and very leafy branches which produces a most imposing and gorgeous effect when laden with blossom as they always are. Late brooms may, it is good to know, be raised true from seed (always the best way with the members of this genus), but it is, of course, desirable always to gather the pods from the last to flower.

A. T. JOHNSON.

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WALL PLANTS

BY SIR HERBERT MAXWELL, BART.

ONLY those who, like myself, are sufficiently stricken in years to have witnessed the successful revolt against formal bedding out, led by Mr. William Robinson early in the 'seventies, and rendered effective by the example set by such enthusiasts as the late Dr. Lowe, Miss Frances Hope, Canon Ellacombe, Mr. Wolley-Dodd, and a few others—only those, I say, can fully realise the vast advance in well-nigh every branch of outdoor flower-gardening that has taken place within the past half century. It has resulted in a corresponding increase in the number of those who take intelligent interest in the cultivation of hardy plants. One garden is no longer the replica of its neighbours; one never can tell what fresh surprise may claim his attention in the borders of other amateurs.

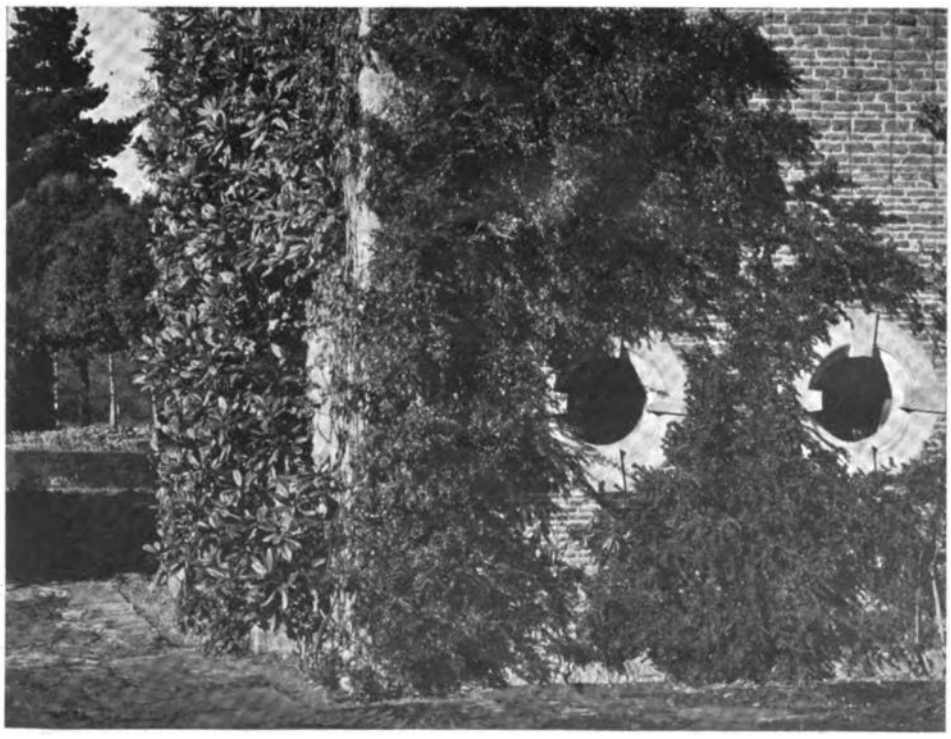
Howbeit, one branch of flower-gardening has lagged considerably behind the rest, and deserves better attention than it has received hitherto. We do not, as a rule, make the best use of wall space for training plants; indeed, one sometimes comes across cases of positive abuse of valuable opportunity in this respect. For instance, it is but a few weeks since I saw in a southern English county Berberis Darwinii carefully trained against the wall of a beautiful Georgian manor house. The said wall being of fine mellow brickwork, the flaming orange bloom of the barberry caused excruciating discord. Moreover, the training had been effected by nails and shreds, most injurious to the masonry. Less damage might have been done by the use of horizontal wires strained by a raidisseur through galvanised iron wires; but the simplest and safest method is to fasten against the wall upright staves of the height required, painted or creosoted, nailing across them large-meshed wire netting.

Leagues of stone and brickwork that might afford support and shelter to choice plants are covered with ivy, ampelopsis (Vitis inconstans), rambler roses and such like, good enough in due measure, but rendered wearisome through repetition. Once established, it entails strenuous effort to dislodge them, but one that it may be well worth undertaking, forasmuch as the protection afforded by a wall, especially a brick wall, will not only enable many plants to thrive that would succumb to a British winter in the open, but will enable many hardy species to develop a display which they could never attain to without such support.

CARPENTERIAS AGAINST A SUNNY SHELTERED WALL.

A good case in point is supplied by the Cape figwort—Phygelius capensis, which, although it may be grown as a border plant in most parts of our country, is of untidy sprawling habit in such a position, and troublesome to its weaker neighbours by reason of its subterranean runners; whereas, when trained against a sunny wall it rises to a considerable height, decking its shining evergreen foliage in late summer and autumn with innumerable candelabra of scarlet tubular flowers, in such profusion as I have never seen it do except as a wall plant. As there is a dingy brick-coloured variety of this brilliant shrub, it is well to obtain it from a trustworthy source.

Among hardy climbing plants there are very few that will support themselves against a wall by aerial roots like those of ivy, or by viscal discs on the tips of the tendrils, like those of the Virginian creeper and a few other species of vitis. At the moment of writing I can think of only five others—namely, Tecoma radicans and T. grandiflora, Hydrangea petiolaris, Schizophragma hydrangeoides and the dangerously poisonous Rhus Toxicodendron. It is simply amazing that the two species of tecoma, whereof the American T. radicans is the hardier, should be so seldom used for covering walls, seeing that they have very few rivals in splendour of autumnal blossom.



COTONEASTER AND MAGNOLIA AS DRAPERIES FOR A HOUSE WALL.

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(In passing this reflection upon the discrimination of amateurs, my own withers are sorely wrung; for, to my shame be it said, I have neglected to assign space for these brilliant climbers.)

All other climbing plants must be provided with such support as will enable them to clothe a wall. They take advantage of it in one of three ways: (1) by twining their stems round the support from left to right, as in the common honeysuckle, or from right to left, as in lapageria; (2) by clasping the support with their petioles or leaf-stalks, as in clematis and tropæolum; and (3) by sensitive tendrils, as in the passion flower and lathyrus.

1.—In the first group may be noticed the Chinese honeysuckle, Lonicera tragophylla, the showiest of the genus, but scentless. It requires a shady aspect or a north wall, being liable to attack by aphides if planted in a sunny exposure. Polygonum Baldschuanicum is a twiner of enormous vigour, requiring ample room in height and breadth, for which it makes a liberal return with clouds of rose-tinted blossom. In mild districts there is no more charming drapery for a north wall than Lapageria rosea, which is much hardier than it gets general credit for, but is somewhat difficult to establish, owing to the insatiable partiality of slugs for the tender shoots that it pushes up from the root. These pests should be warded off by a guard of perforated zinc placed round the plant when first set out. No recommendation is required for that famous twiner Wistaria chinensis or the even finer W. multijuga, and no finer mantle for an entire gable can be devised, the only difficulty is to find room for these giants among climbing plants.

2.—In the clasping group are included many species and innumerable garden varieties of clematis. Among the former, there is none to surpass C. montana with its rose-tinted variety rubens and a later flowering variety Wilsonii. In mild districts C. indivisa lobata from New Zealand and C. Armandi from China make a fine display; while C. Flammula fills the autumn air with the fragrance of hawthorn. The garden varieties of C. patens, lanuginosa, florida and Jackmani do best as wall plants when planted so as to run through shrubs trained on the wall. They like rich soil and lime, but although they flower most freely in full sunshine, their roots should be shaded by other plants.

Solanum jasminoides climbs by clasping, and is well worthy of a place on the wall of a dwelling house, where, if the climate permits, it will be liberal of its charming clusters of white flowers; but it is only a plant for specially favoured districts.

3.—Climbers by tendrils give us a few choice things for walls, among which the passion flower, Passiflora cœrulea, takes high rank for beauty, demanding all the sunlight that it may be given. Personally, I prefer the blue-flowered type; the so-called white variety Constance Elliot being merely its washed-out replica. Two other South American climbers

A MOST GRACEFUL WALL PLANT. CEANOTHUS RIGIDUS.

CLEMATIS ARMANDI MAKES A FINE DISPLAY.

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claim notice in this group—Eccremocarpus scaber, with tubular flowers painted scarlet and yellow, easily raised from seed which it ripens in abundance, and Mutisia decurrens, with large flowers of glowing orange, as difficult to propagate as the other is easy, but well worth any pains bestowed on it. Botanically it belongs to a very interesting genus—one among the enormous family of Composites, whereof very few aspire to climb, and mutisia is the only one that does so by tendrils. It is even more difficult to establish in the open than to propagate by cuttings. I must have planted out a dozen or more at various times, and only succeeded with one, now about fifteen years old, running up through Cotoneaster horizontalis on a wall to a height of 10ft.

4.—This group, consisting of plants which are in no sense climbers, includes almost any shrub or small tree that one may fancy for training on a wall. Small! did I say? There are two houses in my neighbourhood against which Eucalyptus Globulus has been trained, it may be hoped, with better hygienic than decorative effect. Again, at Keir, General Stirling's beautiful residence in Perthshire, the Italian cypress—C. sempervirens—has been put to singular use. It must be seventy or eighty years, perhaps more, since this tree, which would not survive a single winter in that inland district without the protection of a wall, was planted at regular intervals against the entire south front of the mansion house. Closely clipped, they stand as dark green cylinders, imparting a novel architectural feature to an otherwise plain façade.

These extreme examples are quoted as showing how wide is the choice of plants that may be used to adorn, or at least to clothe, bare walls. The wealth of subjects is indeed so varied as to be embarrassing. Among the most desirable for use where winter is apt to be severe the following species may be recommended. The evergreen Magnolia grandiflora and the deciduous M. conspicua, Jasminum nudiflorum and J. revolutum, the male form of Garrya elliptica, Forsythia suspensa, Lonicera fragrantissima (better than the very similar L. Standishi, but, like that species, flowering in mid-winter), Hibiscus syriacus in several varieties, Chimonanthus fragrans, Ceanothus rigidus, Buddleia variabilis var. magnifica (to be pruned hard back in spring) and B. Colvillei, the finest of the genus, Calycanthus floridus and C. occidentalis. For mild districts, including practically all the south and west coast of Great Britain, the Moray Firth in the north, and the greater part of Ireland, the choice may be greatly extended to include such things as the common myrtle, lemon-scented verbena, Carpenteria californica, Berberidopsis corallina Abelia floribunda, Clianthus puniceus, Tricuspidaria lanceolata, Abutilon megapotamicum, Fuchsia fulgens and other species. Beautiful effects have been obtained by planting Camellia reticulata on walls facing north, an aspect and situation which enables several of the more tender species of rhododendron to flourish, such as RR. Edgeworthi, bullatum, fragrantissimum, etc. It is well to remember that the soil at the base of a wall is apt to contain mortar rubbish, which is deadly to most rhododendrons. In planting them in such a position the old soil should be dug out and replaced with a lime-free substitute. Here it may be noted how seldom one sees full advantage taken of a wall facing north, yet there are many choice plants that will pass the winter happily under its shelter that would perish if exposed to the alternation of frost and sunshine on a south wall. On the other hand, such delightful shrubs as the Australian bottle-brush—Callistemons speciosus and salignus—Solanum crispum, and the recently acquired Chinese Indigofera pendula, etc., require all the sun warmth that our cloudy climate may afford them.

SUMMER CARE of TENNIS COURTS and LAWNS

THE increasing popularity of the game of lawn tennis brings in its train greater need for skilful treatment and watchful care of the turf.

A firm, even base is essential to a good game, and players will always plead for rolling, and still more rolling.

The doctrine has been so long and so generally adopted that the way to create and maintain a perfect lawn is to mow and roll, and continuously mow and roll, that it is accounted heresy to dispute the wisdom of that course. The fact is, excessive rolling can do, and frequently does, serious harm to lawns, and in the case of tennis courts, hard trodden and severely tried throughout the summer months, the additional compression of the soil by constant use of the heavy roller has in reality a murderous effect on grass.

The horticulturist is well acquainted with the necessity and importance of loosening the surface soil between growing plants, and every student has learned that aeration of the soil is an indispensable factor in good cultivation, because access of air is necessary for the transformation into available plant food of organic and chemical substances in the soil. It is surprising how many people imagine that grass can grow and sustain itself on a soil so tightly compressed by the roller that there cannot be the slightest possibility of air entering the rooting medium; and when it is borne in mind that every time the mower goes over the grass it removes growth that has drawn a certain amount of nourishment from the soil, it should become abundantly apparent that not only is periodical replenishment of suitable nourishment necessary, but that a degree of porosity in the soil that will facilitate the natural process of chemical conversion is equally indispensable. The question is, how the natural requirements of the grass may be satisfactorily coupled with the demands of sport.

Many methods have been tried and are regularly practised, I will describe what, to my mind, is the most rational and effective course of procedure.

Our present theme is the "Summer Care of Tennis Courts and Lawns," and it has to be borne in mind that nothing can be done which will adversely affect the comfort of players or handicap their play.

There is no simpler means of dealing with a hard-worn tennis court than by perforating the turf. A useful implement for this task may be made by driving 3in. nails through a piece of wood an inch thick, so that the under surface of the board is furnished with perpendicular spikes 2ins. long at a distance of about 2ins. apart each way. A stout handle should be fixed in the centre of the upper surface of the board, and thus, by using the implement after the manner of a turf beater, the turf will be evenly perforated with holes made by the nails.

For large greens a spiked roller has been invented which can be drawn over the turf in the same way as an ordinary roller, the lawn being by this means regularly perforated at intervals of a little more than a square inch.

The perforations may be left open for a day or two, during which time air will find access to the root-run of the turf.

The next step is to prepare a top-dressing, which should consist of a good concentrated fertiliser mixed with several times its bulk of sharp, gritty sand, taking care that this contains no stones. The top-dressing may be evenly spread over the turf and vigorously brushed to and fro with a good birch broom. This will work the dressing into the perforations, which, however, will be only loosely filled, and it will be a considerable period, even though the roller be used to a reasonable extent, before a lawn thus treated will again become as "hide-bound" as previously.

As to what constitutes the best fertiliser for such a purpose, a great deal depends upon individual conditions. Many things will nourish grass, but some manures add to the coarseness of the rougher and stronger kinds, while some encourage the development of clover, not always a desirable feature of a lawn or playing green.

The best fertilisers for grass on a light, sandy soil are not always beneficial where the lawn lies upon a cold, retentive clay. Another point that the keepers of tennis courts have to consider is that nothing may be used during the playing season that tends to create slime or sticky deposits during showery weather, or dust during drought; otherwise new tennis balls will be quickly soiled, and players will suffer discomfort. Bone-meal, soot, chalk, fine loam or leaf-mould, any of which may be quite suitable for use in autumn when the lawns have a long period of rest before them, would be entirely out of place for summer. Choice of nourishment for grass at this season must, therefore, be confined to readily soluble, quick-acting tonics or stimulants which, if not immediately washed in by rain, can be dealt with by the sprinkler or hose-pipe.

A. J. MACSELF.

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NOTES FROM CONTRIBUTORS

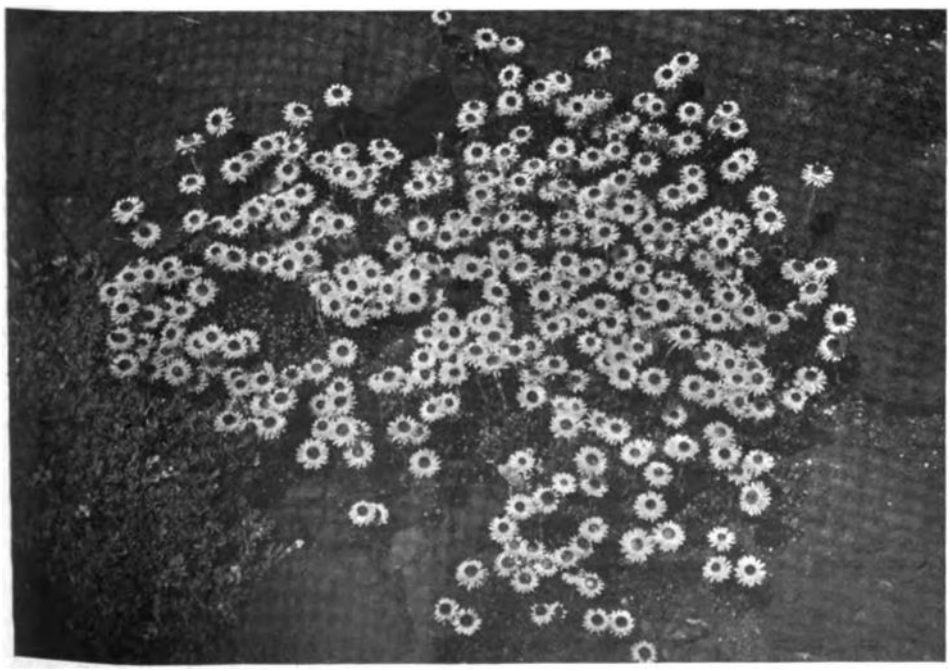
HELICHRYSUM BELLIDIOIDES.

THIS is a charming little everlasting flower for the rock garden, the small flowers being half an inch across with a double or treble row of clear white pointed floret rays surrounding a fluffy greenish yellow disc of florets in the centre. The heads are borne solitary on bracteate peduncles, which are covered by white cottony hairs, and from 2ins. to 4ins. high above the slender, prostrate, much-branched leafy shoots. The loosely imbricated, spreading or recurved leaves are from ¼in. to ½in. long, obovate-spathulate or obovate-oblong, and one nerved, the upper surface glabrous or slightly cottony, while the under surface is clothed with cottony adpressed tomentum.

It is a native of New Zealand, and is very abundant in the mountainous districts in the Northern and Middle Islands, ascending up to 5,000ft. According to Kirk's "Students' Flora of New Zealand," there appear to be two forms: erectum, which is found in the South Island, and which is rather a stout plant, with short, stout peduncles; and prostratum, which is found at Auckland and Campbell Island (and which Hooker in his "Flora of New Zealand" considers a distinct species, H. prostratum). In this form the heads are sessile and it has the receptacle more conical.

H. bellidioides appears to be perfectly hardy at Cambridge, having grown on the rock garden for a good number of years without any protection. It should be planted in the sunniest spot available in fairly dry and well drained soil. In such a position it flowers so freely that the open blooms completely hide the foliage during May. In wet localities it will be found advisable to place a sheet of glass over the plant during the winter months. It is a free grower and very easy to increase, as it spreads by means of underground stems. The trailing stems often root to the ground as they spread, while cuttings of the young shoots root readily if placed in sandy soil in a close frame.

Other helichrysums from New Zealand suitable for growing in the rock garden are H. Selago, an attractive and interesting species with a compact shrubby habit; and H. trinervum, somewhat resembling H. bellidioides, but larger in all its parts and having three conspicuous nerves in the leaves, whereas, as I have already mentioned, H. bellidioides has only one.—F. G. PRESTON, *Botanic Garden, Cambridge.*



A CHARMING EVERLASTING FOR THE ROCK GARDEN, HELICHRYSUM BELLIDIOIDES

A FINE CHINESE PLANT.

RHODODENDRON calostrotum, one of Farrer's introductions from Upper Burmah, is undoubtedly a dwarf rhododendron of outstanding merit. Last year I received a small plant from the R.H.S. under Farrer's No. 1045. I planted it straight out among heaths in a sunny position on the rockery, and it grew splendidly. This year it has eleven of its large rose-coloured blossoms about 2ins. across, which, as the enclosed photograph shows, appear very large for the size of the plant. It seems to be quite hardy, for although it only formed its flower-buds on second growths late in the summer, not a leaf was damaged during the past very trying winter.—R. B. C., *Northumberland.*

RHODODENDRON CALOSTROTUM.

SCILLA LILIO-HYACINTHUS.

MANY years ago, when one had much to learn, as one has still to do, there was a white-flowered bulbous plant in an old garden where it has been for generations, which was a puzzle to a group of those of us who were ardent lovers of hardy flowers. At that time I did not possess Parkinson's "Paradisus," where Scilla Lilio-hyacinthus is figured as Hyacinthus stellatus lilifolius, but by dint of diligent search I was satisfied that it was the white form of S. Lilio-hyacinthus of Linnæus, which was also well described by Philip Miller. This white variety is by no means plentiful in gardens, but in the old garden in question it so abounded that a good many bulbs had been relegated to the woods. I was delighted when I was given some bulbs from this garden, but, unfortunately, I appear to have lost them during a removal. All my clumps at present in flower are of the blue or typical form, a variable plant, but I am pleased to see them doing so well, and I trust in time again to acquire the white variety. The "Paradisus" mentions a pink form, which Parkinson had heard of but not seen, and Miller speaks of this "red" variety as in existence. I have never come across it, but it will probably be in existence in the Pyrenees, where S. Lilio-hyacinthus is said to be very abundant. I have been enjoying lately the flowers of my blue ones, which vary considerably in the closeness of the rather conical raceme showing well against the broad, lily-like leaves. They are generally of a pretty violet-blue, some with a pinkish tinge about them, and are very bright indeed in a shady border, where they are planted along with hardy ferns and other plants which grow well in shade. I found this scilla thrive well in sun also, but I think the colour is better and shows to more advantage in the shade than in the sun. Parkinson calls it "the Lilly leafed starr Iacinth," while Miller speaks of it as the "Lily-rooted Squill," from the bulbs being formed of scales, like those of a lily. It seems curious that this old bulb is but little offered, especially in these days, when wild gardening and profuse planting of bulbs in grass are so justly in vogue. It is well adapted for this purpose, especially in some wooded or partially wooded dell.—S. ARNOTT.

OXALIS ADENOPHYLLA.

THE Patagonian wood sorrel, Oxalis enneaphylla, is such a favourite with me that I cannot without reservation subscribe to the doctrine that the Valdivian wood sorrel, O. adenophylla, is more beautiful, although that is a view strongly held by some. It is true that the usual—and to me the finest—form of O. enneaphylla has pure white flowers. That is no defect in my mind. But apart from the question of colour, O. adenophylla may well stand on its own merits in point of intrinsic beauties. It is charming from the moment it appears above ground with its exquisite tufts of silvery grey leaves, looking as if daintily carved from almost dull oxidised silver. Then the consummation of its charms appears in its numbers of bright pink flowers, far prettier than those of the rose-coloured form of O. enneaphylla, of whose white form I am so fond. These flowers are wonderfully large and when open in the sun they are remarkably pretty. Even in the closed stage

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they are of much interest from the manner in which the segments are arranged, waiting for the alluring rays of the sun to unfold and bestow upon us the full loveliness of the flower. In cultivation there is a great difference in the requirements of the two species. Whereas O. enneaphylla delights in the shade and is never really happy in the sun, O. adenophylla is a sun lover and its flowers rarely open except when that luminary shines upon them. This is, in some ways, a defect, but, on the other hand, the blooms probably last longer than they would do were they open alike in shower and sunshine. Then I do not think that O. adenophylla is so exacting in the way of soil, as it appears to thrive in ordinary light loam. Some find it difficult to cultivate, and its reputation in this respect is not a very high one, but possibly the failure to provide it with a sunny position is the cause of this failure. After all, one must try for oneself and if at all possible succeed, although it may be that success will only come by unorthodox treatment. There are many factors in gardening, and some of them are deeply obscure and cannot be diagnosed.—DUMFRIES.

HOLLY BLOSSOM.

NEVER in my lifetime (with observations over some forty years) have I seen such a wealth of holly blossom as this May. In the Bristol and Somerset district many of the bushes and trees are dull white with blossom; and it would be interesting to know if this is more or less general in Britain, particularly in regard to native specimens, *e.g.*, in the wild Sutton Park, north of Birmingham, where so many holly trees attain a considerable height.

Even more closely trimmed trees and hedges of holly have much blossom in places, as the finely kept hedge of holly skirting the park of Tyntesfield (Colonel George Gibbs, M.P.). These low holly hedges are on either side of the main road from Bristol and Long Ashton to Clevedon. Both are about a mile and a half long. I noticed that in some native Norwegian herbarium specimens of Ilex Aquifolium recently sent me for distribution, the leaves are much less spinous than those of the usual British form.—H. S. THOMPSON.

THE EDITOR'S TABLE

WE have received from the Welsh Bulb Fields, St. Asaph, North Wales, a beautiful box of Darwin tulips. The blooms were exceptionally well packed and arrived in excellent condition. On the desk where these few lines are penned is a large vase containing the soldierly-looking Darwins, and our minds can visualise those fields of these wonderful blooms in North Wales.

Here in our office are such noble Darwins as Farncombe Sanders, with its radiant splendour of cochineal red; the stately Boadicea, in orange-scarlet; Ronald Gunn of slaty lilac; the well known Clara Butt in soft salmon-pink; Ida Scott, a new sort decked in deep lilac—this should prove very popular; and Margaret, the outside petals of which are blush and the inside of the flowers soft pink.

LAWNS AND LAWN-MOWERS

A WELL known present day authority on lawns writes: "The scythe was an implement which required a very considerable amount of skill and concentration of energy to keep the turf to the required smoothness. With the lawn-mower the work is of a more mechanical nature and the lawns have suffered accordingly," and John Ruskin somewhere laments the passing of the scythe. This notwithstanding, there can be no doubt that the coming of the lawn-mower not only effected a great saving of labour and enabled the sward to be kept closer and more even than ever before, but had a highly beneficial effect upon the turf. No one to-day ever gives the scythe a thought as a practical alternative to the lawn-mower, but the selection of a suitable mower or mowers for one's greensward is a fairly important matter, sufficiently so at any rate to justify the following notes. For the large lawn, for the now so much appreciated wide grassy vistas through the pleasure grounds, for the fairways on golf courses and such like, the motor-mower has come to be a necessity. Practically the only remaining drawback to this class of machine is a tendency for it to destroy the turf in wet weather when turning, but this fault is almost confined to the large heavy machines which are provided with seats. The "nippier" machines which tow the man in charge at considerably above ordinary walking pace turn easily and neatly, and it is surprising what a lot of work a 30in. machine of this class will manage in a day. The capital outlay upon such machines is, of course very much smaller than upon the "leviathans."

The problem of the motor-mower has been tackled from both sides, so that these machines are made in this country by firms with many years' experience of "push" and horse machines and of steam-rollers and such like, and, on the other hand, by those who have made a study of the use of the internal combustion engine for purposes somewhat dissimilar. The results achieved are very similar in both cases, and to-day one can safely say that the British-made motor-mowers are as trustworthy mechanically as the British motor car, and what higher praise could be bestowed! It is advisable that the man who is to take charge of the machine should have its internal economy explained to him and be "put wise" as to the meaning of the various knocks and rattles which may possibly supervene in wear and the appropriate adjustments. It is not a bad plan to let a skilled chauffeur-mechanic give an eye to the machine occasionally. Some of the motor-mowers now being built are veritable feather-weights, but they appear to give excellent service and, of course, are better for the lawn in wet weather, though they do little to roll it when the turf is on the dry side. All things considered, perhaps it is wiser not to attempt to combine rolling and mowing in one operation, though the saving of labour thus effected is, admittedly, tempting. At least one firm of motor-mower manufacturers supplies (as an "extra") a very useful cultivating attachment which aerates the surface soil and is very beneficial to the health of the sward.

Are horse and pony mowers still called for? Undoubtedly, especially the latter. There are many places where the lawns are not very extensive and, apart from the mowing, an otherwise necessary pony would have insufficient exercise. Here a word of warning is desirable; get a mower a size too small for the pony rather than one a little too large, bearing in mind that however carefully kept, a mower hardly keeps in equal "tune" the season through. If the animal is worked without shoes, lawn-boots are not absolutely necessary, but shod or unshod, lawn-boots are a good investment and save damage to the turf.

Everyone who has a lawn should have at least one hand-mower. There are always corners and verges where motor—or pony—machines cannot work, while there are in this country thousands upon thousands of small lawns which must be cut by a push-mower.

There has long been a controversy as to the comparative merits of the roller and side-wheel types; each has its advantages. The side-wheel machines run much more easily, and when the lawn is dry do equally good work, but even with the Sladen subsidiary roller sold for the purpose, are not too satisfactory for cutting verges while they are apt to damage the turf when there has been a spell of wet weather. Many garden owners with an eye on labour costs keep both types, so that the most suitable machine may be available no matter what the weather conditions.

It will be noted that side-wheel machines are made to varying specifications and at very different prices. The more expensive machines have large driving wheels and rapidly revolving blades and, as a rule, ball-bearings. The cheaper types are, if British made, quite reliable, but are, naturally, a little less easy-running and need more adjustments than the higher priced machines. Some manufacturers go to great pains to make every adjustment as easy as possible, so that the use of spanners is only necessary under exceptional circumstances. Many find this a great convenience, but where there are small and possibly mischievous children it does not always work out satisfactorily.

The makers always seem to the writer just a little optimistic as to what constitutes one "man-power." The 12in. size roller machine is plenty hard enough for one man to push, and the same applies to the 15in. side-wheel makes, even when equipped with big driving wheels and fast-running knives.

Whatever type or make is chosen, see that the machine has fair play. On roller machines the cutting cylinder should be reversed occasionally, the knives being thus self-sharpening, but dents and chips caused by stones and such-like will not "self-sharpen" themselves out, and though the greatest care may be—and should be—taken to keep such off the lawn, every lawn-mower should be entrusted at least once a year to a properly equipped repairer for regrinding and overhaul. If there is no firm with proper plant locally, it should be sent to the makers

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for attention. The best season to send in the machine for this straightening out is immediately cutting is finished for the season. The overhaul is likely then to be much more thorough than if the work be delayed until the machine is about to be wanted in the spring.

The yearly overhaul will not in itself, however, ensure a long and trouble-free life for the machine. Every type of mower needs careful cleansing after use, but cleansing does *not* mean a bass broom and the free use of the hose or of buckets of water. One does not risk getting water in one's watch or even in the gear-box of one's motor car; why risk it reaching the bearings of the mower? If the moving parts need cleansing, paraffin is the agent to employ; but if a fairly stiff brush and a thin strip of blunt-pointed hard wood (preferably box tree) be used diligently after each day's mowing, very little chopped grass or other débris should reach bearings or gearing. Oiling is very necessary, but if lubricant is used at all freely when the machine is about to start work, some of it may drip on to the grass and cause unsightly patches, which will, in all likelihood, need returfing.

After cleaning and before putting away is the best time to oil the machine; but some of the more important bearings—especially (on a hand or horse machine) those carrying the cutting cylinder—will need occasional attention during the day's work. A few spots only should be given at one time, and it is a help if one of the lubricants containing graphite be employed. If the machines are sent for overhaul immediately after the season's work is finished, little winter-care (other than keeping in a dry place) will be necessary, as the makers or qualified repairers will take the necessary precautions to keep the mowers free from rust until, in a surprisingly short while, they are wanted again for use.

R. V. G. W.

FORTHCOMING EVENTS.

June 20.—Manchester and North of England Orchid Society's Meeting.——Eastbourne Horticultural Society's Meeting.

June 24.—Royal Horticultural Society's Fortnightly Meeting (two days). Lecture on the first day, at 4 p.m., by Mr. W. J. Dowson, M.A., on "Gardening in the Highlands of Kenya Colony."

June 25.—Morley Paxton Society's Meeting.

June 26.—Royal Botanic Society's Meeting.

CORRESPONDENCE

THE LEMON SCENTED VERBENA.

SIR,—I see in the issue of THE GARDEN dated May 24th, page 361, Mr. A. D. Turner says that noted gardeners have sometimes a difficulty in propagating the lemon-scented verbena (Lippia citriodora or Aloysia). My experience as a gardener in the north is that there is not the least difficulty in rooting this plant if the young wood is taken (either the thick or the thin wood), and in May and June one can get a strike of 100 per cent. In fact, last year a few of the tips which had been taken off to make the plant break back and had been carried about in my pocket for a few days were inserted, and out of twelve only two did not root.—L. B. STEWART.

NARCISSUS FORTUNE.

SIR,—I cannot let Mr. Jacob's criticism of this noble daffodil (page 338) pass without a word of protest. Mr. Jacob confesses that he had not seen the flower for a long time. That being so, it was hardly fair to judge by the wrecks of blooms on Mr. Guy L. Wilson's stand as they ought not to have been there, and I told the exhibitor so. I can hardly imagine anyone comparing Helios and Fortune. Helios as shown at Birmingham was at its very best, but if Mr. Jacob buys a few bulbs and tries to grow them, I think he will sing another song, and it will not be one of praise. I had Helios when it was about £13 13s. per bulb, and tried my level best to do it well, but the wretch never had any colour in the cup, though the foliage had lots of beautiful (?) stripes. After keeping it for several years and never seeing a well coloured flower I sent the stock into retirement and have never regretted the action.

Personally, I consider Fortune to be by far the finest giant incomp. in cultivation. When at its best it is a perfect flower, smooth in segments, beautifully proportioned, perfect pose and a stalk long enough to satisfy anyone. The Brodie of Brodie is reported to have said, "Fortune first, the rest nowhere." It seems a great pity to exhibit flowers that are far below par, better to let a season pass, or even two, than to set up flowers which are out of condition or are not at their best.

Another daffodil season has come and gone, and what an extraordinary one it has been: frosty nights, keen east wind and no rain for weeks together. Until the much-delayed rain fell we ploughed about in dusty sand about half an inch deep when working among the daffodils, and shoes and boots were quite unfit for the house until well cleaned. But when the rain at last fell, what a change! In less than a week the foliage grew and improved in colour, flower-stalks lengthened, and the flowers which during the drought had been very poor in size and quality now came quite up to standard; some, indeed, were extra good. Never do I remember a season when we had so many flowers per bulb. I counted one bulb of Empire with fourteen buds, and it was a bulb planted only last year—not a clump of two or three years' standing. This stands as a record with me, but sixes, sevens and up to eleven were quite numerous. A Dutch friend told me recently that he had over a thousand seedling daffodils under numbers, so it does not seem likely that there will be any lack of novelties for some time to come. Scrap the worst and make the most of the best is my advice.—J. DUNCAN PEARSON.

OXALIS ENNEAPHYLLANEVER!

SIR,—I am much interested to know the derivation and meaning of the second word above, which I see in your issue for May 31st, page 383. I cannot get further than nine-leaved. My nephew (a Public School boy), who fancies his Greek, translates it "In new leaf never."—E. R. BIGNELL.

[We regret that this charming plant was inadvertently renamed in our composing room during the few hours which we had at our disposal in which to get out our Chelsea number.—ED.]

MISTLETOE ON ROSE TREES.

SIR,—I read with interest Mr. Meade King's article in reference to above (page 343), and also the comments on same from readers in THE GARDEN for May 31 (page 389).

I do not think there is anything unique in the matter, as I well remember, when I lived in Devonshire, seeing quite a big spray of mistletoe growing out of an old Gloire de Dijon rose in the grounds of Dr. Domville, Northernhay, Exeter; and in another case, at the Rev. Hamilton Gell's at Winslade. Here, Reine Marie Henriette was the foster-parent. For years a very large spray lived on a Crimson Rambler in the private garden of Mr. Perkins (sole proprietor of Messrs. Wood and Ingram, Huntingdon) and was only cut down a short time ago. So that it would appear to be rather a common occurrence for birds to deposit (accidentally) the seed into a crevice of the rose tree.—GEO. WYATT, *Huntingdon.*

ROCK GARDENS AT CHELSEA.

SIR,—Last week I travelled over 250 miles to see the Chelsea Show, and I was well rewarded. But I want to express my feelings of great disappointment at the present style of the outdoor rock gardens exhibited there. I do not mean that they were not beautiful pictures, tastefully built, and showing great cultural skill in the plants that adorned them, but they are misleading and wrong. As a hybridist, I protest that such creations are a cross between an alpine slope and pure "bedding out," and the offspring is a "rogue" and should be treated as such.

Odd outlying stones are scattered on short grass in such a manner that a mowing machine is useless, and only expensive and laborious hand clipping can keep such grass in indifferent order; and then, on sundry rocky ledges or banks, colonies of some alpine plant are bedded out in a wonderful colour scheme. Anyone with a slight knowledge knows that this is constantly done in positions which are utterly unsuitable and in which such plants would never thrive, and even if they did, when their flowering season was over there would be a bare space or bald ledge for the rest of the year. For there is no suggestion of succession, and such a system produces a seven days' wonder at most.

A fine effect can be made by bedding out some frame-grown alpines under the shade of a small group of pines; they look delightful, but how misleading to those who seek to become students in the high art of alpine culture—how disappointing—what a short-sighted policy for the trade in future!

There is no attempt to clothe the rocks, no attempt happily to mingle plants and rocks naturally. The stones are treated as one thing and the plants as another. There is little or no attempt to instruct and educate a garden-loving public as to the best position and surroundings most likely to induce a plant to grow well. The whole erection is unnatural and misleading.

On a table under canvas one expects the artificial grouping of alpine or garden plants. They are exhibited for show, and show practices and show morality are wide and embracing; but surely it is possible and wiser to make a supposed alpine garden more natural and so more truthful, and enlist an army of new recruits who would become enthusiasts, whereas under the present conditions they obtain a false impression, and fall defeated and disheartened at their first attempt.—ERNEST BALLARD.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Asparagus.—As a general rule the cutting of asparagus should cease after this date, but owing to the lateness of the season there is no reason why it may not be continued for another week or ten days. Afterwards the plants should be allowed to grow freely, or next year's crop will suffer. Strong growths may be staked to prevent injury from wind and rain, while an occasional application of liquid manure will be beneficial. A light sprinkling of salt may be afforded about this date, while a dressing of bone-meal may also be given.

Runner Beans.—Many amateurs aim at procuring early crops, but sufficient attention is not paid to a late supply, hence the necessity for sowing a few lines of runner beans during the next week or two. Allow 6ft. or so between the rows, and 6ins. or 8ins. from plant to plant. This crop will continue until destroyed by frosts. The early sowing will need staking, and the hoe should be used freely between the lines.

Leeks.—The main crop should now be planted in trenches. If the weather is dry give the roots plenty of water, and add soil to the trench as growth proceeds. Another method is to make holes with a crowbar 9ins. apart and 18ins. between the rows. Drop the roots to the bottom and water in; nothing more being needed except an occasional hoeing which will gradually fill the holes with soil.

FRUITS UNDER GLASS.

The Orchard House.—Trees in pots will need copious supplies of water, and when the fruit is set the roots should be fed with liquid manure and some reliable fertiliser. The thinning of the fruits should be given attention, and all superfluous fruits removed as early as possible to help those that are left to form the crop. All young shoots except those needed for extension should be pinched at the fifth or sixth leaf, and here and there disbudding may be practised to prevent overcrowding. At this season plenty of ventilation is required, and when the weather is warm the top ventilators may be left open an inch or so throughout the night. Watch for insect pests and vaporise the house directly any aphides are seen.

THE HARDY FRUIT GARDEN.

Cordon Pears.—In many gardens pear trees have flowered profusely, and there is every prospect of there being good crops, but it is perhaps a little early to make a definite statement as many of the fruits will drop from various causes. However, directly it can be seen which fruits are swelling freely, a little thinning may be done, but the final thinning should be deferred until all fear of fruit droppng is past. Large-fruiting varieties such as Pitmaston Duchess may be thinned more severely than the smaller kinds of which Beurré Hardy may be cited as an example. In the meantime the crop may be assisted by pinching the side growths at the fourth or fifth leaf, and where the tree has not yet reached its allotted space the leading shoot ought not to be stopped for a few more weeks. Pinching the centre from the shoots should, like disbudding, be done gradually.

Strawberries.—This year the plants flowered freely and did not receive any injury from frosts. If not already done straw litter should be placed between the rows and the beds covered with nets before the fruits begin to colour. When the fruits are swelling the roots enjoy plenty of moisture.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Cabbages.—Where these vegetables are highly esteemed and a regular supply required, the root stocks should be left in the ground after the hearts have been cut, as early cabbages, in general, are much later this year, and if the old stems are left they will soon break away into fresh growth, forming later on two, three and even more cabbages on each stem. Although not so big and well shaped as the primal heads, they will be of great service in the kitchen.

General Work will include more or less a good deal of cleaning in the form of hand weeding, hoeing and raking among the various vegetable crops. Likewise the thinning of beetroots, carrots, parsnips, salsafy and turnips raised from main crop and late sowings. The planting of succession Brussels sprouts, broccoli, borecole, cabbages, cauliflowers, savoys and leeks should also be forwarded. It is interesting to state that the leek is not over particular as to situation, provided the soil is well manured and cultivated. I have seen good leeks taken from a border whereon the crop had been regularly grown for seventeen years. Broccoli should be planted on somewhat firm and not overrich soil. A sowing of French and runner beans should be made.

THE FLOWER GARDEN.

Bedding Plants.—It is always good policy to keep a few bedding plants in the reserve garden, as blanks occasionally occur in beds and borders; plants get broken or sometimes die off from one cause or another. Plants in pots may, as a rule, be set out almost at any time, but all bedding should be completed forthwith.

Flower Vases.—There is no doubt that statuary and flower vases add to the beauty of the residential demeane when situated and placed so as to harmonise with the surroundings. If not already done the vases on terraces, etc., should be filled with their summer occupants, such as marguerites, ivy-leaved geraniums or fuchsias; for those who appreciate red there are still the old favourite geraniums or the dwarf single dahlia Coltness Gem, which seems at present to be putting the bedding geranium in the shade. It is not good practice to fill the vases with over-rich soil, or yet to leave it in a loose condition, as this would only tend to encourage leaf and stem growth on the plants instead of flowers. For small vases, plants in pots may be used and the pots hidden with moss or one or other of the low-growing saxifrages.

Staking.—If the spiral wires are used to support the carnation stems, no tying will be required; but should straight stakes be employed the stems should be neatly, securely, and regularly tied to them. Sweet pea growths which have got outside the wires and are likely to get broken should be tied. Pardalinum lilies, when grown in quantity and near other plants, sometimes require to be staked and tied in.

THE HARDY FRUIT GARDEN.

Strawberries.—A few fruits may now be showing colour, and no time should be lost in having the stakes put in and strings stretched, so that the nets when spread on will be kept 2ft. or 3ft. above the plants. It is much better to have the nets well above the plants than to have them spread out on the plants.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Euphorbia pulcherrima (Poinsettia).—About the middle of this month the propagation of this plant should be taken in hand. Young shoots about 4ins. in length taken off with a heel should be secured for cuttings, and to prevent excessive bleeding the cut ends should be dipped in finely powdered charcoal. The cuttings are best dibbled singly into small pots, afterwards plunging them in a warm propagating case. Care should be taken to see that the cuttings are not allowed to flag. This plant may also be successfully propagated by cutting the old stems into short lengths and inserting them as cuttings, and this is an excellent way where difficulty is experienced in rooting the young shoots. Where it is desired to grow on the old plants they should be cut down to within a few inches of the base, and when starting into growth turned out of their pots and the balls of soil reduced so that the plants may be repotted into the same-sized pots. Afterwards pot them on as they require it. In their young stages they should be grown in a temperature of about 60° and afterwards given cooler conditions; in fact, they may be successfully grown in cold frames. During September they should be removed to warmer quarters. They require strict attention at all times as regards watering, and when they have well filled their pots with roots they enjoy liberal feeding. There are white and rose coloured varieties which are worth growing for the sake of variety.

Lantana salvifolia when grown in pots and kept well pinched in its younger stages is very useful for furnishing the stages in the conservatory. If grown on into large pots and the slender shoots allowed more freedom of growth it makes a fine specimen several feet in height. Where it can be planted out it is ideal for clothing pillars, the shoots attaining a length of 10ft. to 12ft., and it produces its flowers in wonderful profusion over a long period. It is easily propagated by means of cuttings at any time, young shoots rooting readily in a close case. This plant is generally known in the trade as L. delicatissima.

Lantana Camara, of which there are many varieties in varying shades of red, orange and yellow, were at one time very popular for the greenhouse, but are seldom seen at the present day. These plants are very useful for greenhouse decoration during late summer and early autumn. They can be raised from seed, but named varieties must be propagated by means of cuttings which root readily during the spring or summer. They are bushy growing plants, and to ensure well furnished plants the young shoots should be pinched several times. Their successful cultivation presents no difficulty, as they grow quite well in an ordinary greenhouse.

Primulas kewensis, verticillata and floribunda are all very useful for greenhouse decoration. Seed should now be sown in a cool pit or greenhouse. These plants all grow freely in any good potting compost, and may be grown in cold frames during the summer months. Plants of P. verticillata raised from seed last year are worth growing on, as they will make very fine specimens for next year. The original P. kewensis is sterile and must be increased by division. It is now scarce in cultivation, the seed-producing variety being more generally known and cultivated.

J. COUTTS.
Royal Botanic Gardens, Kew.

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THE GARDEN

VOL. LXXXVIII.—No. 2744. JUNE 21, 1924

A GOOD EXAMPLE OF THE "FINISHING" EFFECT OF A SUNK GARDEN. THERE IS A SMALL LILY TANK IN THE MIDDLE, WHILE THE HERBACEOUS BORDERS AND PATH BEYOND RISE BY SMALL STAGES. THE WHOLE GARDEN IS ENCLOSED WITHIN HEDGES OF CLIPPED YEW.

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JUNE 21, 1924.

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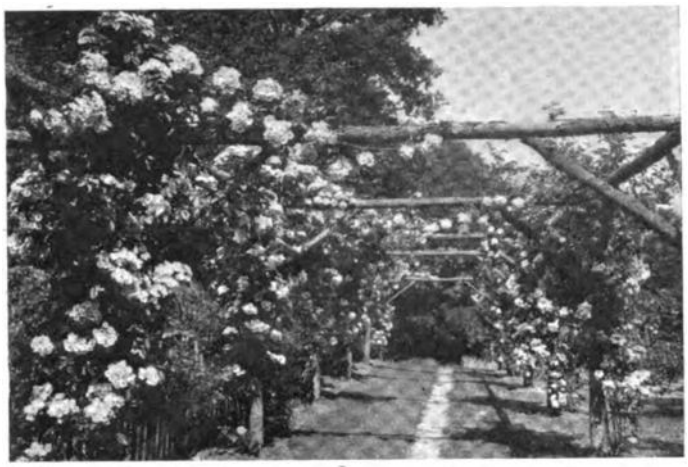

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A CHRONICLE OF EVENTS

THERE is an old—and true—Scotch saying that it is an ill wind that blows nobody any good. This is especially true in gardening this year, for above all this is a season for the tree and shrub gardener. The alpine enthusiast and those who love herbaceous plants may grizzle and grumble, and with reason, at the way their flowers are tashed and damaged by the rain, for in many parts of the country it has been fierce and unrestrained, but all shrubs and trees are growing famously. Most of the ligneous plants in our gardens come from distant lands. Look at any list of them: you may find that 10 per cent. are native products, that a further 15 per cent. are natives of Europe, but the greatest proportion come from China, North America, South America and New Zealand in that order.

It is only natural that trees and shrubs love moisture, for remove the forests and the rainfall diminishes rapidly and *vice versa*. It is well known that many countries which have been denuded of their forests are now suffering from lack of water. They have become barren and their soil is unproductive. The corollary is that most trees and shrubs like water and moisture during their growing season. This they are getting with abundance this year, and they are expanding under that genial influence.

In many parts of the country, particularly on the east coast, there has been a lack of sufficient rain during the growing season for many years, and so plants which may have been in the ground for as long as five years have never become properly established. This is now being rectified. Perhaps a few measurements from a garden in Perthshire may be of interest.

Rhododendron Souliei made a growth last year, a very cold hard growing season, of 1½ins., this year by June 10th 8ins. with the shoots not yet fully grown. Leaves one-third larger. Incidentally, this is one of the very best rhododendron species. It is absolutely hardy and has lovely pink or white open campanulate flowers.

Betula Delavayi made a growth of 8ins. last year; this year half-grown shoots are over 10ins. in length.

Boenninghausenia albiflora is a foot high this year; at the same time last year it was 5ins. This is a plant which some people find difficult to grow. I have had no difficulty with it and it has now begun to spread by underground runners. On no account will it stand stagnation at its roots. It likes a position where drainage is quick; in fact, a dryish bank with some shade is all that is necessary. It dies down every year, and is particularly lovely with its foliage like a maidenhair fern covered with tiny white stars. It is also deliciously aromatic. This season has even suited this comparatively dry-loving plant, but then I have planted it on a bank with a shelf of sloping rock a foot below the surface. This plant should be grown more often, for it is more graceful than most thalictrums.

Lonicera syringantha, always a vigorous grower, has made gigantic strides this year, and is rapidly encroaching on its neighbours; growths three weeks in advance of last year.

Dipelta floribunda, growth 6ins. this year compared to 3ins. last year. This is a young plant, and I find it slow to establish itself in Perthshire.

Rhododendron Fargesii is the most amazing instance in this growing season. They are planted practically in the open, perhaps too much so, but this year the growth is 1ft. compared to 3ins. last season.

And so the chronicle could continue. The only damage that I can see is in some of the small seedlings in the nursery beds in thick shade. Here the drip from the trees overhead has been so heavy and consistent that they have been covered with mud splashed over them by the large drops. Some have been practically smothered with earth and have had to be excavated, while even the largest have a thick coating of mud over the stem and leaves. This is a nuisance, as it interferes with the plant's breathing apparatus, and I look for numerous deaths later on in the year, for mud splashed on in that way is extremely difficult to get rid of. Several of the worst cases I removed and soaked and then syringed with but little effect.

All who are growers of trees and shrubs should be thankful for this magnificent growing season; some people, at any rate, will be satisfied, and I am one of them. E. H. M. C.

Owing to the late season, the Council of the Royal Horticultural Society decided that the first of the three silver cups presented to the Society for peonies by Mrs. Edward Harding will be offered for award on Tuesday, June 24th, for the best exhibit by an amateur of three flowers each of six varieties. The Council hopes that as many amateurs as possible will send in entries. The Society makes no charge for space, and vases are obtainable at the hall.

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ENKIANTHUS

BY W. J. BEAN.

THE frequency with which enkianthuses have been shown at recent meetings of the Royal Horticultural Society seems to show that the genus is growing in favour. But the exhibits have almost wholly consisted of E. campanulatus with an occasional appearance of E. japonicus. For general serviceableness there is no doubt that, of the species at present available, E. campanulatus is first, but there are others which, if not perhaps so adaptable to our ordinary conditions, are very charming plants with individual flowers of greater beauty.

Enkianthus belongs to the heath family, and its flowers have the characteristic bell shape or pitcher shape of the group; they are always nodding or pendulous, and the largest are only about ½in. wide, most of them smaller. All the species are deciduous and their leaves vary from ¾in. to 3ins. in length. No inconsiderable part of the attractiveness of these shrubs is in the autumnal beauty of the foliage, which turns red, orange or yellow before falling.

They may be grown wherever rhododendrons succeed, either in a peaty soil or in a lightish, or at least an open, loamy one. I do not think they will succeed where the soil is chalky, but whether peaty or loamy it will be improved by adding leaf-soil. Before planting the shrubs, the ground should be broken up to a depth of at least 2ft., so that, should a dry time ensue, they have a reasonable chance of getting through it unharmed, for they detest dryness at the roots. Like most small-leaved deciduous shrubs, they do not need shade, although where the soil is light or shallow and liable to get dry quickly, a spot where a shadow is cast over them in the hot, middle hours of the day would be advantageous. Propagation is

THE BELL SHAPED BLOSSOMS OF E. CAMPANULATUS.

done by seeds which, as is usual in the heath family, are small. They must be treated like those of rhododendrons or heaths and sown on the surface of well drained pots, pans or boxes of very sandy peaty soil. The seeds will be all the better with a sheet of glass over them to prevent quick evaporation and, in consequence, frequent watering, which should be done by using a very fine rose or by partially immersing the pots. With all extremely small seeds it is essential to avoid moving or "washing" the soil by rough watering, especially when germination has started. Many failures with delicate subjects may be attributed to this cause. Cuttings made of twigs 2ins. to 3ins. long may also be used, putting them in very sandy soil during July or August in a propagating frame where there is some bottom heat.

E. CAMPANULATUS is usually a shrub with us and is already 12ft. high or upwards in some gardens. In its native country, Japan, it is frequently a small tree up to 30ft. high. It has a method of growth characteristic of several enkianthuses and of many Japanese trees and shrubs, and ultimately develops flat, horizontal tiers of branches. The leaves—mostly obovate and 1in. to 2½ins. long, are clustered towards the ends of the twigs and the flower racemes appear there also, the corolla being bell-shaped, ½in. long, pendulous, dullish creamy white veined with red, each of the five lobes tipped with red also. The colour, however, is variable and in one form, albiflorus, is creamy white.

E. PALIBINII, the enkianthus figured as E. campanulatus in the *Botanical Magazine*, t. 7509, is very distinct. I called it E. camp. var. Palibinii in my book on Trees and Shrubs (Vol. 1, page 512), but Professor Craib of Aberdeen University has since given it specific rank as E. Palibinii simply, in which I think he is right. The flowers are rather smaller than in ordinary campanulatus, and almost entirely rich red; the leaves, too, are more coarsely toothed. E. Palibinii used

THE PURE WHITE, PENDULOUS FLOWERS OF E. JAPONICUS.

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be grown in the Coombe Wood nursery, and is probably grown in some gardens now as campanulatus, under which name it used to be sold. It is very charming and well worth looking after.

E. CERNUUS (syn. E. Meisteria) is a much branched shrub up to 6ft. or 9ft. high in Japan, with obovate leaves ¾in. to 1¼ins. long. The flowers are very distinct from those of other enkianthuses through the corolla, which is bell-shaped and ¼in. long, having its margin divided into numerous slender pointed teeth. In the typical form they are white, but in the variety rubens are of a deep rich red. This coloured variety is a beautiful shrub but very rare, and I do not know any trade firm that stocks it. Efforts to purchase it have hitherto only resulted in adding to one's stock of campanulatus. There is a good example of the true plant at Caerhays.

E. SINO-HIMALAICUS.—Professor Craib distinguishes by this name the plant introduced for Messrs. Veitch by Wilson from western China, which was previously identified with himalaicus (a species from North India and Nepal) and generally grown under that name. Wilson describes it as a large bush or small tree often over 20ft. high. The leaves are narrowly oval or lance-shaped, tapered at both ends, 1in. to 3ins. long and more or less hairy, especially beneath. The flowers, widely bell-shaped and about ½in. wide, vary in colour from salmon-red to orange and yellow, with veins of dark red. The foliage turns golden to crimson in autumn. This species, which is thriving well in cultivation, is described by Wilson as one of the most beautiful shrubs of western Szechuen. The true North Indian himalaicus is said by Professor Craib to be hardy at Edinburgh and to have been grown in the open air there for twenty years.

E. JAPONICUS (syn. E. perulatus).—In Japan this is usually a bush from 3ft. to 6ft. high with horizontal tiers of twiggy branches and narrowly obovate leaves clustered at the end of the shoot, each from 1in. to 1½ins. long. The flowers are pure white. pendulous, pitcher-shaped, about ¼in. long, produced in clusters of two or three or more, each on a slender stalk. The corolla has five rounded protuberances at the base. The foliage turns to golden yellow in autumn. Introduced by Standish about 1869, it is still too rarely seen, although it comes next to campanulatus in popularity.

E. SUBSESSILIS (also called E. nikoensis) is more nearly related to japonicus than any other we cultivate and has white flowers of a similar pitcher shape, but produced on drooping racemes, each of six to twelve flowers, instead of the stalkless clusters of E. japonicus; nor has the corolla the five swellings so characteristic of that species. They open in late May and are only one-fifth of an inch long. The species is, in fact, one of the least ornamental in bloom. It has, however, all the autumnal brilliancy of the genus, the leaves changing then to bright red. It is said to be a bush up to 9ft. high in Japan.

E. CHINENSIS, found by Wilson in western Hupeh, is, judging by dried specimens, a very handsome shrub, not surpassed in beauty by any other enkianthus. It is sometimes 20ft. high and has large widely bell-shaped flowers described as "salmon, salmon-red or yellowish orange striped with red." Wilson sent seeds to the Coombe Wood nursery and it may be in cultivation, but I have never seen a living plant.

E. QUINQUEFLORUS is a tender species from Hong Kong and south China which may, nevertheless, be hardy in Cornwall as it was for many years grown in the Temperate House at Kew. The flowers are two-fifths of an inch long, pink or peach-coloured, the leaves 3ins. or 4ins. long.

Of rarer species in cultivation there is E. sulcatus, one of Wilson's introductions from China; also ferrugineus, latiflorus, pallidiflorus, pendulus, recurvus and tectus, all from Japan and first described by Professor Craib in "Notes from the Royal Botanic Garden, Edinburgh," October, 1919, and said by him to be in cultivation there at that time. The last six from Japan appear to be more or less closely related to campanulatus and may possibly be in cultivation elsewhere under that name.

ANOTHER CATALOGUE

BY THE HON. VICARY GIBBS.

I WAS much interested to read in your issue of May 24th a laudatory account of the catalogue of my friend, Mr. Clarence Elliott, relating to herbaceous plants, and it tempts me to give an account of another which commends itself to me and relates more particularly to woody plants. I will not disclose the name or address of the issuer for fear that the just and stern editor of THE GARDEN might feel compelled to attach the ominous contraction "Advt." to the end of this paper, and instead of sending me a handsome cheque in return for my remarks, demand one from me. With all that is said by E. H. M. C. as to what is required to constitute a good and useful catalogue I heartily agree. Of course, if the reader were like Solomon and knew all plants from "the hyssop on the wall to the cedar which is in Lebanon," he would need no descriptive matter, but such a man would probably have a well stocked garden of his own, and is not the kind of person for whom, primarily, a nurseryman would have to cater. It is the man who has recently acquired a garden and desires to beautify it, who is the best customer and ought to be studied.

What is a man like that to make of a long Græco-Latin name such as Hydrocephalus Kamtschatika, and is he likely to order it, if he has no idea whether it will prove to be a hardy forest tree or a tender bog plant. On the other hand, if the name be followed by an appetising account, such as "shrub, 2ft. high, rich carmine flowers end of May, followed by large sapphire blue fruits in September," he will, if he believes the story, be sorely tempted to send the sum demanded and secure the treasure. I am very far from being a beginner, for it is now, alas! well over fifty years since I was first keenly interested in plant life, but I can sympathise with beginners, and remember how I used to pore over catalogues, and sometimes order plants without the wildest idea of what the name represented or whether there was any chance of it thriving at Aldenham. Those past days were very different from the present. I had to plough a lonely furrow, people interested in gardening beyond lobelias, geraniums and calceolarias for the outside borders, and stove plants and camelias for the conservatory, were few and far between.

Trees and shrubs were quite outside the sphere of a professional gardener, and he was inclined to regard them as mere background and not as subjects of individual interest. Of course, the fact that printing has increased so greatly in cost since the war, tends to make anyone who is selling plants for his livelihood stingy about spending money on descriptions; but they need not be long, and without them I am quite sure that it is impossible to create a free market. If one has in stock many species of one genus which are perhaps little known in this country, there is a temptation to block them altogether in some sentence like this: "American Cratægus in great variety, names and sizes and prices on application," but the result is likely to be disappointing. If, instead, half a dozen are named and attractively described, thus:

Cratægus macracantha, a free grower with great thorns 5ins. long, like curved skewers.
Do. mollicula, fine deep yellow fruits, like miniature oranges.
Do., crimson fruit, award of merit from R.H.S.

the result as far as orders are concerned is likely to be much more satisfactory. Here is a sentence in the catalogue on which I am commenting which has my warm approval. "All plants unless otherwise specified are on their own roots." As a rule, nurserymen are far too prone to stock grafted plants of genera where such a process is quite unnecessary; it is only gardeners of experience who realise how inferior are grafted plants. Many of my old plants, which I obtained

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before I knew better, even of subjects like cratægus, which practically never hybridise and come quite true from seed, are grafted, and every year are disfigured by growth from the stock (white thorn) below the graft, which has laboriously to be removed, only to reappear next season. Again, almost the whole of the English nursery stock of lilacs is grafted, and if these are neglected for a few years it will be found in many cases that the stock has smothered the scion. Of course, I freely admit that in the case of apples, whether ornamental crab or of orchard type grown for fruit, it is quite impossible to raise any true from seed, and therefore, if choice forms are to be obtained they must be grafted, but I most strongly urge that the practice should only be resorted to when necessity compels.

Of course, as E. H. M. C. observes, catalogues ought to be truthful, though allowance must generally be made for that failing in human nature which tends to convert every man's own geese into swans. One of the most difficult things to decide is what constitutes hardiness. There is nothing absolute about it and any statement that a plant is hardy must be taken to mean hardy in the nursery from which it comes; the plant quite hardy in Ireland, Wales and Cornwall is impossibly tender in Cheshire, Northants and Herts. Nor is this all, for I never inspect any large collection of trees and shrubs without finding strange anomalies: a plant usually regarded as tender which has grown and flourished for years, while one which the books would tell you was much more robust has been half killed or succumbed altogether. The explanation is that where a plant has a soil which exactly suits it, its natural vigour will enable it to resist an inclement climate. Whenever we have a severe winter it is, as one would naturally expect, the feeble and sickly specimens which are wiped out altogether; nor is this to be regretted, for the commonest tree or shrub in full health is a more beautiful object than the choicest example when struggling to maintain life.

Here is another sentence in the catalogue under review which can claim praise for its frankness: "The plants offered are seedlings raised from the type plant and are not guaranteed strictly true to name." This note is attached to a long list of different berberises, for that genus, when leaving its native habitat in China and settling in England, has, I regret to say, lost all sense of morality and hybridises recklessly, with the result that seed collected in an English garden produces all kinds of variants, some of which, such as those which Wisley has exhibited, surpass the type in ornamental value. On another page of the same catalogue I find Cratægus Oxyacantha Gireoudi offered, and there is a botanical curiosity about this thorn which is worth recording, as it may be new to some readers. "The young growth is mottled with white and pink giving the tree the appearance of being covered with flower," says the catalogue, and so far as I know this is the only variegated shrub or tree of which the seed can be depended upon to reproduce the peculiar colouring of the parent. It was the blackbirds or thrushes which first called my attention to this, for when feasting they dropped some of the hips and haws in adjoining shrubberies, where they grew and their showy colour attracted my attention. I then sowed and raised about fifty plants, every one of which was as fully variegated as the parent. Since variegation proceeds from insufficient chlorophyl, it is strange that this feature should be reproduced in the offspring, and still more strange that it should be confined, so far as I am aware, to this one species.

To return to the catalogue, perhaps the descriptions lack the "snap" and spirit which Mr. Elliott's individuality puts into his accounts, but at any rate they give the ignorant beginner some idea of what kind of thing he is buying, as will be seen if I follow E. H. M. C.'s example and give a few instances taken at random:

Hymenanthera crassifolia.—Native of New Zealand, semi-evergreen, related to the pansy. Carries a plentiful supply of pearl white berries in autumn. A compact shrub for rockeries.

Lonicera Maackii.—One of the most beautiful of bush-honeysuckles. Flowers pure white, turning yellow, followed by red fruits. A very strong grower.

Muehlenbeckia complexa.—A curious and interesting trailing species with many interlacing wiry twigs, excellent for covering old tree stumps.

Photinia villosa.—Good deciduous Asiatic shrub, with foliage turning a fine bright red in autumn. Flowers white, fruit red.

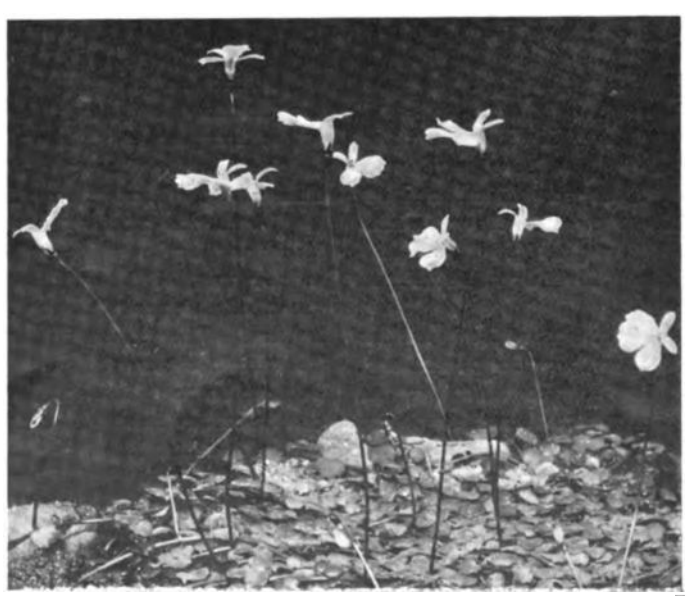
Pyrus malus aldenhamensis (Grafted plant).—The best crab yet introduced; foliage, flowers, fruit and wood all red-tinged in a greater or lesser degree. A.M.R.H.S.

I am afraid that this catalogue is no richer in cultural directions than Mr. Elliott's, no doubt they would add to its usefulness, but the cost of printing is too heavy for such luxuries.

A FEW RARE CREEPING PLANTS

BY H. CORREVON.

THE "Clover of the Gods" (Parochetus communis), is an exquisite little plant, whether creeping over the soil or hanging from walls or baskets, when used as a hanging plant. It slightly resembles a pea, with long rooting stems, bearing pretty trifoliate leaves slightly spotted with brown, and from the mass of the leafy carpet emerges all through the summer and far on into the autumn, crop after crop of big pea-shaped flowers, each borne singly on its separate stem (2ins. to 3ins), in colour a bright azure blue, similar to that of Gentiana bavarica. It is that metallish blue, most exquisite of all, tinged with opal, marine, cobalt, sapphire, turquoise, etc. It flourishes at Floraire in a semi-shady bed of leaf-mould mixed with loam, and flowers from May till winter. Outside we have to cover it up for the winter, but in November we usually move some into bays in a cool greenhouse, where they flower the whole winter through. This beautiful plant comes from the Himalayas and East Indies.



LOBELIA LINNÆOIDES.

HEERIA ELEGANS is a delicate creeping plant sent to our gardens from the mountains of Mexico. I saw it once in the Royal Botanic Garden at Edinburgh and carried it home with great care, as, to my mind, no other flower offers such a

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beautiful colour. It cannot be said to be quite hardy and must either be covered or brought into frames for the winter. The whole summer through it produces a carpet of brilliant magenta flowers, suggesting those of Epilobium obcordatum, although rather flatter. It wants peat or leaf-mould to be really successful, and it belongs to the Melastomad family.

EPILOBIUM LATIFOLIUM is the most beautiful of all the epilobiums. Coming from the arctic regions of Greenland it is generally very difficult to grow at Floraire, but we planted it in 1897 in our alpine botanic garden at 4,800ft., in a rockery facing north-east, and there it has grown and flourished. The foliage is bluish and broad, and the flowers are very large and of a light carmine rose. It is rather a terror if the ground proves suitable.

FALKIA REPENS is a small creeping and half-shrubby plant, with evergreen shining leaves; it is a beautiful little plant, coming to us from the mountains of South Africa. I saw it in 1904 in the Botanic Garden at Leipsic, where it was considered to be a great rarity. They gave me a little piece of it and we planted it here, where it flowers during the whole summer with little convolvulus-like light rose cups. It must be covered in winter or brought into a cold frame.

DICHONDRA REPENS is another relation of the convolvulus which I saw at the Botanic Garden at Turin. It is a very dwarf creeper, running all over the place, bearing kidney-shaped, light green, round leaves, and small yellowish axillary flowers. It is a sub-tropical plant which has proved hardy or half-hardy here and is good for light soils in half-shady and sheltered situations.

GOODENIA or SELLIERA REPENS, from Tasmania, is a little creeping lobelia-like plant for the rockery, where it runs along, with narrow foliage and solitary short-spurred white flowers, slightly bluish at the tips. It is hardy here as well as at the Botanic Garden at Turin, but it requires a sheltered position.

SAXIFRAGA CUSCUTÆFORMIS, from Japan, is a diminutive of S. sarmentosa, very sarmentose, with pretty leaves and bearing innumerable slightly pink flowers. It is not easy to keep and seems to be much more delicate than its relative. There are two other varieties of the "Mother of Thousands" which we once grew here, but have since lost; one was the form with variegated leaves (pink, white and green), of the type which is very difficult to keep in our climate, even under glass. The other is called S. japonica, *Hort.*, which I got some forty years ago from M. Boissier at Valleyres; it has thicker leaves than sarmentosa, dark brown underneath, only slightly variegated over the surface and is less sarmentose. Can any of your readers give me any information about it?

LOBELIA LINNÆOIDES is a little gem from New Zealand; it has leaves like a Linnæa borealis, is of a very prostrate nature and bears charming white butterfly flowers slightly tinged with blue. Alas! It has also disappeared. What must I do to keep that beautiful thing alive?

MIMULUS PRIMULOIDES is another little gem from New Zealand, which covers a part of our "tourbière" here. It is a low creeper, with small rosettes of hairy pendulous foliage and bears lovely yellow flowers the whole summer long. In the autumn one must be careful with the small bulbils which, just like those of pinguiculas, contain the nutriment required for next year's start. It likes a damp place.

SAXIFRAGA CUSCUTÆFORMIS.

MIMULUS PRIMULOIDES.

VERONICA CANESCENS, from New Zealand, is the most minute and dwarf thing I know of in plant life. It has microscopic, hairy leaves and runs flat across the surface of the ground. In summer the tiny carpet is covered with sweet little china blue flowers. It must have a dry and sunny exposed situation.

VERONICA TELEPHIFOLIA, from the Caucasian and Asia Minor mountains, makes flat sheets of tiny rosettes, built of minute rounded leaves of the most lovely glaucous shades of green. In the summer the tuffets are covered with azure blue flowers. The plant must be covered, in this garden at least, but resists the severe winters of the high garden on the Alps because there it is covered with snow. The same observation can be made of many of the plants I have named in this article, and with others like the yellow New Zealand Myosotis australis and M. Traversii, Epilobiums linnæoides, glabellum, macropus, and others. Many plants which are tender here in our winters destitute of snow will be perfectly happy in one of our alpine gardens which is snow-coveerd the winter through.

[The photographs were supplied by Mr. R. M. Adam, Royal Botanic Gardens, Edinburgh.—ED.]

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SIMPLE GARDENING

EARTHING-UP POTATOES.

ALL the early and most of the second early varieties will be earthed-up and filling the space between the rows with luxuriant haulm. But many maincrop sorts will need attention now. It is always advisable to pay close attention to the proper carrying out of this work in dealing with all varieties, but it is most important in the case of late ones. There are several reasons for the earthing of potatoes: to add support to the haulm, to ensure a fairly dry medium for the tubers when they are maturing in a naturally moist soil, to increase the temperature of the soil and so hasten the swelling of the tubers and to lessen the virulence of the disease if it comes.

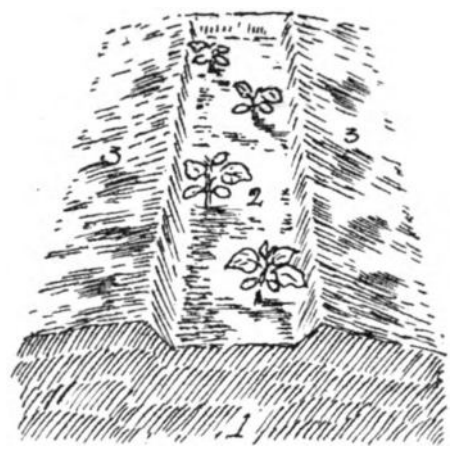
In a naturally heavy soil the ridge should be sharp to prevent rain washing down to the tubers too freely. In a sandy or a light loam the top of the ridge should be left about 5ins. wide to ensure the retention of a good percentage of rain-water. In wet spells, such as we have experienced lately, the runners permeate the moist soil freely in all directions, and if earthing-up is delayed unduly many young tubers will be destroyed when the soil is disturbed. If the soil is drawn up in good time the runners permeate the soil where there is most moisture—in the centre of the ridge—and as they are not again disturbed there is no check to growth and so the crop matures for lifting in good time.

RAISING BIENNIALS.

The main kinds that I wish to refer to here are wallflowers, polyanthuses, primroses, sweet williams, Canterbury bells and giant-flowered daisies. The very best results follow when the young plants are raised early—in June—and allowed to grow sturdily in the open border. It may be convenient finally to transplant the resultant plants in the autumn; if so, they will be strong for the purpose and pass through the winter without serious checks. If they are not finally planted in the autumn a nursery bed will be their proper place throughout the winter months. The seedlings of all these biennials may be raised in the open border now. If the border soil is stiff and not very suitable for sowing seeds in the cultivator should procure a barrowload of finer loam and of a lighter nature. This should be evenly mixed with the border soil and shallow drills opened 6ins. apart and 2ins. wide for the reception of the seeds. The latter should be sown very thinly and covered lightly, as nearly all the seeds are very small. Then the cultivator should decide as to the desirability of finally transplanting in the autumn or the following spring. In both cases it will be necessary to transplant the seedlings twice prior to the final planting. The first time at 3ins. apart and the second time at 5ins. It means a little more trouble, but the resultant plants will be bushy and sturdy

VEGETABLE MARROWS.

Usually the preparatory work for growing these plants is too elaborate. The high, dry bed is not required. Plants grown on a heap of garden refuse—decaying weeds, used potting soils and those from boxes, mixed, perhaps, with some tree leaves and, maybe, rotting manure—do remarkably well. This is simply because the plants have something substantial to root in. The high, dry bed is a failure because the thin crust of soil is not sufficient for the maintenance of the roots; the latter may enter the litter, but perish in it when the whole mass dries up, as it generally does in July just when the first embryo fruits are in flower. Through this unnatural overdryness of the soil several inches below the surface—a condition unsuspected by the cultivator—the fruits (marrows) fail to set and swell. All cultivators are not able to command a good heap of garden soil and decaying rubbish, nor its better substitute, a heap of rich



soil and rotted manure, but the majority may grow the plants as shown in the sketch. A ridge of soil 4ft. wide is made up; the centre, No. 1, is hollowed, plants are put out as shown at No. 2, with sheltering ridges, Nos. 3, 3. Some good soil and rotted manure being mixed with the soil in the hollowed portion, the plants soon grow and cover the whole heap, and the hollowed portion ensures easy watering and feeding.

HARDY CLIMBERS

These are very beautiful when properly planted and trained during their season of growth. It is an easy matter to mar the beauty of the plants at this season of the year, either by bad training and or ill-conceived pruning. It is not generally known that Clematis Jackmani makes new shoots 5ft. long before the flower-bud forms and 5ft. of young growth after that bud has developed. When this characteristic is realised it is easier so to train a plant on a wall or fence that the flowers will be evenly disposed practically all over the space and not at the top only.

That charming, effective pillar and pergola climber Muehlenbeckia complexa should be trained now so that the long, graceful shoots depend in a natural way. The beauty of the plant is spoiled if the masses of delicately grown shoots are tied up stiffly and formally. The dying and dead wood can now be clearly seen in the climbing roses and also in other kinds of climbers, and all such should be cut out at once, also weakly young shoots and stubby portions of older branches. These attentions at this season result in better formed specimens and prevent overcrowding, the latter being an evil that interferes with the due ripening of the wood retained for next year's display of blossom.

The old wood should be cut out altogether and neatly; the young, useless shoots, too, but the moderately strong branches that may be dispensed with should be cut back to within 6ins. of the base so that new shoots will take their place.

ALPINE AND HERBACEOUS PLANTS.

It is scarcely possible to deal with the raising of the more tender kinds from seeds in detail and in a short note, as really some practical knowledge of the work should be possessed by the cultivator. To sow seeds of the more tender kinds in the open ground would be an act to court failure. A cold frame or a low pit structure would answer the purpose of seedling raising and the propagation of cuttings. It is always best to sow the seeds of biennials and perennials directly they are harvested. The seeds of a thin paper-like appearance, similar to those of the parsnip, generally lose much vitality if they are kept until another year. By sowing in well drained pots, pans or boxes, or even in a bed in a frame, there is an opportunity of watching the development of practically every seedling, as these tiny specimens—especially those of the alpines—are soon destroyed by slugs, woodlice, ants and other pests. In the frame or the low pit there should be no difficulty in shading and ventilating exactly to suit the requirements of the young seedlings. The seed and seedling receptacles of the minute-growing kinds should be gently immersed and as gently withdrawn when water is needed. Surface applications of water to such tiny plants would do more harm than good. As the seeds of some kinds require a long season in which to germinate, the cultivator should become acquainted with them, at least as to kind and variety, and so have patience. GEORGE GARNER.

FORTHCOMING EVENTS.

June 24.—Royal Horticultural Society's Fortnightly Meeting (two days). Lecture on the first day, at 4 p.m., by Mr. W. J. Dowson, M.A., on "Gardening in the Highlands of Kenya Colony."

June 25.—Morley Paxton Society's Meet.

June 26.—Royal Botanic Society's Meet.

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EARLY SUMMER IN THE PYRENEES

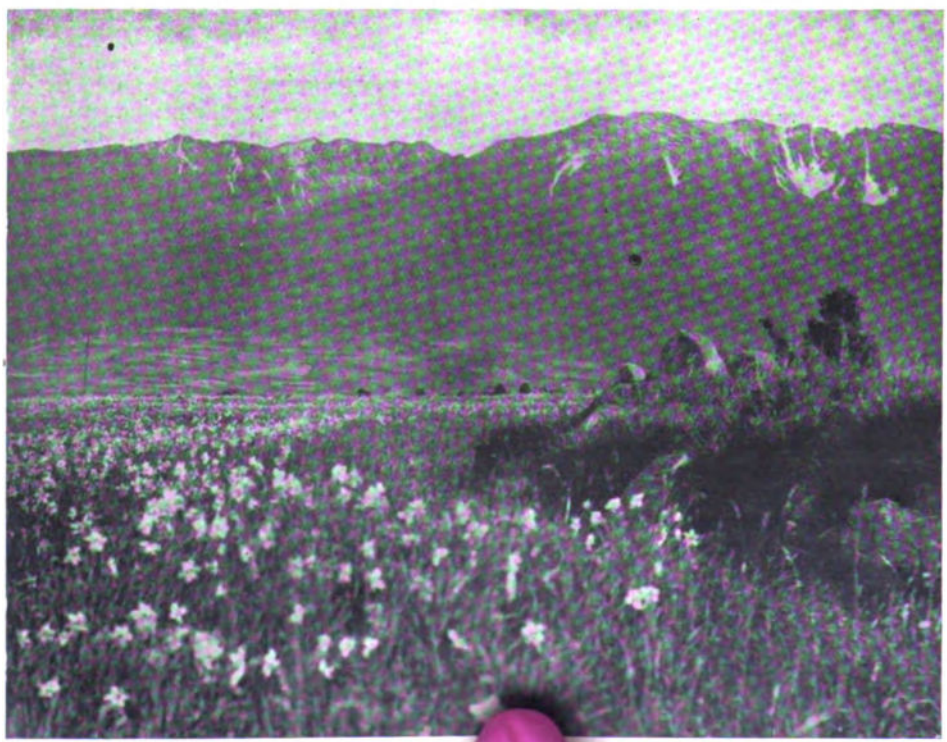
SO MANY PEOPLE HAVE BEEN ACCUSTOMED TO VISIT SWITZERLAND IN PURSUIT OF PLANTS, AND HAVE FOUND IT OVERCROWDED, THAT THIS ARTICLE MAY SUGGEST ANOTHER MOUNTAINOUS CORNER OF EUROPE FOR A HOLIDAY.

IT is odd how few English people know the French Pyrenees; know them, I mean, as they know the Alps. They may admire them from Pau or go for excursions into them from St. Jean de Luz; but we did more wisely, I think, in approaching their heights from the east, coming in from Perpignon through the beautiful plantations of almonds and vineyards on their lower slopes. We wanted to reach the higher places where we might hope to find those flowers which have pyrenaica as their second name. So we passed Vernet-les-Bains and did not leave the little train till it had wound its curly way up the gorge and emerged, breathless, but triumphant, on the open plateau where stands the highest fortified town of France — little Mont Louis No straggling allowed here! No residential streets wandering into the meadows or vaguely up the hill-sides! All is neatly and tightly packed within the compass of its solid walls and moat, and only one gateway at which to enter! We had a choice of two inns at which to stay—or thought we had until we discovered that one of them was not yet open in the middle of June! Both are very simple, neither have any view—the fortifications see to that. But our little Hôtel de France was clean, and it was pleasant while eating dinner to discuss its merits—which were considerable—with the cook, who wandered into the dining-room for a chat.

THE HIGHEST FORTIFIED TOWN OF FRANCE—MONT LOUIS.

Mont Louis was cold in the middle of June; the meadows were white with narcissi — what optimists they are! But one morning we woke to find them even whiter with a heavy fall of snow, which made the kindly inhabitants sorry for our sake, but evidently did not surprise them. What will you? If you want to see the crowd of spring beauties—the yellow globe flowers and forget-me-nots, the purple orchises and the violas making a Botticelli pattern in the tender grass, you must not grudge Old Winter having a last peep at them too.

The snow did not lie; the narcissi — or most of them—shook the weight of moisture from their petals and stood up bravely in the sunshine, while the smaller darlings, the butter-worts, the many gentians—including pyrenaica—and the saxifrages, sparkled and laughed at the edge of the rushing, swollen rivulets. One could stay long at Mont Louis; there is no climbing, but many and lovely are the walks, not only among open pastures, but through deep woods where, if searched for carefully, the sweet scented Pyrola uniflora may be found.



THE MEADOWS OF MONT L[illegible]TE WITH NARCISSI.

When we left, it was to go by train and car, driving slowly and with many pauses, to Bagnères de Luchon, via Foix. So long as one does not cross the frontier into Spain, the roads in the Pyrenees are as good as those elsewhere in France, but we were glad to have a local driver who knew the peculiarities of the hairpin corners! On our way to Foix we were shown the road leading to Andorra, but our desire to penetrate among its wild-looking hills was damped by hearing of the lack of roads and inns and the general discomfort of travelling therein. At Luchon we seemed to have returned to civilisation! A casino, even before it was opened for the season, and a large établissement for drinking and bathing suggested the crowd one would find there later, and it must be a very

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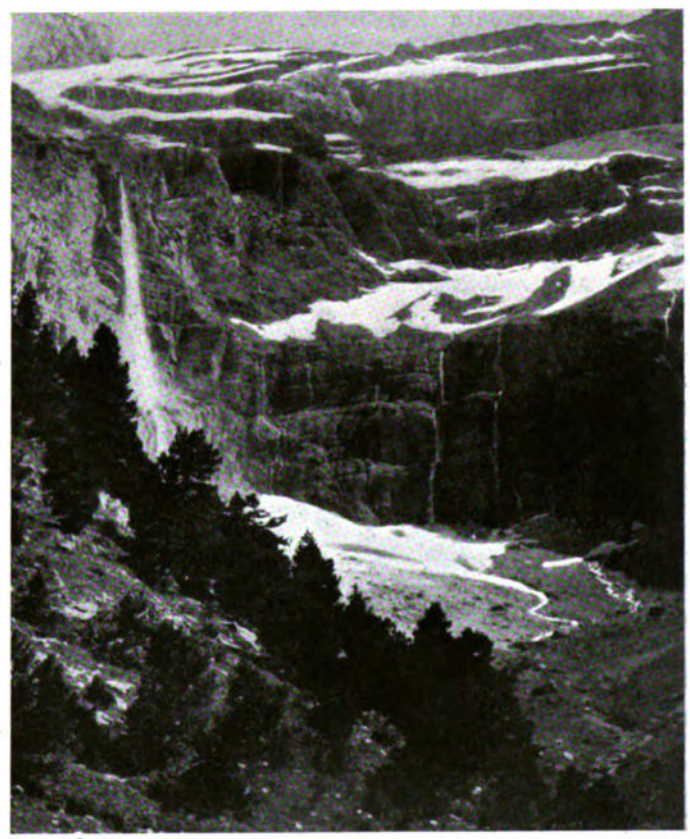
hot little place, tucked down between its steep wooded hills. But if you mount those hills you are again on the high rolling spaces of the uplands. We spent many pleasant days at Superbagnères gathering daffodils, big-flowered ranunculus and dog's-tooth violets on its grassy slopes and ridges, and looking at winding rivers far below. One of these rivers we pursued on another lovely day, up the valley of the Lac d'Oo, where the white Paradisia Liliastrum was thick in the hay fields! At the end of an hour's hot scramble up a stony path we were rewarded with the rugged beauty of the Lac d'Oo itself, high up among bare rocks and frowning peaks from whence thunders a mighty waterfall.

To motor from Luchon to Lourdes—our next stopping place—means a long day of most varied scenery and equally varied flora: after the hay fields come the woods, first the oak and chestnut, then the beech and fir, becoming more gnarled as one approaches the summit of the pass, till finally they cease altogether, and low-growing genistas and the beautiful sulphur anemone and alpenrosen are left in the sharp cold air which has so lately been laden with ice and snow. Two

THE VALLEY OF LAC D'OO.



A SECTION OF THE GREAT CIRQUE DE GAVARNIE.

such passes must be crossed and just over the edge of the first one, the Col de Peyresourde, we came on a sight of unexpected beauty: a fragment of the blue sky lying round the source of a tiny spring and outlining its course as it hurries to become an imposing river in the valley below! If the vision, on closer inspection, prove to be formed by a mass of Viola cornuta and flax it is not less surprisingly beautiful on that account; and how wonderful to walk knee deep in the blue of the sky and to gather it in your hands!

At Lourdes we merely paused on our way up again into the heart of the mountains, not this time over high passes and down on the other side, but up by train and farther up by motor and still higher by mule or on foot till the Cirque de Gavarnie blocks the way, and the highest hotel in the Pyrenees discloses its modest existence behind a rocky shoulder. Not an imposing edifice, just a little inn—at which we were the only guests—looking lovely and rather lost in its magnificent surroundings. How could any work of man look otherwise? The great amphitheatre of precipice rising to a height of 1,500ft. from its rocky floor and showing no foothold for even the most adventurous climber to ascend; rose pink and purple when the setting sun sends the shadows creeping up its face; incredibly cold and remote when the moon turns its naked rocks to steel and its snow ridges to silver; awe inspiring always, in whatever mood, and a barrier complete and impenetrable. To explore this Cirque de Gavarnie one must be a good walker; tourists usually stay at Gavarnie itself, some miles down the valley, and content themselves with coming up on mules to gaze at the Cirque while they drink a cup of indifferent coffee on the terrace of our little inn, so that no paths or resting places are arranged for them, and one must scramble and trudge in rope-soled shoes to find the lovely valleys lying to right and left of the main one, and to see the flora of this most interesting district. It is the only place in the French Pyrenees at which we stayed where the higher alpines seem thoroughly at home, or at any rate, where we could get at them. Unlike Switzerland there is no winter sport season to be considered, so there are no really high hotels; but round the Cirque de Gavarnie you may find the delicious pink stars of Silene acaulis, the white dryas, soldanellas, the sweetly scented Erinus alpinus and you may see, with a gasp of delight, the purple sprays of Ramondia pyrenaica hanging from every crack in the shady side of the great rocks. While on the floor of the Cirque itself, with foliage nearly as grey as its surroundings, perhaps the most attractive thing is Geranium cinereum with its large pink flowers so beautifully veined with purple.

It is wise to be interested in little things at Gavarnie—to peer among the rocks for the treasures one hopes to find, to spend a day now and then in some high grassy cup among the hills with a shepherd and his herd of creamy cattle for company, or to work up a real interest in the matrimonial affairs of the innkeeper's daughter! Will she, or will she not, be kind to the mule boy who brings the daily consignment of tourists up the valley. The Cirque itself is so overpowering—in some moods almost unbearably so—that it is a relief to escape its spell. But when you are far away—when you have turned your back on the mountains, and life is a question of hot pavements or dusty hawthorn hedges, any mention of the Pyrenees will conjure up a picture of a great semi-circle of snow-crowned precipices, and will bring to the ears the deep note of many waterfalls.

R. LANDALE.

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IRISES AT VINCENT SQUARE

IT was undoubtedly iris time at Vincent Square on Wednesday and Thursday, June 11th and 12th, as irises were exceptionally well shown by many firms. Messrs. Barr and Sons exhibited a very large collection, and included such well known sorts as Lord of June, Alcazar, Ambassadeur, Ed. Michel, Prosper Laugier and Ulysses.

Mr. G. G. Whitelegg exhibited many fine seedlings and such well known sorts as Alcazar, Oriflame, Prosper Laugier, Rhein Nixe and Empress of India.

Such sorts as Shalimar, Lord of June, Alcazar, Shekinah and Crusader were exhibited by Messrs. Lowe and Gibson.

Among the collection from the Orpington Nurseries were Lulworth, Iris King, Shekinah, Ambassadeur and Corida.

Messrs. R. W. Wallace and Co. had a group of irises on the floor near one of the annexes. Here were many seedlings and such sorts as Fro, Lent A. Williamson and Isoline.

On the exhibit by Messrs. Bunyard and Co. we noted Ambassadeur, Eldorado, Mrs. Neubronner and Rhein Nixe.

In Messrs. Waterer, Sons and Crisp's exhibit Lord of June, Neptune, Magnifica, Prospero and Ambassadeur were conspicuous.

From Enfield Messrs. Amos Perry sent many beautiful seedlings, among which the following were notable: Chryrogona No. 1, deep blue purple, lighter falls with silver markings; Dougbract, sulphur cream with brown violet veins; Watsenan, lilac with silver markings; Bulleygraphes, dark purple, yellow markings on the falls. They also staged many well known sorts, among which Banbo and Silver Queen were conspicuous.

In the centre of the hall Messrs. Sutton and Sons arranged a large circular group of their excellent hybrid long-spurred aquilegias.

Mr. Geo. Downer showed some magnificent spikes of his hybrid lupins.

Messrs. Harkness and Son also showed their polyphyllus hybrids. There were some very fine shades to be seen in these two exhibits.

Messrs. Blackmore and Langdon showed some fine delphiniums, including the beautiful variety Sir Douglas Haig. Other notable sorts were Blue Queen, The Alake, Lamartine and Lavanda. This firm also exhibited lupins, pyrethrums and long-spurred columbines.

Perpetual-flowering carnations and Dianthus Allwoodii were shown by Messrs. Allwood Brothers. Among the Allwoodii were many new sorts.

Mr. Engelmann also showed carnations, including such popular sorts as White Wonder, Saffron and Tarzan.

Messrs. Stuart Low and Co. also showed carnations. Here were such sorts as Topsy; Mrs. T. Ives, salmon, good for bedding; and Duchess of York, salmon, shaded carmine. This firm also exhibited their new rose, Roselandia, the quaint Nertera depressa, Bougainvillea Mrs. Butt, blue hydrangeas, Dipladenia amabilis, and Erica ventricosa with yellow tubes, E. Cavendishii and E. magnifica, pink.

Messrs. R. Bath and Co. showed irises, including Lord of June and Rembrandt, geums, pyrethrums and poppies.

Messrs. Ireland and Hitchcock showed Mascott's dianthus. This plant is a cross between sweet william Scarlet Beauty and a single scarlet carnation. The flowers are large, salmon-pink in colour and possess the scent of a carnation.

Mr. Jones again showed many fine plants of hydrangeas. Here were such sorts as Helga, with large flowers of a good rose colour; Maréchal Foch, blue, flushed rose; Parsifal, rose flowers with fimbriated petals.

Mr. F. G. Wood showed rock plants, including the brilliant scarlet Verbena chamædryfolia, Campanula glomerata dahurica, purple; and C. Bellardi, pale blue.

The only exhibit of sweet peas was staged by Messrs. Robert Bolton and Son. Two outstanding sorts were Wembley, soft bluish lavender, and Daffodil.

Messrs. Kelway and Son showed pyrethrums, among which the following were

IRIS SOUVENIR DE MME. GAUDICHAU.

THE TENERIFFE BROOM, CYTISUS SUPRANUBIUS.

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conspicuous: James Kelway, scarlet crimson; Lady Astor, white; and Mrs. James Kelway, pink.

Messrs. J. Cheal and Sons showed dahlias, including their famous Star varieties. White Star and Crimson Star were two notable sorts.

Messrs. Waterer, Sons and Crisp had a small group of rhododendrons under the clock. Here were two standards of Gomer Waterer and plants of Joseph Whitworth, plum purple. They also showed Kalmia latifolia.

Captain B. H. B. Symons-Jeune exhibited a small rockery on which the beautiful spikes of Saxifraga Tumbling Waters hung. He also showed forms of the small Viola lutea and Tulipa australis.

Messrs. Harkness exhibited their fine strain of Lupinus polyphyllus. Many beautiful shades were to be seen.

Rock plants were shown by Messrs. Maxwell and Beale. The most outstanding were Aster alpinus, Campanula Steveni nana and Primula sikkimensis.

Mr. Wells, jun., showed lupins, pyrethrums and poppies.

Rhododendrons and rock plants were exhibited by Mr. G. Reuthe.

Roses were staged by Mr. Geo. Prince and the Rev. J. H. Pemberton. Mr. Prince showed good blooms of Irish Elegance, Isobel, Allen Chandler and Irish Fireflame.

Peonies albiflora grandiflora and albiflora carnea were exhibited by Mr. F. Gifford.

Irises, lupins, pyrethrums, poppies and Verbena chamædryfolia were shown by Messrs. M. Prichard and Sons.

Poppies, primulas, irises and alpine plants were shown by Messrs. B. Ladhams.

A fine lot of lupins was staged by Mr. H. Marehan.

Pyrethrums, poppies, irises and peonies were shown by Messrs. Rich and Co.

A small ground exhibit just inside the door of Kalanchoe flamea and greenhouse foliage plants came from Mr. E. Watson.

Messrs. Gavin Jones and Ingwersen showed alpines.

Perpetual-flowering carnations, including several seedlings, were shown by Colonel Sir Courtenay Warne, C.B.

Delphiniums and aquilegias were shown by Messrs. Vigers.

The well known St. Brigid anemones were exhibited by Messrs. Reamsbottom and Co.

The New Zealand Fruit Growers' Federation, Limited, sent from Wembley many dishes of apples. The fruits were sound and exceptionally well coloured.

NEW AND RARE PLANTS.

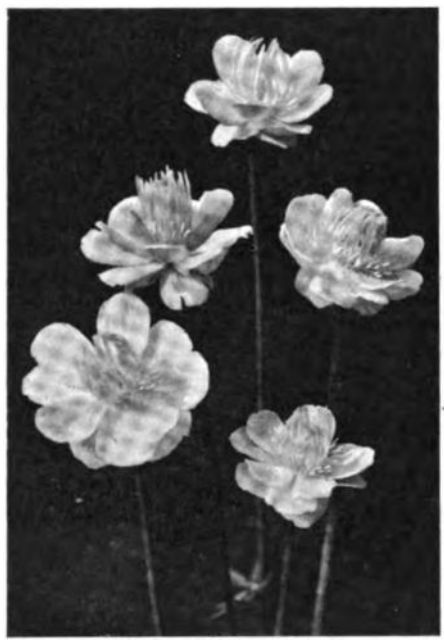
CISTUS ALBIDUS (WHITE VARIETY).—A white-flowered form of C. albidus. Award of merit. Shown by Mr. B. E. Warbury.

CYTISUS SUPRANUBIUS. — Flowering sprays of this beautiful shrub, commonly known as the Teneriffe broom, were shown. The flowers are milky white, tinged rose, and are fragrant. This shrub is native of the Canaries, and it is doubtful whether it is hardy enough to stand outdoors except in the mild parts of the country. Award of merit. Shown by Messrs. R. Veitch and Son of Exeter.

HEUCHERA ARGUS.—The pale rosy crimson flowers are very effective. Award of merit. Shown by Messrs. M. Prichard.

HYDRANGEA ELMAR.—A very well grown plant bearing innumerable trusses of blooms was shown. It is a difficult plant to describe as regards colour; brilliant rose is perhaps as near as one can get. Award of merit. Shown by Mr. H. J. Jones.

IRIS AMBER.—The name is not, in our opinion, exactly apposite. The



TROLLIUS LEDEBOURII "GOLDEN QUEEN."

flowers are clear yellow lightly streaked on the falls, orange beard. Award of merit. Shown by Mr. W. R. Dykes.

IRIS CHRYSOGRAPHES EPAULETTE.—A good rich-coloured form of I. chrysographes with conspicuous yellow reticulation on the fall. Award of merit. Shown by Messrs. R. W. Wallace and Co.

IRIS DOUGRAPHES (Douglasiana × chrysographes).—A beautiful little flower of reddish purple. Award of merit. Shown by Messrs. Amos Perry.

IRIS FORRESTII.—A good yellow species of the sibirica section. Award of merit. Shown by Messrs. R. W. Wallace and Co.

IRIS SOUVENIR DE MME. GAUDICHAU.—A tall bearded flag with pale violet standards, deep violet falls and a golden beard. Award of merit. Shown by Messrs. R. W. Wallace and Co.

PYRETHRUM MRS. JAMES LEAKE.—Clear rose flowers borne on stiff, wiry stems. Award of merit. Shown by Mr. J. Leake.

PYRETHRUM PRINCESS MARY.—Good large double rose-coloured flowers borne on stiff, wiry stems. Both the above should prove excellent for cutting purposes. Award of merit. Shown by Mr. J. W. Wilkinson.

RHODENDRON PHILIP WATERER.—A bright rose-coloured hybrid with large trusses. As a late-flowering Aucklandii hybrid this should prove valuable. Award of merit. Shown by Messrs. John Waterer, Sons and Crisp.

TROLLIUS LEDEBOURII GOLDEN QUEEN.—A deep golden orange "globe flower" which should become very popular. Award of merit. Shown by Messrs. A. M. Ladhams.

ORCHIDS

AWARDS OF MERIT.

ODONTIODA LAURA GERRISH'S VAR. (O. Brewii × O. Coronation), from Mr. R. Gerrish, Milford Manor, Salisbury (gardener, Mr. Sorrell). In form and colour this variety surpasses previous results. Segments roundly formed, thick in texture, deep crimson-red colour, except for the rose-purple labellum. The spike carried eleven flowers.

CYPRIPEDIUM GODEFROYÆ LEUCOCHILUM VAR. EDWARD MARSHALL, from Messrs. Sanders, St. Albans. One of the best forms of this elegant species, segments of unusual breadth, the sepals and petals veined and spotted with maroon-purple, the labellum cream coloured and unspotted. In past years this plant has been regarded by some cultivators as a natural hybrid, but its true specific nature is now generally acknowledged.

Groups of orchids were exhibited by Messrs. Sanders, Messrs. Cowan and Co., Messrs. Stuart Low and Co., and Messrs. Charlesworth and Co.

GERANIUM ANEMONÆFOLIUM

ALTHOUGH this noble species has been in cultivation in this country for close upon 150 years, it is still rare in gardens and rarer still in the lists of nurserymen. It is difficult to account for this, for G. anemonæfolium is not less amenable to life in our gardens than a good many others—Traversii and cinereum, for example—which are much more often seen, and it is, moreover, a plant of most singular beauty and grandeur. Further, G. anemonæfolium is an evergreen the splendid foliage of which alone might claim for it a place as a border or woodland plant in the best of company. No species is more easily propagated (by seed), and in any well drained soil it is, as I have inferred, quite reasonably hardy.

This is a Maderian perennial species which, from a short, woody stock with a large round head like the "flower" of a globe artichoke in pale green, sends up a number of handsome, palmate leaves, big and sappy and glossy green, on thick, rigid stems. These grow all winter during mild weather and throughout the spring, until the plant, well matured, presents a dense mound of foliage some 3ft. across and nearly as high. Well above this in the later spring stand the many-branched flower-stems, which, like those of the leaves, are covered with iridiscent fur. Each extremity ends in a pair of flowers of a most attractive, full-toned, yet clear rosy crimson which darkens to a ruby eye. (The only other flower which I can recall to which the blossoms of G. anemonæfolium might be likened in their peculiar colour and texture is that of Oxalis floribunda.) These beautiful flowers are yielded in extraordinary abundance throughout the summer and often well into autumn. We find this splendid geranium long-lived in any free soil. It is, I think, the better for a little shade from the noonday sun, and it is as well to have a few large stones placed around it in windy situations. N. WALES.

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THE PARIS SPRING HORTICULTURAL SHOW

BY CHARLES LERAY.

ABOUT the same time as the Chelsea Show, there took place in Paris, from May 23rd to June 1st, the great French Spring Horticultural Show. The site is the same as in pre-war days: the "Cours la Reine," along the river Seine, close to the well known Champs-Elysées. The duration is extended, but the growers make up for it by exhibiting mostly plants grown in pots and replace withered cut flowers whenever necessary with fresh material. Hydrangeas, roses, rhododendrons, annuals, biennials and vegetables were great features.

As is usual in French, and most of the Continental shows, the different exhibits were arranged on the ground, with little or no staging, so as to give the whole scene an harmonious and natural aspect. Hardy plants were few owing to the fact that they prove more satisfactory under the English climate and therefore are not so popular in France. On the other hand, annuals and biennials were numerous and particularly brilliant.

A few words on the main exhibits may prove interesting.

Messrs. Vilmorin-Andrieux and Co., of Paris, had a great and important display (see foreground of illustration) of annuals, biennials and perennial plants in the shape of a formal garden with grass or gravel paths. In side beds were many irises, for which the firm is famed, together with sweet peas from outdoor planting and numerous vegetables of the very best quality.

Next in importance came the exhibit of Messrs. Moser and Sons, of Versailles, consisting of quantities of hybrid rhododendrons, many of them large specimens 8ft. to 10ft. in diameter, along with aquatics and roses of all classes. Very brilliant in their stands were the new pernetiana roses, Reims and La Champagne, shown in great masses and to the very best advantage.

Messrs. Croux and Son, of Chatenay, were very close competitors also, with hybrid rhododendrons of large size—several of which received awards as novelties—and Azalea mollis hybrids of most brilliant colouring, the whole making a grand display.

Hydrangeas were very brilliantly represented in the stand of M. Mouilliere, of Vendôme; this exhibit consisted of large masses of Maréchal Foch, bright pink, turning under the usual treatment into a lovely blue; Mrs. H. J. Jones, a novelty with bright pink flowers of large size; Mme. Ph. de Vilmorin, another novelty with bright pink flowers shaded green, and so on. M. Cayeux, of Le Havre, another great raiser of these plants, had Ginette, a new large-flowered white; Sensation, pink shaded purple with individual flowers 3ins. across; Matador, very deep pink, etc.

Roses, besides those of Messrs. Moser and Sons already mentioned, were mainly pot plants, from Messrs. Defresne and Leveque, Parisian growers; the former including the curious and beautiful variety Eugene Barbier, the first H.P. hybrid of yellow colouring ever produced. Messrs. Nonin and Son, of Châtillon-sous-Bagneux, staged many varieties of interest, especially their new Wichuraiana hybrid, Châtillon Rose, of pink colouring, besides novelties of other growers. Buisson d'Or, a hybrid of Mme. Edouard Herriot and a form of Rosa lutea, came from M. Barbier, of Orleans, and created a sensation owing to its distinct and showy appearance.

Messrs. Cayeux and Le Clerc, of Paris, concentrated all their efforts on irises, of which they had a fine show. Their own varieties, Peau d'Ane, reddish; Le Vardar, lilac pink; and Gloriæ, violet, were worthy of all praise. The same firm showed several beds of annuals.

Hardy plants came from Messrs. Ferard and Laumonnier, of Paris, in some numbers, but their setting might be criticised, at least by an Englishman. An award of merit was granted to Geum Lady Stratheden, a valuable plant, which is being rapidly propagated in France.

Pelargonium zonale, as usual, was the speciality of M. Poirier, of Versailles, the veteran grower of that plant. Marquise de Moys was a fine pink and Mme. Gaston Beaumont a rich salmon. M. Chaubert, of Orleans, showed a good novelty of his own in Pelargonium grandiflorum Mirobolant, of bright pink colouring. Begonias, as usual, were shown by several growers.

Among the stove and greenhouse plants the orchids, though comparatively few, included a good many interesting specimens. The prize for the best orchid of the Show went to Lælio-Cattleya Ras Taffari, a showy hybrid of pink colouring, labellum violet purple. Masdevallia Harryana, of curious strawberry red colouring, Brasso-Lælio-Cattleya Jupiter, pink, labellum pink and purple, large flowers; Cattleya Mme. Auguste Gauthier, a new white hybrid, were also worth noticing. Gloxinia allied to Dircæa macrantha, of bright scarlet tint, came from M. Vallerand, of Taverny; also Begonia Rex. These last plants were also shown in excellent condition by M. Chantrier, of Mortefontaine, together with a beautiful collection of Caladiums and that rare palm, Pelagodoxa Henryana, native of the Marquise Islands. Carnations were few and all with the split calyx generally found on the Continent, so little need be said about them.

Ornamental trees and shrubs, including topiary and fruit trees were sent, as usual, from different quarters and were staged in the outside gardens. Fruit trees were finely represented in the exhibit of M. Nomblot-Bruneau, of Bourg la Reine, who had forced cherry trees, plum trees, etc., and trained fruit trees of all kinds and shapes. Forced fruits were shown in fine condition by M. Parent, of Rueil, who had first class Amsden and Halle's Early Peaches, plums, raspberries, and so on. In the vegetable exhibits, several bunches of asparagus were conspicuous, one of which weighed over 15lb. and was formed of thirty-one stems. It was a product of Argenteuil, the home of the asparagus industry, near Paris.

PART OF THE MAIN TENT AT THE PARIS SPRING SHOW.

In the sundries section, important as usual, automatic watering appliances were shown in quantity, some of which, intended for market growers, send artificial rain as much as 150ft. wide and run automatically to and fro in the garden on rails. Smaller apparatus, all built on the rotative system, with long revolving arms, intended for lawns, or smaller gardens, and watering about 30ft. to 50ft. wide at a time, were also on view. These appliances are the outcome of the abnormally dry summer of 1921, when many growers were brought next to ruin owing to their inability to give sufficient water to their crops in a cheap and practical way.

CATALOGUES RECEIVED.

Messrs. Barr and Sons, 11-13, King Street, Covent Garden, London, W.C.2.—Vegetable Seeds for June Sowing; Flower Seeds for the Rock Garden.

The Key Fertilizer Company, 408, King's Road, Chelsea, London, S.W.10.—Fertilizers.

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CORRESPONDENCE

SOLDANELLAS ALPINA AND MONTANA.

SIR,—*A propos* of Mr. Stuart Thompson's reference (page 389) to my note regarding Soldanella montana (page 344), Farrer, in his "English Rock Garden," gives the distinguishing differences for S. montana as "singleness of tuft or clump" and "leaves usually with a certain amount of vague scalloping at their edge." He also says S. montana is "a species that has so undeservedly been obscured by its inferior cousin that in most popular handbooks . . . there is no mention of it at all, despite its unquestionable regality in the race." In Wagner's "Deutsche Flora," S. montana is stated to have rounded leaves with shallow notches, flower stalks downy with short glandular hairs, stems at flowering time 15cm. high with three to ten flowers; habitat shady woods. I have a plant that I take to be S. montana which, from a gardener's point of view, is very different from S. alpina, as, besides its extra size, it has remained one tight clump and every year produces its flower stems very freely all in a bunch, instead of being spaced out in the same way as S. alpina. This spring suited my soldanellas splendidly, and they produced larger leaves than I have ever seen them do before, S. alpina being up to 1½ins. across and the supposed S. montana up to one and eleven-sixteenth inches across. —R. B. C., *Northumberland*.

DAFFODILS WHITE SENTINEL AND MITYLENE.

SIR,—Even now an error remains in Mr. Jacob's correction as to daffodil raising (page 411). The two very beautiful Leedsiis in question are *White* Sentinel (not *Sentinel*) and Mitylene. It is as well to be exact.—F. HERBERT CHAPMAN.

DEPTH TO PLANT CROCUSES.

SIR,—In reply to "Crocus," (page 344), I have burrowed down to our corms in several places and have found that in every case the Dutch have about 4ins. of soil over them. The species like Sieberi, Tomasinianus, etc., have rather less. I have just consulted some text books and find that they advocate varying depths from 3ins. to 5ins. Nothing could be better than our beds of Maximilian, so "Crocus" may safely increase his depth if he wishes to do so. I would suggest Hero as a very dark purple. It is the darkest in our collection. The colour is solid and shining.—JOSEPH JACOB.

STATICE PROFUSA.

SIR,—This represents a class of plant that was grown with much care and in considerable numbers by the gardeners of the gentry towards the end of last century. Plants were raised from cuttings and from seeds. Indeed, S. profusa was a hybrid between S. puberula and S. macrophylla, both from the Canary Islands. I have seen a plant of S. profusa that measured 4ft. across, though only about 1ft. high or less. Instead of being divided, it was put into larger and larger vessels till it reached the above dimensions. It must have been many years of age, for this class of plant does not multiply fast. Plants of it and some of the other old favourites were shown by Messrs. John Forbes, Limited, at Chelsea. The statices had much to recommend them in private establishments, because if they did not grow rapidly they were very durable in the conservatory and greenhouse. It took some time for the flowers to expand, after which the partly blue calyx remained in perfection for many weeks together, and the plants were not removed from the show house till the calyx became discoloured with age. The flowers were quite suitable for cutting, or for drying as everlastings, but cut flowers were not used in such quantity in the olden days as they are at present.—HORTULANUS.

GRAFTING PROBLEMS.

SIR,—A year or two ago I wrote some correspondence on experiments in grafting pear trees. Readers interested in fruit may

PEAR DOYENNE DU COMICE UNGRAFTED.

remember that I mentioned the case of a grower who put grafts of Glou Morceau on every third or fourth tree of a flat of Comice, with the object of pollinating the flower.

The surprising result was that the grafted trees began to show better crops, before the grafts had time to produce bloom, showing a strong influence long before cross-pollination was possible.

We repeated the experiment on a small scale with similar results. We have now two

DOYENNE DU COMICE GRAFTED.

trees of Comice side by side of the same age, and the one in which we inserted three or four grafts of Glou Morceau has at least five times as much bloom as the other. Not being Woburn pupils, we have not counted the trusses, but the difference is so striking as to be obvious to the most careless observer. The most curious point is that the improvement is not confined to the grafted branches, but the whole tree is pretty well equally covered, while the ungrafted tree is only sparsely flowered.—C. E. PEARSON.

GARDEN LABELS.

SIR,—The naming of plants is a vexed question, and labels, like lawyers, are necessary evils. I must frankly own there is a great deal to be said in favour of the numbering system as advocated by the Rev. Edward S. Lyttel. The plants in my garden, on the other hand, save for stray new-comers, have to live without labels, sometimes they don't even live then. It is all but impossible to have a garden beautiful if it is plastered over with conspicuous tally-pins; then it becomes more or less a botanical collection. No more than you have a garden with a greenhouse blazing in full view—for example, the Palm House at Kew—scintillating in all bulbous, bloated ugliness. Why, surely the illustration Fig. 2 on page 111 is of no decorative merit, and from a botanical point of view only tends to lead to confusion. Far better arrange the plants in rows in the rockery, if you will, 9ins. apart. It could not be worse than depicted, and the plants would be more readily distinguished.

Mr. Gerald Hillier and "G. G." seem to be viewing the label question from different points of view. The former I take it from a business point of view, where names may be indispensable for his clients, but this is not applicable in the same degree to private collections. [For example, he mentions "legible labels on the higher part of the rockery garden, so that anyone standing on the path could decipher them." In a private rockery garden of any size this sort of disfigurement is quite out of the question. Why, one's friends would be better to go round armed with a telescope.

Your correspondent "G. G." talks about his preference for large labels, and petty economy in labels, much preferring the former, neatly and plainly written. I rather fancy the advertisements of liver pills, etc., which disfigure the country at the railway side while travelling north from London must appeal to him. They are quite plainly written, and I presume neat and only in proportion to their surroundings. Nor can I understand why "labels bearing numbers which are duplicated in a private book" should be "an eyesore and vexation to the visitor." Bless my heart, they can hardly be seen among the plants, but that, however, may be their failing. I grant "G. G." that, as mentioned by the Editor, in wet weather the book is a little awkward, but I will endeavour to point out some of the advantages of using a number. Besides, a dirty wet day is not everyone's choice to meander about and enjoy a garden. Again, "G. G." says "the Rev. Edward Lyttel's system is a laborious one." Let us see. He stamps the required pieces of zinc, large or small to suit the situation, with numbers, and opposite the same number he writes in his catalogue book the name of the plants and inserts the numbered piece of zinc beside the plant. That's all. This label lasts indefinitely and can be used to name any other plant, of course the name in his book opposite that number being altered accordingly.

Now for one of Mr. Hillier's labels. "After the names of the plants have been stamped on the lead [the chances are ten to one, some of the letters upside down, certainly all higgledy-piggledy, for this stamping is an acquired art] the labels are rubbed over with a rag smeared in turps [doubtless the rag cannot be found and the bottle containing

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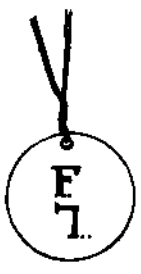
the turps will either have been broken or upset] and polished with a dry scrubbing brush [this is an article which can disappear in an amazing manner] then the letters are filled in with enamel paint [doubtless the lid will have been left off the enamel paint and it is hard and dry with possibly a dead mouse in it] a pointed stick being used for this purpose [this is certain to have disappeared, and another must be made] and such a label will last for three years." I really should have thought that after all this trouble it would have lasted throughout eternity. I hazard the opinion that if an ordinary paper garden label be rubbed over with white lead with the forefinger (which latter does not often go amissing), and the name immediately written in pencil and tied or nailed to a stick, it will last for some four years.

I must really congratulate "G. G." on having read for forty years and never having read weaker arguments than those advocated by our mutual friend, the parson. As he has evidently never tried the numbering experiment, and I even question if he has grasped the idea, he is but ill-qualified to write so dogmatically on the point, and in doing so he might almost have favoured readers with his full name. Mr. Hillier was quite willing to be "hauled over the coals" for his remarks, and I presume I will require to stand a good deal of "snash" for my views on the subject, though I trust the Rev. E. Lyttel will, like a sportsman, come to my assistance.

Is it not possible "G. G." has been emboldened by the Editorial note in your issue of April 12th, which evidently has been written under a misapprehension, to a certain extent at least? It is only a strong man who can own defeat, a weak man is never wrong, and as our Editor is of the former class, we may safely await his further mature deliberations. As already indicated, I have used the numbering system for many years for my "rhodos," and find it works most admirably, and doubtless it would do equally well if applied to border plants.

The following is the method employed. Small round discs of lead are stamped out the size of a penny piece and about the same thickness. A hole is punched near the edge, through which a light copper wire is passed to be attached to the shrub, giving it a few twists to keep it in place; then with a punch the required number is struck on it and above is marked the first letter of the rhodo's name, as per sketch herewith.



This is entered in a small handbook with the letters of the alphabet at the side, and on turning to F.7, it reads: "Falconeri, bought from Reuthe, December, 1917, price 5s. Blooms in May, rather tender, leaves large and magnificent, but flowers disappointing, plant shaded from morning sun and give winter protection." Should the making and stamping of the discs be too much trouble, then arrange with your seedsman to do so. They are much less expensive than stamping long flower names, such as Gypsophila paniculata flore pleno. The discs are better to be fixed on a stout branch and, if possible, where it forks, thus preventing slipping down, and it can be more loosely tied, as also always at one side of the shrub, be it north, south, east or west, thus making the disc more easily found. The reason for putting the first letter of the name on the label is that it helps to remind one of the name of the plant, also if you are from home and a friend asks you if you can grow Falconeri or have Falconeri, you instantly turn to the letter F and read your notes on No. 7 and its behaviour, if you have it, or, if not, you can perchance give it a trial, which thus saves searching through a long list of numbers for your plant. In your own grounds a friend armed with your rhodo. book has no trouble in identifying the plant, and from the book finds where it was bought, the price, its time of blooming, its tenderness or otherwise, its requirements, and can judge from these if he ought to try it or not. If you happen to be from home your gardener has only to look over his copy of your book and see which plants require protection. It is quite impossible to recollect all these things without any note of them. All this clerical work, so utterly opposed to the idea of a garden, is kept in the background, but works wonders all the same.

No; I think if "G. G." considers the matter again carefully, he will find there is some sort of method in the madness. The promoter of the Daylight Saving Bill was jeered at for years, yet many a man has had a statue raised to his memory who had less reason to deserve it. Pray do not let "G. G." go away with the idea that he is going to be called upon to subscribe for a statue to the Rev. Edward Lyttel. That would be going to the other extreme according to JOHN A. HOLMS, *Formakin, Bishopton, Renfrewshire.*

A PORTION OF THE LARGE PATCH OF DAPHNE CNEORUM.

A WONDERFUL PROFUSION OF DAPHNE CNEORUM.

SIR,—I enclose a photograph of Daphne Cneorum growing in our garden which may be of interest. There is a smaller clump than that illustrated which is about 5ft. in diameter, and is from three small plants brought from Devonshire in 1915. It is in the hottest, sunniest and driest part of the garden. From these three plants about a dozen layers were taken the following year, and these have produced the larger patch, which now covers an area of about 80 sq. ft. This large patch is partially shaded by a large apple tree. There is no lime in the soil, and no peat or leaf-mould has been added except a little of the latter just on the outer edges where the clumps are encroaching on the paths. There are plenty of large flattish stones among the plants, which apparently they like. During the 1921 drought I took great pains to keep the plants always moist, but before that neither clump received much attention in this or any other way. I have planted several more clumps, all of which promise to do equally well. One of them, from six cuttings taken in my Paris frame the year before last, is looking extremely healthy and throwing up a mass of young shoots. This one is in the rock garden, the soil of which is largely composed of mortar rubble. A delightful feature, which is only noticeable in large clumps like these, is that the plant never looks untidy. The flowers, when dead, hardly shrivel at all, and seem to be hidden and pushed off by the numerous young shoots which spring up round each flower head. All one notices is that the sheet of pink gradually changes into a thick mass of young green shoots.—H. S., *Bristol.*

RHODODENDRONS FOR AMATEURS

THERE is no group of hardy plants about which public interest has increased so much in recent years as rhododendrons. Soon after the middle of last century they began to acquire a standard place in gardens as about the most dependable of evergreens that combined fine foliage with a noble blossoming. But in those days the word rhododendron did not mean very much; nothing more, in fact, than a few species and a comparatively small number of easily grown hybrids raised from them. One might in a fair-sized garden then have grown every known rhododendron without difficulty. Even when the species found in the Himalaya and introduced by Sir Joseph Hooker in the early "fifties" had attained maturity the situation had not altered much. Matters have changed to-day. The botanical exploration of Western China, Tibet and Upper Burma has created a very different situation. It has resulted in the introduction to gardens of hundreds of species new to science and in the exhibition of the genus in many entirely new forms of growth and leaf and in colour of flower. With this enormous accretion of material the cultivation of rhododendrons as a whole is no longer the simple matter it was in our grandfathers' time. In these days anyone who wants to grow a really representative collection is confronted by a number of problems in satisfying their needs.

Except for the great works by Mr. J. G. Millais, which are too sumptuous and too expensive for the majority of us, no book on rhododendrons is available which can claim to be up to date. There was therefore a great need for a work on this genus, published at a price within the means of all. All those who take an interest in rhododendrons are to be congratulated that the task of producing such a work was undertaken by Mr. Cox. In the rhododendron

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world he is known as one who has made a special study of these fascinating shrubs, who has seen them growing in their native wilds, and who has grown them in his own garden. To these qualifications he adds that of an enviable literary gift and the faculty of marshalling his facts in a most interesting way.*

In his introductory remarks on the genus the author states that the central home of the rhododendron almost certainly lies in that area where Tibet, China, Upper Burma and Assam meet.

> If you can imagine that area to be the palm of a very large hand, the Himalaya will act as the thumb stretching to the west, the Irrawady-Salween and the Salween-Mekong divides as very definite first and second fingers running north and south. The third finger is the Mekong-Yangtze divide . . . while the little finger is lost in a tangle of contorted ranges stretching out through Hupeh, Szechuan and the Tibetan Marches.

Mr. Cox then develops a very interesting and, to my mind, satisfactory theory explaining how the progeny of a rhododendron situated originally on the palm of the hand have gradually spread their several ways down the fingers and, encountering differences of soil and climate, have in the course of, no doubt, thousands of years gradually acquired differences in habit, leaf and colour of flower, yet have each retained unmistakably many of the characters of the common ancestor. This theory is put forward to account for the extraordinary multiplicity of species, or forms, or whatever one likes to call them, found in this great rhododendron region, and at the same time to explain the close relationship many of them palpably bear to each other although their native localities are now so widely separate. In his review of the species the author has adopted the wise and convenient plan of assembling and discussing them under their various groups or "series." Thus we get the Fortunei series, the barbatum series, neriiflorum series and so on.

Mr. Cox's book is intended more particularly for amateurs and for people who are beginning the cultivation of rhododendrons, especially those beginning in a small way. It is written, consequently, in simple, untechnical language and, while it deals very fully with cultural matters, it makes no claim to be a comprehensive review of all the species. That, indeed, would not only be impossible in a work of this size, it would be undesirable for the class of reader the author has in view. In these days the number of hardy trees and shrubs in general, and of rhododendrons in particular, that are available to cultivators is so great that there is nothing the beginner or the small amateur so much desires and needs as an indication of the kinds he had best commence with. In this book he will find carefully chosen lists of rhododendrons of various sizes and for various places. Greatly daring, Mr. Cox has even ventured to enumerate the twelve best species. He tells us frankly this list represents his personal predilections and that possibly no one else will agree with him as to the whole twelve. I suppose to get as near as possible to a solution of that problem one ought to institute a kind of plebescite among rhododendron growers. Personally, I would displace auriculatum from his list in favour of Aucklandii. But for some reason Aucklandii (or Griffithianaum) gets scant notice in this book. Yet it has played a great part in the evolution of the best garden hybrids. In the list of species suitable for rock gardens, too, I would certainly have put in impeditum, which for neatness, hardiness and freedom of flowering is not surpassed.

Beginners will find an extremely well chosen list of fifty to sixty kinds of hybrids, with information as to the hardiness of each, colour of blossom, time of flowering, etc. As garden plants these hybrids are almost invariably satisfactory, being easily grown and having little of the waywardness that unfortunately many of the true species display. Personally, I believe the beginner will do best to make a choice from this list of hybrids and put his main reliance on them, especially if he is not fortunate enough to have his garden in the south or west. He may be sure they will not fail him. At the same time he should, with the aid of this book, gradually feel his way among the species, the best of which have an air of distinction and breeding few hybrids seem able to equal.

The author is to be congratulated on producing a very useful and charmingly written book, interestingly illustrated by reproductions from photographs, admirably printed and bound and, what is too rare among gardening books agreeably free from errors in the spelling of plant names and similar minor blemishes. W. J. B.

* "Rhododendrons for Amateurs," by E. H. M. Cox. (London, *Country Life*, Limited.) Price 5s. With illustrations.

GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Turnips.—After this date turnip seed may be more liberally sown, and with every chance of success, providing the fly is kept at bay during the seedling stage. Sow in lines 1ft. apart, and well thin the seedlings directly they are large enough. Soot and lime sprinkled along the rows will generally ward off the fly.

Broccoli, etc.—Every opportunity should be taken during showery weather to put out broccoli, kales and savoys. Seeds of small varieties of cabbage, and coleworts may be sown, and these will furnish good heads later on. Seed of lettuces, radishes, etc., ought also to be sown.

THE FLOWER GARDEN.

Aquilegia glandulosa.—This is a splendid columbine for the rock garden, and may be raised from seed. It was seen in fine form at the recent Chelsea Show, and the sapphire blooms with white centres were most attractive. The seed can be raised in a cold frame and the seedlings should be transferred to their flowering quarters while quite small.

Lupins.—The shrubby Lupinus arboreus has a tendency after a few years to decay, the result being rather unshapely specimens. To remedy this, a fresh batch of plants may be raised from seed, or cuttings can be rooted just after the flowering period. Select short-jointed shoots, and if inserted in sandy soil they will form roots if placed in a hand-light or cold frame. Of the herbaceous varieties every gardener should make a point of rearing some of the fine pink forms which have been frequently shown this year.

Brompton Stocks.—During the next few weeks seeds of Brompton stocks should be sown to produce a display in the spring and early summer months. It may either be sown outside or in a cold frame, but if the latter is chosen the lights should be dispensed with directly the seeds have germinated. When the seedlings are large enough, transfer them to their final quarters if the soil is light and well drained, but where it is of a heavy, wet nature, it is better to winter the plants in a cold frame. A reliable mixed strain will give excellent results.

VEGETABLES UNDER GLASS.

Cucumbers.—The plants put out in the early spring having produced good crops will have ceased to be profitable, therefore should be removed at once. Wash down the house and replace the old soil with some turfy loam. When this has become warm new plants may be set out, a distance of 3ft. between each plant being ample. Plants in full bearing will be benefited by an occasional top-dressing of loam, and a little decayed manure. It is more beneficial to afford light top-dressings at short intervals, than to give a large quantity of soil at one time. A moist atmosphere is essential, and about three or four o'clock in the afternoon the house or frame should be thoroughly damped down with the syringe or watering can and then closed. White fly should be held in check by vaporising the house with a reliable fumigant. Continual warfare should be made on this pest or the plants will be ruined.

Tomatoes.—Plants in pots that are producing a crop will take copious supplies of water, and it is necessary for the roots to be kept more or less moist. Until the fruits begin to colour, liquid manure, and an occasional sprinkling of some fertiliser may be given. Other plants in borders will be less trouble, and will produce a better crop. Remove all side shoots as they appear and make the main shoot fast to the supports.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Jerusalem Artichokes should, like the potato, have the soil drawn up on either side of the lines. This earthing-up is sometimes done in the case of broad beans and also to lines of peas before the supports are placed in position.

Celery.—This vegetable when grown on heavy soil may not always give satisfaction. In such cases I advise not growing in trenches. By the following method good plants can be grown: Lines should be marked out for the

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plants and grooves made. The soil in the grooves should be turned over and leaf-mould, rich potting soil or well decayed manure incorporated with the soil as digging proceeds. The plants should be set out on the prepared lines and when sufficiently grown be neatly tied and blanched by having the soil banked up on either side of each row. One great advantage of growing celery without trenches is that the plants are more easily got out from the soil when required for use.

Lettuces of the Cos type should be lightly tied up with matting in order to assist in the blanching of the inner leaves. Seedlings should be set out in lines marked off at 1ft. apart on any spare ground, or they may be set between the lines of Brussels sprouts. Well water after they are planted, and occasionally afterwards—if the weather is dry—until they become established.

Peas.—On light soils where crops suffer in dry seasons it is advisable to place a mulch of farmyard manure along each line. This mulching should be done after the ground has been well moistened by rain.

Spinach.—Spent crops which have been growing between lines of peas should be cleared away. This will allow of a freer access for pod picking when the peas are ready.

THE FLOWER GARDEN.

Carnations.—Where the buds are clustered together, as they usually are, thin them out. The buds left should be so placed that 6ins. or more of stem shall be obtained when cutting the flowers.

Seed Sowing.—Seed of Canterbury bells and the chimney campanulas are best sown in boxes containing medium fine soil and placed in a cold frame. Other seeds to sow in boxes include double daisy Firefly, polyanthus Munstead strain, from which many choice colours will be obtained, and violas. The following may be sown on the open border in lines drawn out at 1ft. apart: delphiniums, Alyssum saxatile and sweet williams.

Thinning Seedlings.—Hardy annuals should be well thinned out so that the remaining plants will have sufficient space to develop and give of their best. Seedling wallflowers should be set out 6ins. distant from each other in lines 1ft. apart.

THE HARDY FRUIT GARDEN.

Apples.—This year the trees have borne a wonderful profusion of blossom, and now the fruits should be properly set. Where overcrowded they should be well thinned, so that fair crops of good-sized apples will be obtained, which is more to be desired than a large quantity of small fruits.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Heeria elegans.—This dwarf trailing plant is very useful for furnishing small hanging baskets, as it produces large rosy red flowers in great profusion during the summer months. It succeeds quite well in an ordinary greenhouse, and is easily propagated by means of cuttings at any time. The cuttings root freely in sandy soil if placed under a bell-glass in a cool house.

Rehmannia angulata if treated as a biennial is very useful for conservatory decoration. Plants raised from seed sown at this time will flower towards the end of May next year. These plants also have the merit of flowering for many weeks and when young may be used for the stages; while, as they increase in height, they are useful for furnishing the beds. Seed should be sown at this time in a cool greenhouse, and their subsequent cultivation carried out entirely in cold frames. The plants should be wintered in 48-sized pots and early in the New Year transferred to their flowering pots, which may be 6ins. or 8ins. in size. This plant grows freely in any good potting compost. There is a beautiful white-flowered variety in the trade, while the type varies a little in colour, thus seed should be saved from selected plants.

Hydrangeas.—Cuttings should now be secured from the best varieties. Most of the newer sorts have the advantage of flowering with greater certainty and freedom than many of the older varieties of H. Hortensia. Cuttings are best inserted singly in small pots, and they root readily in a close case with slight bottom heat at command. When potted on into 48-sized pots they should be stood in cold frames, in which they may be wintered, just protecting them from frost. With strict attention as regards watering the young plants can be flowered in this sized pot, but it is advisable to put a portion of the stock into slightly larger pots. For large specimens the plants should be potted on after they have finished flowering. Blue-flowered plants are always greatly admired, and this colour may be produced by adding iron filings to the potting soil. There are proprietary preparations sold, which if used according to instructions will produce the desired blue shade. Generally these preparations must be used right through the cultivation of the plants, and pink-flowered varieties are necessary for this purpose.

Hippeastrums.—Seed that has been saved from selected plants should now be sown in pans containing light soil, standing them in a warm house with a temperature of 60° to 65°. When large enough to handle the seedlings should be pricked off into pans, using a light rich soil at this stage. Afterwards, when large enough, they may be placed singly in small pots, or planted out in a bed with bottom heat at command. Whatever method is adopted, the plants should be grown on without drying off until they attain flowering size. Old plants should be encouraged to make all possible growth by feeding with diluted liquid manure and some approved artificial fertiliser.

Gilia coronopifolia.—Seed of this beautiful biennial should now be sown in a cool greenhouse. When large enough to handle, the seedlings should be pricked off into pans containing light soil and later on transferred to small pots. Well grown plants should be wintered in 48-sized pots, and during the winter should be kept on the dry side and well up to the roof-glass in a light, airy greenhouse.

Mignonette.—A sowing should now be made in a cool house or in cold frames in order to produce plants for flowering in the greenhouse during the autumn. The seed may be sown directly into the flowering pots if so desired. Firm potting and lime in the soil is essential for success.

J. COUTTS.
Royal Botanic Gardens, Kew.

ANSWERS TO CORRESPONDENTS

THE FLOWER GARDEN.

Daffodil Prospector (K. W.).—The rich deep colour of this shapely trumpet variety constitutes its special charm. It is an excellent doer and, what is such a valuable asset, it increases freely and makes fine bulbs. It should do well in any garden, but it will probably do best where the soil is on the light side and well drained.

FRUIT GARDEN.

Cox's Orange Pippin Apple (O. S., Torrington).—Our correspondent may plant any self-fertilising apple near the Cox's Orange Pippin. King of the Pippins is a good variety for the purpose, flowering at the same time, and its fruits, too, are richly flavoured, being, in this respect, a suitable companion to Cox's.

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TREES AND SHRUBS.

Lime Tree Leaves (E. W. M.).—The curious growth on the leaves is caused by one of the gall-producing insects. The particular insect attacking the leaves enclosed is known as the "nail-gall." However, these pests do not appear to do much permanent injury.

Flemish Red Cherry (Felsted).—The birds do not eat the fruits of this variety while there are sweeter ones near. But in very hot weather they will attack the fruits. Birds eat the green fruits of strawberries in hot weather, as well as the ripening ones, and the green specimens are almost tasteless except for their acidity.

The Flowering of Hollies (L. D. G., Bagenalstown).—Holly trees are flowering with exceptional freedom in many gardens this year. The actual flowering will not distress the trees to any great extent, the harm will be an abundant production of berries on the female trees. The male and female flowers being usually borne on separate trees, it is the berry-bearing specimens which will require special attention. Assuming that both male and female trees are grown, the former being necessary for pollination, if not considered too big an undertaking with such old trees, it seems desirable to suggest the removal of a goodly proportion of the berries, unless the trees are very healthy. Mulching with old decayed manure and liberal supplies of water will be beneficial, as even during heavy rains very little finds its way through the foliage of densely-topped hollies. Failing well decayed manure, water with liquid cow manure, or apply bone meal, hoeing into the surface and water liberally several times. These are suggestions which can be adapted to local circumstances.

MISCELLANEOUS.

Various Questions (T. L.).—1, Reddish purple; 2, Ordinary garden worms not harmful; 3, Aquilegia flabellata; 4, Primula Wardii; 5 (a) Cotula squalida (feathery), (b) C. dioica.

Peat Moss for Mulching. (J. F. W.).—Peat moss, in the form of a mulch, would not be harmful to the plants referred to by our correspondent (Violas, Lobelia cardinalis, phloxes, and Nicotiana affinis). It is neat in appearance and conserves the moisture, which is the main object. Any mulch that "cakes" interferes with the passage of air which always follows water into the soil, and "caking" material prevents water entering evenly.

Names of Plants.—(E. M. R.).—Lonicera Maackii.——("Regular Reader," Windermere).—Ulmus campestris antarctica. Sow seed of winter spinach in July or August. ——("Constant Reader").—Cyrtanthus O'Brienii.——(W. L. T.).—1, Genista pilosa; 2, Saxifraga Andrewsii; 3, Antennaria dioica tomentosa; 4, A. dioica.——(J. A. E.).—1, Spiræa Van Houttei; 2, Allium ursinum.——(C. H.).—Staphylea pinnata.——S. H. B.—1, Iris graminea; 2, Galega orientalis.——H. P.—A, Syringa pinnatifida; B, Colutea arborescens.

OBITUARY

MR. HENRY NEVARD.

THE death of a well known rosarian in Mr. Henry Nevard, aged sixty-nine, of Colchester, occurred (following a stroke) on Thursday, May 22nd. The late Mr. Nevard was foreman to Messrs. Frank Cant and Co., Braiswick, with whom he had been associated for thirty-seven years. He was one of the old school of rose growers, a great enthusiast, with a thorough knowledge of the ancient as well as the modern roses, well known to many professional and amateur exhibitors, and very highly esteemed and respected by all who knew him. The deceased leaves a widow and a large family.

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THE GARDEN

VOL. LXXXVIII.—NO. 2745. JUNE 28, 1924

OLD STONE STEPS WITH A SWEEP OF RAMBLER ROSES AT THE SIDE.

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THE GARDEN

JUNE 28, 1924.

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THE PURPOSE OF WISLEY?

ALONG with other representatives of the Press I was invited to Wisley on Monday, June 16th, in order to see what practical work the Royal Horticultural Society is accomplishing on behalf of its Fellows. On other pages of this issue will be found a few notes and a few pictures taken a week ago in the gardens.

I left Wisley with a feeling of delight at what I had seen, but at the back of my mind there is a perplexity about what the exact purpose of Wisley is supposed to be. I hope I may be forgiven if I am so bold as to state what in my mind should be the ideals aimed at in the Society's garden.

(1.) It should be the most beautiful and perfectly kept garden which soil, situation, climate, the influence of the Society, and money can make.

(2.) It should be run for the benefit of every Fellow of the Society, whether a specialist or a beginner.

(3.) It should be a garden in which Fellows can not only see plants well grown, but can also see them grouped together in their different genera so that they may judge for themselves in which direction their tastes lie and which variety or species they prefer. For this purpose it should contain both common and rare plants.

(4.) It should be a training school for those who hope to make gardening a profession.

(5.) It should grow and distribute plants not usually found in nursery gardens.

Now I shall be even bolder and try to point out how, in my estimation—I have an idea that I should write this article in the Chinese manner and say "in the knowing-nothing mind of this most ignorant and insignificant person"—Wisley occasionally falls short of the ideal.

(1.) Wisley is a most beautiful garden in a lovely situation. Owing to the sandy soil its cultivators naturally have to fight against certain drawbacks, but it is so beautiful that some parts might be better. This point is dealt with at greater length in the article on Wisley, but I will give one instance. The new heath garden lacks individuality; it is undulating, but the undulations are meaningless; they are either too high or too low. The formation of the ground is like the approach to a difficult green on a seaside golf course.

(2.) This is attempted and for the most part accomplished by the skill of the director and of the Wisley Committee, but surely too much attention is given to vegetable trials. The ordinary gardener is not interested in the fact that lettuce Tweedledum should be called Tweedledee. What he wants is a lettuce which is easily grown and good to eat and is easily obtainable either from one of the big houses or from his local seedsman. The Wisley vegetable trials do not tell him if variety A will flourish in his garden, but his seedsman usually can supply him with that information. Flower trials, on the other hand, are of great importance, because colour, form and shape all have to be considered, but who cares about the colour, form or shape of a leek?

(3.) Nothing could be better than the way in which berberises, cotoneasters and other plants are shown. They are excellently grown and are planted attractively in such a way that the merits and demerits of the different varieties and species can be judged from an individual standpoint. It is to be hoped that in time this method will be extended to other parts of the garden. There is a fine and effective grouping of irises planted in the same method, but it is a pity that new forms are not added as they come out. This is infinitely the best way of picking out plants for one's own garden.

(4.) With great hesitation I put forward the suggestion that students of an older age should be taken on at Wisley, or at any rate that they should be only taken on after two or three years practical work behind them. This suggestion is not made in any carping spirit, for from the results which may be seen at Wisley they are excellently trained and are willing workers; but I happen to know the scarcity of matured gardeners, not only in this country but in the colonies. Wisley holds a unique place in our gardens, for I believe that it is the only place where fruit, vegetables, garden flowers and rare plants are grown and scientific investigation is carried out in one establishment. It is so valuable in this way that in my opinion Wisley should finish off a student's training and not begin it.

(5.) On this heading I should keep discreetly silent, because I have a passionate curiosity about rare plants and I feel that Wisley should be the great distributing centre for all new importations; so far this has been the most neglected of its many branches.

After all Wisley is our heritage in the gardening world, and no garden is so good that there is no room for improvement. The war and its aftermath upset much in horticulture and there is little doubt that I am only voicing thoughts and intentions which the director and others who look after Wisley's destinies have had in mind for months past. If so, I hope I may be forgiven for making these few remarks. E. H. M. C.

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A DISCOURSE ON NYMPHÆAS—I

BY F. LAPLACE.

MR. LAPLACE HAS RECENTLY RETIRED FROM THE ADMINISTRATION OF THE FAMOUS BAGATELLE GARDENS, PARIS. HE IS ONE OF THE GREATEST EXPERTS ON NYMPHÆAS.

IT is some forty years since the first varieties of nymphæas appeared in the collections of lovers of gardens. Horticulture owes to M. Bory Latour Marliac the introduction of these magnificent plants. It is, however, true that forty years earlier M. Tourrès, of Tonneries, Lot et Garonne, had obtained a few interesting seeds, but these have all disappeared from cultivation.

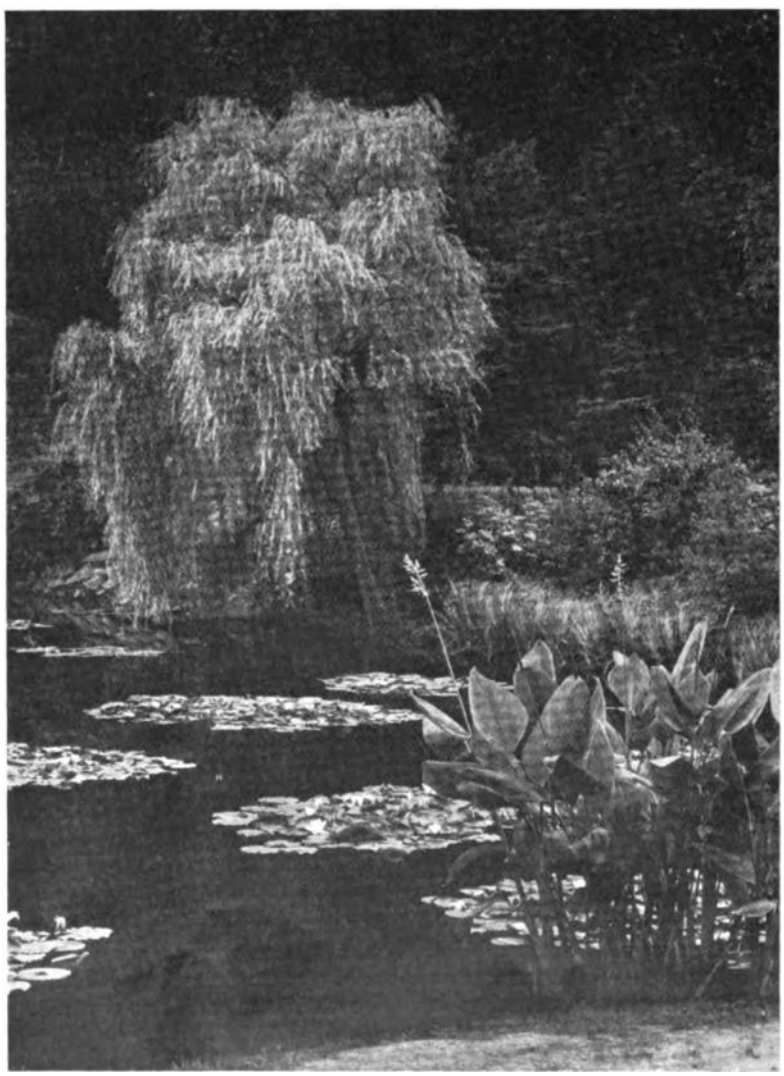
For a long time, M. Latour Marliac, who had once read an article by M. Lemaire in the "Illustration horticole" in which he said that it would be desirable to obtain hardy nymphæas as brilliantly coloured as the hothouse nymphæas, had hoped to realise this ambition. The introduction of half-hardy foreign nymphæas, such as N. mexicana (syn. N. flava) and others enabled him to produce plants which were hardy and of various colours. It appears that by using a foreign water lily with a red flower hybridised with N. alba he obtained his first hybrid which had a red flower; but this plant only lived a few years and it was not till seventeen years later that he was able to produce it again. This plant was never placed on the market. From time to time M. Godefroy Lebeuf succeeded in introducing from America, at very high prices for the time, a N. odorata with bright rose flowers. This plant had been for a very long time the property of a grower near Boston, who drew very handsome profits from the sale of the flowers. This plant seems to have been a natural variety of N. odorata. However this may be, this plant in the hands of M. Latour Marliac, hybridised by or with plants he had already obtained, became the parent of numerous varieties with rose, red or purple flowers; at the same time N. mexicana, by its descendants hybridised with the preceding plants, contributed also to the creation of some very fine varieties with flowers of a coppery hue.

The number of varieties put on the market by M. Latour Marliac is at present eighty, but this number does not represent the actual number of the varieties he has obtained, for a certain proportion are not sufficiently decorative in character. Situated at Le Temple sur Lot, Lot et Garonne, the establishment of M. Latour Marliac comprises about forty ponds, divided into more than six hundred compartments, fed by seventeen springs, the water coming out of the ground at an even temperature of 10° Centigrade.

The genus nymphæa comprises about forty species native to all parts of the earth. Although this number is small there are differences of character sufficiently important to admit of dividing the genus into five groups, these are:

1. Anecphia.
2. Brachyceros.
3. Castalia.
4. Lotus.
5. Hydrocallis.

From the horticultural point of view it is unnecessary to discuss all the types of nymphæa. In fact, it is only necessary to consider the hardy water lilies and a few foreign ones which are easy to cultivate either in the hot-house or out of doors in summer.



A PLACID WATER LILY POOL. NOTE HOW THE BACKGROUND IS IMPROVED BY THE WEEPING WILLOW.

The general characteristics of the genus are as follows: Water-plants having thick rhizomes, usually horizontal, but occasionally erect. These rhizomes orcrowns are covered with a number of marks corresponding to the insertion of the petioles and the peduncles; the rhizomes end in buds from which spring the leaves and the flowers (in some kinds the rhizome produces lateral buds); the petioles and the peduncles, which are cylindrical, vary in length according to the depth of the water, and the flower-bearing stalk opens on the surface of the water. In the section Castalia, of which the type is the N. alba of Europe, the flowers float; on the other hand, in the section Brachyceros, the flowers open 15c. to 20c. above the water. The stalks bearing the leaves are cordate or oval or circular and have at the base a sinus more or less open, the edge being sometimes serrated. The flowers are large, the calyx being composed of four sepals, green on the outside and more or less coloured inside; the corolla has three to five

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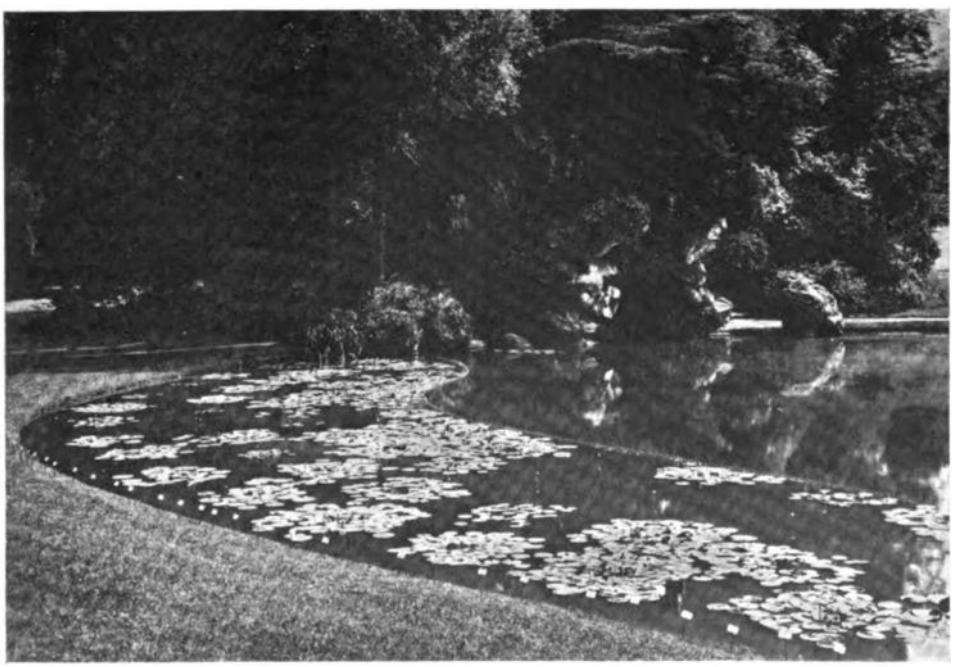
rows of petals which vary in size according to the species. The sepals are very numerous and are attached to the seed pod, which is usually large and crowned with a disc bearing stigmata in several rows. Some of the outer stamens are more or less petalloid. The fruit when it has reached maturity contains a very large number of seeds arranged on transverse partitions. After fertilisation the flower stalk bends over and the fruit develops under water; when mature, the fruit bursts and the seeds are released.

A WELL-FLOWERED GROUP OF WATER LILIES.



WATER LILIES IN THE BAGATELLE GARDENS.

The hardy water lilies, both species and hybrids, belong to the Castalia section, and the few hot-house ones, which will be discussed later, to the Brachyceros section, of which the best known type is the N. capensis.

It will be convenient to pass rapidly in review the principal types which have contributed to the creation of the magnificent hybrid water lilies. These types are, as a matter of fact, very interesting in themselves.

First should be mentioned N. alba, Europe. This well known plant with white flowers, scented, varies slightly in size according to the regions in which it is found; the following varieties are fairly general in cultivation, minor, maxima, and candida, this last, which is often raised to the dignity of a species is really only a form of N. alba, and is native to Bohemia.

From Sweden N. sphœrocarpa rosea, has been introduced; this is considered as a variety of N. alba, though it is sometimes thought to be an autonomous species. This lily is extremely interesting on account of its magnificent bright rose flowers. It is very rare in cultivation and it has not, as certain writers maintain, contributed to the production of hybrids.

Close to N. alba comes N. odorata, a species of vigorous growth, native to the United States; the rhizomes are very branching and it has large white flowers, the petals being a little narrower than those of N. alba. This is a very hardy species and is represented in cultivation by a fairly large number of varieties, of which the most important are minor and maxima, both with white flowers, and especially rosea, with fine clear rose-coloured flowers.

N. tuberosa, is another type from the United States, also with white flowers. It is often cultivated on account of its great vigour and the size of its flowers; it is a fast grower and is even inclined to overrun, but it does not bear many flowers.

N. tetragona (syn. N. pygmæa) is also a charming small species from China with pure white flowers; it can be grown in small tanks.

Finally, N. mexicana (syn. N. flava) with its yellow flowers and its peculiar growth—it has no rhizomes, but forms a sort of tuberous stump which throws out a number of stolons—is a great favourite with growers.

The section Brachyceros is represented by a fairly large number of forms with blue flowers, as for instance, N. cœrulea, N. stellata, and N. capensis. Regarded by some botanists as distinct species and united in a single group by others, these plants have certainly some points of resemblance, but from the horticultural point of view are sufficiently different in regard to their size, habit and the abundance of their flowers. In a wild state and in cultivation some kinds have appeared with white flowers, some with rose-coloured ones, purple, etc.; this group consists of what are called half-hardy water lilies, and I will indicate later on some hints for their successful cultivation.

FORTHCOMING EVENT.

July 5.—Windsor, Eton and District Society's Rose Show.

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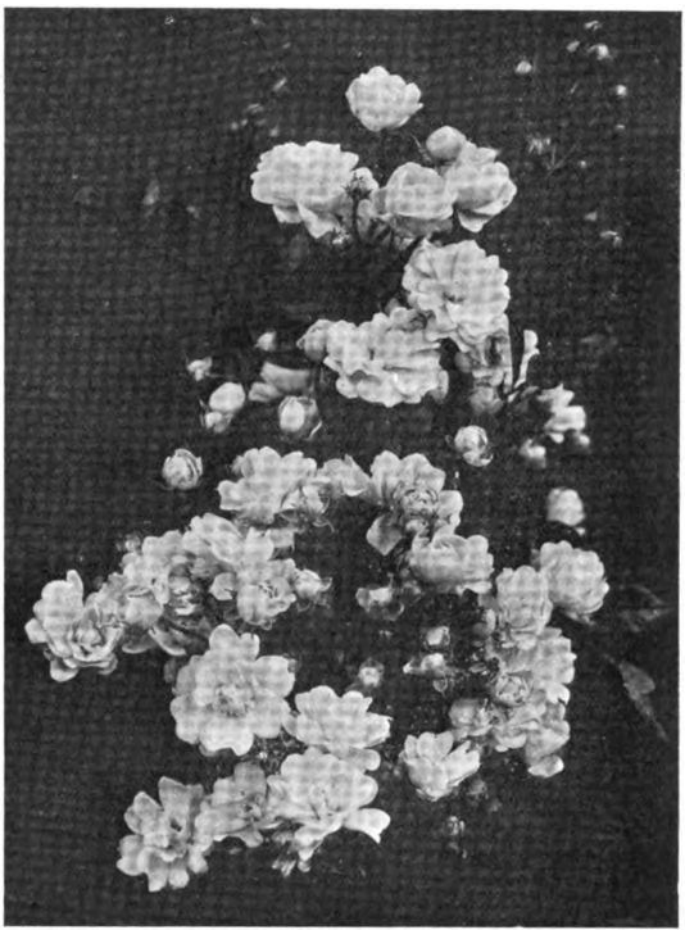
POLYANTHA POMPON ROSES

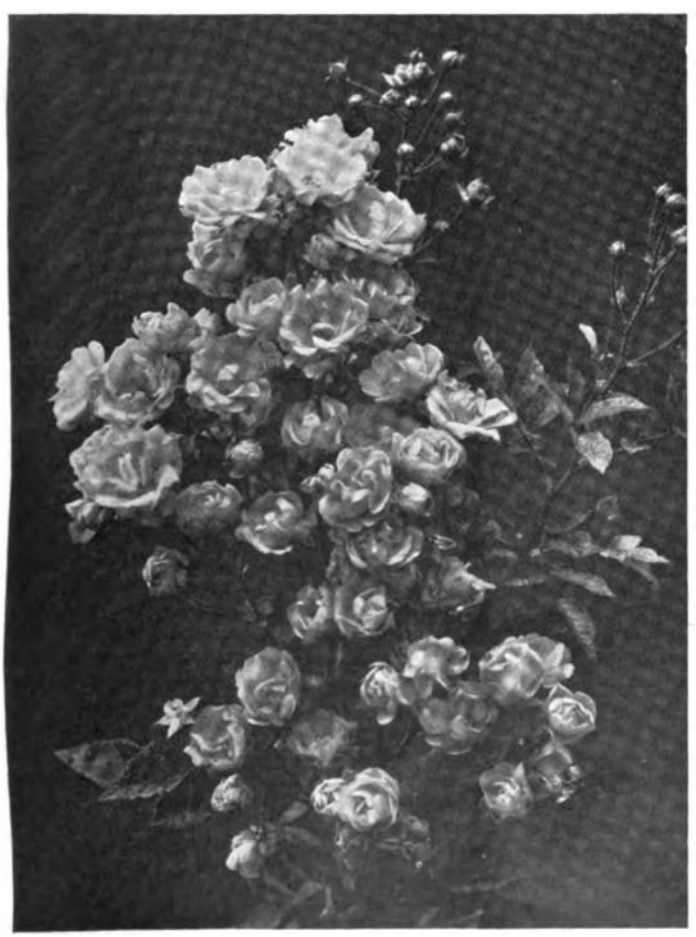
FOR THOSE WHO HAVE SMALL BEDS ON THEIR LAWNS AND WHO WISH TO FURNISH THEM WITH SOMETHING PERMANENT, THE DWARF POLYANTHAS ARE ALMOST IDEAL.

THE above is the correct name for the dwarf as distinct from the climbing polyanthas. The word "polyantha," as everyone knows, is derived from the Greek: it means "many flowered," therefore all the roses in this class, whether climbing or dwarf, are grouped under the heading Rosa multiflora. The type is a summer-flowering climber; but the polyantha pompons, or "poly poms," to use their pet name, are hybrids and of a dwarf compact habit. The flowers individually are very small, they are in most cases produced in clusters on straight upright stems, and they flower with great freedom throughout the season—in this respect altogether surpassing the climbing varieties. Some, like Katharine Zeimet, bloom, as it were, in bursts, a great show of blossom followed by an interval before they flower again; while others, and the majority may claim to belong to this second category, are practically never out of bloom from June to November. For those who have small beds on their lawns such as might have been used for the now old-fashioned bedding plants, and who wish to furnish them with something permanent, the dwarf polyanthas are almost ideal.

In our garden we have a grass plateau near the house with a gentle tilt to the south, in which we have made a "baker's half-dozen" of round beds, and have planted each with one variety of dwarf polyantha rose. We have surrounded them with an edging of violas, being careful to choose a colour which will harmonise with the rose. The mauve Maggie Mott or the lavender Kitty Bell look very well round Katharine Zeimet and Little Meg, or any other white or pale pink rose; but the crimsons, such as Triomphe d'Orleanaise and Koster's Orleans, look far better if planted with a white viola—White Swan or the miniature Will Taylor are suitable varieties. Contrary to the advice of many eminent rose growers, we plant daffodils



CORAL CLUSTER IS A LOVELY SHADE OF PALE CORAL.



THE ROSE-COLOURED ORLEANS.

or tulips in these beds, and therefore get a succession of bloom throughout the spring, summer and autumn.

To do this successfully the beds must be well made and well tended. We are on a gravel soil, so we have to dig out our beds and borders to a depth of 2ft. 6ins. or 3ft. and fill in with good top spit mixed with manure and the siftings of the gravel—towards the top we put a sprinkling of ½in. bones.

The roses must be carefully and firmly planted in the autumn, they must be kept hoed and weeded throughout the summer, and after the first season they will benefit much by an occasional thorough soaking with weak liquid manure. The first season they should not require, and indeed are better without, this; but if the weather should be very dry they will be grateful for some applications of clear water, provided that whoever cares for them remembers that the hoe is a much better servant than the watering pot. Two inches of constantly stirred soil provides a mulch which conserves the moisture rising from below and tends to keep a far more uniformly moist condition for the roots than spasmodic waterings with probably hard water from above; when watering is of necessity resorted to, let it be thorough and see that it is always followed by a vigorous use of the hoe.

The spring after planting, the roses should be pruned hard. If they are to be used in beds on the lawn or as borders to other roses this hard pruning should be repeated each spring: it makes the flowering a little later, but it ensures a dwarf and stocky growth which is essential for bedding roses.

These polyantha pompons will also make delightful specimen bushes if, after the first season, they are only lightly pruned and thinned. The now old-fashioned Perle d'Or, with its

exquisitely shaped nankeen yellow buds, appreciates this treatment, as does the newer Yvonne Rabier, which throws up large clusters of pure white fragrant blossoms when left to grow according to its own sweet will.

However, there is no doubt that the " poly pom's " greatest use is as a bedding plant, and probably readers may like a short account of some of the best varieties for this purpose.

WHITES.

Katharine Zeimet has an excellent habit. It flowers profusely and frequently, but not quite continuously. It is one of the earliest in bloom, and has what, unfortunately, is a rare quality among these polyantha pompons, a sweet fragrance. It is not a good rose for picking, the petals fall quickly and, being of papery texture, they easily " brown " in wet weather.

Little Meg is quite a different type, but is almost equally good for beds. The habit is more diffuse; this, however, is compensated for by the beauty of the shining dark green foliage. The flowers are produced in thin sprays rather than in clusters; they are of firm texture and of exquisite shape, milky white, the buds sometimes tipped with crimson. This variety continues flowering right on into November. The shining foliage would suggest that it is a hybrid with the dwarf wichuraianas. Altogether a very charming little rose and one of the best for small vases. Those who require an extra dwarf white variety should grow

Jeanne d'Arc, with clusters of small white well shaped flowers which have a certain fragrance.

YELLOWS.

I know of no good yellow among the poly poms. *George Elgar* has pretty yellow buds, but they are not freely produced and they turn a dull white when open.

Coronet is a pretty little creamy yellow variety, but the tints of peach and coral on its petals really put it out of a class for pure yellows. Will not someone raise for us a dwarf polyantha with blooms of the brilliant golden yellow we have among the Pernetianas?

PINKS AND ROSES.

There are now several good pink and rose varieties in the class we are considering, but I do not think that *Mrs. W. H. Cutbush* has been beaten in prettiness of colour, a clear pink, freedom of bloom and dwarfness of habit. From our experience of it on a light soil, I should say it requires good soil and cultivation.

Maman Turbat has larger flowers also of a bright pink, but the clusters are not so erect nor the blooms so pretty as those of Mrs. Cutbush.

Orleans and *Ellen Poulsen* are two splendid rose-coloured varieties, Orleans the more vigorous of the two and with larger trusses; Ellen Poulsen has flowers of a prettier shade and shape which are decidedly fragrant. This is one of the best of all the polyanthas. It makes a good standard.

Coral Cluster and *Princess Juliana*, in suitable weather and especially under glass, are a lovely shade of pale coral. In hot weather they are apt to lose their prettiness of tint.

Perle Orleanaise is a very dwarf variety with soft salmon-rose flowers produced in clusters; it deserves to be more grown than appears to be the case at present.

CRIMSONS.

We now have several crimson varieties. The old favourite, Jessie, is almost superseded by such vigorous yet dwarf varieties as *Triomphe d'Orleanaise* with very large trusses of light crimson flowers. This variety is wonderfully free and continuous. I have a bed of it under the drawing-room window, and throughout the season it is gay and cheerful.

Koster's Orleans is of more upright habit and has, I think, brighter flowers; but *Edith Cavell* is, so far, my favourite among the crimson poly poms. It has big trusses of really dark crimson flowers which never turn blue; in hot weather they are apt to burn, but in a cool summer and in the autumn the colour is wonderfully fine.

At the Chelsea Show last May, Messrs. Frank Cant were exhibiting a variety called *Reine Elizabeth*, which, as shown on that occasion, was even more brilliant than Koster's Orleans or Edith Cavell, and I felt it was one to be added to our collection this autumn if it proves as effective out of doors as under glass.

A delightful little crimson poly pom is *Eblouissant*, which I have left to the last because it many ways it seems to me to resemble a China rather than a polyantha. It has small dark green foliage, good upright trusses of blood-red flowers which neither " burn " nor " blue," and its habit is so dwarf that it is really suitable for rock gardens or for an edging; it should not be planted among strong-growing kinds.

All these poly poms are wonderfully hardy; it is rare, indeed, to lose a plant; but, like all other flowers, if they are worth growing at all they are worth growing well, and, if given good soil and a certain amount of after care, they will reward their cultivators by giving thousands of bright and pleasing blossoms all the summer through. WHITE LADY.

SUMMER-FLOWERING HARDY HEATHS

SINCE it is our native species which constitute by far the greater portion of the cultivated heaths, it seems only just that some reference should be made to them at this their flowering season, which latter will extend without a break well into autumn.

For some reason difficult to assign heaths have never been popular garden plants, yet the same thing in the wild state makes a stronger appeal to people generally than almost any other wild flower. But there has been a steady increase in the planting of hardy heathers during the last few years, and the nurseryman, recognising this fact, has not been slow to offer new varieties, which are for the most part collected forms or the results of hybridisation.

That the hardy ericas should lately have enjoyed a revival of interest is, perhaps, what one might have expected; for, in the first instance, there are few plants which lend themselves so admirably to those many phases of modern gardening which present a reaction from the formal and which, in some cases, have become the very antithesis of the latter. Further, the rock gardener has discovered in these shrubs an invaluable material for the adornment of his creations, and one that will most effectually afford them just that touch of the natural to which he usually aspires. I might, indeed, pursue the subject still farther and suggest, as not a few have actually demonstrated in practice, that a plantation of heaths stands second to none as a go-between that will constitute an harmonious link between the rock garden and other parts of one's domain.

Yet, when all is said, it is not as an adjunct to something else that the heath garden deserves the highest note of praise. It is its own singular beauty and natural charm and the long season of gorgeous colour and fragrance which it affords with a minimum of attention that must always be its most telling recommendations. As a matter of fact, if we bring in a few species other than our own, the heath garden need never be without masses of colour at any time of year, and that, I think, is a claim that can scarcely be made for any other race of hardy plants in cultivation.

Heaths are, moreover, most adaptable, and easily grown on practically any lime-free soil which is well drained Indeed, several of them are accommodating enough to show none of that dislike for lime which is common to the ericaceæ generally. Not one of them needs peat and, despite the popular belief that they are difficult to establish, they are, under average conditions and with reasonable care, as amenable to transplanting as any other evergreen and much more easy than some.

A few years ago we planted with heathers a steep, hot, southern slope of poor, shaley soil which had never grown anything better than a few scrubby gorse bushes. To-day the whole of the area is completely covered, and I do not think any part of the garden affords as full a measure of satisfaction as this does. Certainly none asks for so little labour. Once the ground gets covered the most prolonged drought is defied, and, unlike many other shrubs (rhododendrons, for example), the vitality of the heaths is so amazing that they never fail to flower with the greatest prolificacy every succeeding year.

In dealing with the dwarf ericas (including calluna) I cannot do better

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than refer to some of the more outstanding species and varieties, and I may say that none of the kinds mentioned here has had any peat. A little leaf-mould about the roots when put in, deep planting and, in some instances, a light covering of bracken or other litter during their first summer should the season be very dry, is all they have ever had, and our losses have not amounted to five per cent.

E. cinerea opens the season of these natives, and this species has proved the most successful for the driest and hottest parts of our slopes. E. c. rosea is, perhaps, the finest variety, a strong grower with immense heads of flower from June onwards, in a full-toned rosy crimson quite devoid of that hint of blue which so often prevails in the blossoms of the wild type. Plants of this not infrequently throw seedlings of an equally good and sometimes even richer colour. Another good one is atropurpurea, rather dwarfer than the above; and then there is that wonderful little variety, coccinea, not more than about 6ins. high, with dark green, bronzy foliage and blooms of an intense blood red which has a sufficient dash of scarlet in it to render it distinct in colour from all others. Among the newer cinereas on their trial here, those which give most promise are the pink and white Apple Blossom, a clear, wild rose pink form, and another with flowers of a vivid cerise. The white cinerea, of which there is a dwarf form, is well worth a place, but it does not seem to be so indifferent to poverty as the rest, and generously repays one for a rather cooler soil.

Before the above are in full colour those of the calluna group enter the field. Here the pretty crimson tenuis is usually the first to adorn its slender spikes, soon to be overtaken by the double form of our common heath, which is unsurpassed in its own colour for massing in large or small groups. The soft lilac flush produced by multitudes of the perfectly double flowers which last for months is very charming, especially in subdued light. The variety Alportii, with very dark green foliage and deep crimson flowers, is still, perhaps, the best of its colour in this class. Though later than the white form of the type—the popular White Heather—Serlei is much superior to this in stature, making a superb bush, sometimes up to 3ft. in height, with elegant, branching sprays which bear pure white flowers in the utmost profusion. Hammondii, hardly so tall and rather more stiff and erect, is another white worth a place among the best, and the foliage of both of these is at flowering time a remarkably fresh and pleasing green. Yet another first-rate white in this section, quite distinct with its numerous very slender growths and finely tapered, sinuous spikes of dead white flowers, is gracilis, hardly to be distinguished from the elegant tenella.

ERICA VAGANS ALBA, THE WHITE CORNISH HEATH.

The blooming of the cross-leaved heaths (E. Tetralix) is contemporary with the callunas and continues practically all summer and early autumn. Of this set the grey-foliaged mollis, with large bells of a clear white, and an improved form of the rosy-coloured type species are still, to my eye, the most attractive, but there are some new rosy-purple and deep red varieties which will doubtless make their mark when better known. The cross-leaved heaths all need rather better living than the above, but they may, nevertheless, be grown to perfection in any fairly light loam that does not dry out too quickly in summer. This also applies to the hybrids raised from Tetralix, as well as to the lovely Dorset heath (E. ciliaris) the finest of all our natives and, curiously enough, perhaps the least known.

Even larger in blossom and of stiffer habit is the form of ciliaris known as E. Maweana; and then there is the superb E. Watsoni, which possesses all the best and most outstanding features of its two parents, ciliaris and Tetralix. A new hybrid of the same parentage and called E. hybrida Dawn is very beautiful and distinct. E. Williamsii, supposed to be a Tetralix × vagans hybrid, and discovered wild in Cornwall, produces in the later summer umbels of rose-crimson bells.

E. Mackayi, supposed to be a form of Tetralix, but with a more trailing and looser habit of growth, is a pretty variety in the mass, with its rosy bells, and it is preferable, in my estimation, to the double form, the flowers of which suffer from congestion. E. Stuartii, supposed to be a hybrid between the above and E. mediterranea, is a very cheerful-looking shrublet the pale shell-pink flowers of which are conspicuously tipped with carmine. E. vagans also claims attention as the most useful of all the autumn-flowering kinds, and it presents varieties in a wide choice of colour from white and cream to pale pink and deep crimson. But the Cornish heath attains its greatest perfection in St. Keverne, a beautiful variety with immense heads of bright crimson flowers, a fine deep-green foliage and good habit. A. T. JOHNSON.

THE EDITOR'S TABLE

WE have received a box of beautiful herbaceous peonies from Messrs. Kelway and Sons of Langport, Somerset. The glorious coloured fragrant blooms poised on stiff stout stems makes one wonder why these beautiful plants are not more generally grown. The foliage, too, is very elegant. Among the blooms so kindly sent are Lady Pocock, a double-flowered white variety with narrow central petals; Captain Cheape, a double-flowered variety with soft pink guard petals, pink and cream central petals; Mrs. E. Dunkels, lavender pink, loose double-flowered variety; Kelway's Success, a double-flowered sort with pink guard petals and rich cream central petals; Alice Balfour, a double-flowered rose variety; Rosemary, rosy pink guard petals, with lighter central petals, spicy fragrance; Mrs. E. Balfour, rose guard petals, central petals cream flushed pink; Limosel, deep rose with rose scent, a very fine double-flowered sort; T. J. Lipton, maroon; Mrs. Lutwych, white guard petals suffused pink, pale yellow central petals; Austen Chamberlain, a single-flowered sort of bright crimson colour, with conspicuous golden anthers; Wilbur Wright, another single-flowered kind of deep maroon colouring, also having conspicuous golden anthers. These peonies are excellent for cutting purposes and are ideal under artificial light.

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WISLEY GARDENS

BY E. H. M. COX.

MY visit to Wisley was made on one of those days, only too rare, which Victorian novelists used to describe with such abandon. Their descriptions usually began with such euphemisms as " 'Twas on a warm summer day in June when the bees were winging their way to steal the scented nectar from the flowers . . ." At any rate, the day was warm, and showed up all the many beauties of the garden.

The work carried on at Wisley is unending in its ramifications. There are the laboratories in which diseases are examined and their prevention and cure worked out; there are fruit-testing grounds, and rose-testing grounds, peony trials, helianthemum trials, lettuce trials, where the best varieties are chosen from among hundreds and names are checked and rectified; there are hot-houses filled with tomatoes and fruit where the students are trained in fruit culture; then there are the main gardens, where flowers and trees and shrubs are grown. It is the main garden which is of the greatest interest to most Fellows of the Society.

THERE ARE WOODS CARPETED WITH PRIMULAS—

AND WILD BORDERS FILLED WITH LUPINS.

Wisley was the munificent gift of the late Sir Thomas Hanbury, who presented it to the Society in 1904. It had formerly been in the possession of the late Mr. G. F. Wilson, who had formed a famous wild garden there which is still in existence. This is still probably the most attractive part of the garden, for the situation is perfect. There are ditches and pools with irises alongside and water lilies flourishing in them, there is a wood divided into sections by great banks of old hybrid rhododendrons and other evergreen trees and shrubs. In these bays flourish heaths and lilies and shrubs. Lilium giganteum, one of the prides of the garden, is exceedingly vigorous, and L. rubellum was in full flower. The heaths are inclined to be a little straggly, and these bays are so valuable for growing shrubs which require shelter that the heaths might well be removed to some more exposed part of the garden. The same thing might be said of the Siberian irises, which are too plentiful. They are among the most accommodating of all plants regarding soil and climate. With the knowledge and skill of those in charge of Wisley at their disposal, many Fellows would be glad to see the area devoted to Siberian irises cut down and other plants grown in their place, perhaps just as beautiful, and about the successful cultivation of which something could be learnt.

One of the most interesting sights at Wisley at the time of my visit was the trial of helianthemums. The variations and brilliant colouring of the different strains are amazing. Two of the most effective are Ben Nevis, yellow with an ochre eye, and Nicoll No. 16, white with an orange eye. Both of these plants have been raised by Mr. Nicoll in Forfarshire. It is in a trial of this kind that the usefulness of Wisley to all Fellows of the R.H.S. is, perhaps, most apparent. Helianthemums are becoming more and more popular every year. In a long row at Wisley can be seen all the best varieties. Personal choice can be made and personal preferences decided upon for future use.

Close by the helianthemum trials is the alpine house, which is now passed but shows the excellence of cultivation which is usually to be found at Wisley. The one exception to this general excellence is the rock garden, in which I was profoundly disappointed. There is probably no rock garden in the country which is so well designed and has such infinite possibilities. There are moraines and bogs, dry banks and

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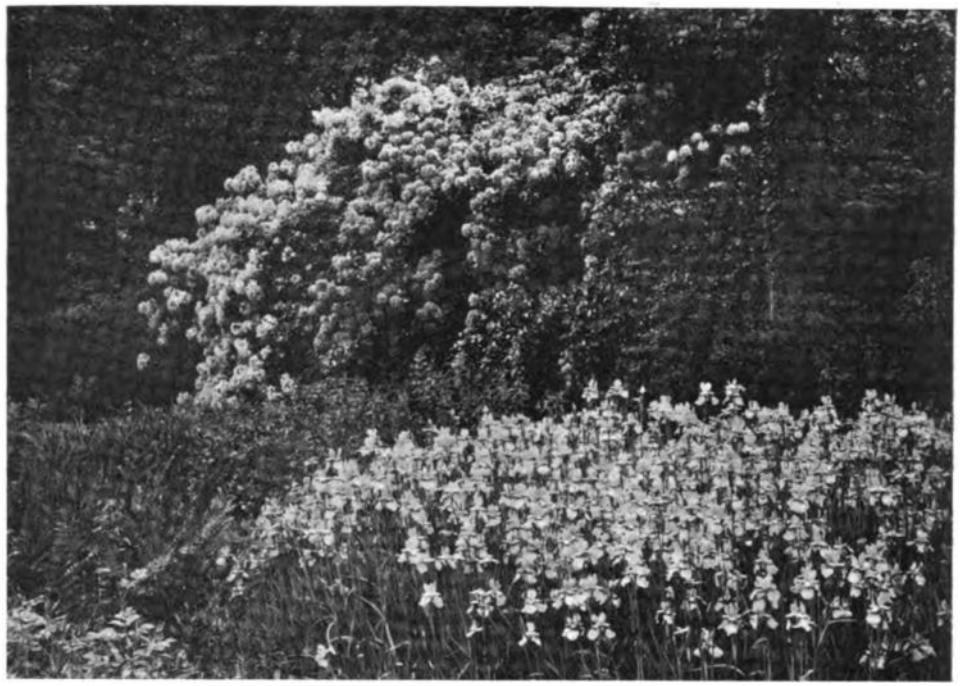
innumerable sheltered nooks and crannies. There are two slopes in the middle, in which the gradient is a trifle too slight, but I was told that this portion is going to be remade during the coming winter. However, this is beside the point. I have heard many Fellows say that the cultivation of the rock garden is not up to the usual excellence to be seen at Wisley, and this is only too true. The choicer clefts and crannies are filled with common plants and weeds—I even saw a big patch of the common white campion, a terror for seeding itself; the bogs are filled with Primula japonica when there are dozens of newer and better species and hybrids which could be grown and which would show members how they should be grown; fine flats are filled with creeping thymes—a little of it is excellent, but there is no necessity for square yards, spreading at its will. There might also be a special bank set aside for cistuses, instead of filling up valuable space with full-sized plants. Apart from this, the cultivation of most of the plants that are to be seen in the rock garden is not up to the standard of dozens of private rock gardens.



SIBERIAN IRISES IN A LOVELY SETTING.

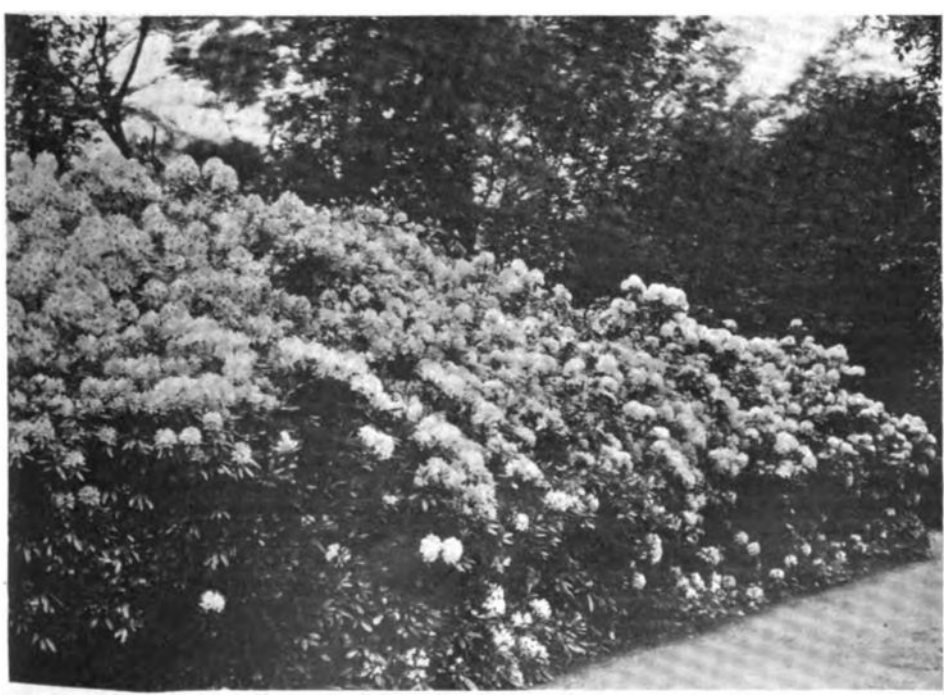
When comparison is made between the rock garden and the collection of shrubs the difference in cultivation is noticeable, but then the shrub garden is new while the rock garden as an old established entity has probably not had sufficient time to recover from its war time experiences. However, the years are passing, and many Fellows will not realise the extraordinary difficulty under which Wisley was kept up during the war. Perhaps the Wisley Committee could arrange for fewer vegetable trials, and with a certain amount of money saved give the rock garden a thorough spring cleaning.

Not only is the collection of shrubs varied and interesting, but they are cultivated at a very high level. Here are loniceras, cotoneasters, buddleias (including Farrer's excellent B. alternifolia in full flower), hypericums, and so on. They are a credit to any garden, and with the exception of the new heath garden mentioned in the Editorial article the lay-out of the ground could not be bettered. Another interesting collection is that of rose species, and members would be well advised not to miss this most instructive collection.

In one of the houses was a most interesting collection of South African annuals, being grown, I believe, for the South African Government. They were all composites, and among them were Charieis heterophylla of a heavenly blue colour; Dimorphotheca pluvialis, a particularly handsome flower with white rays and a violet centre; and Aster Bergerianus, another fine blue. None of these plants is in general cultivation, but they are well worth growing, either in a cool house or grown on in a house for bedding outside.

Altogether, Wisley is a garden of great beauty and is of interest to all Fellows of the Royal Horticultural Society, they on their part should interest themselves in the garden, by visiting it and seeing all its ramifications and also by giving specimen plants to add to the collections in the garden.

After all, although Wisley has been organised to help Fellows of the Royal Horticultural Society, yet it is obvious that for its well-being there must be a little give and take. Every Fellow should try and visit it as often as possible.



A FINE BANK OF OLD RHODODENDRON HYBRIDS.

OUR NEXT ISSUE IS PARTLY DEVOTED TO IRISES. AMONG THE ARTICLES WILL BE:

GROWING IRISES FROM SEED, by Sir Arthur Hort, Bart.

IRISES FOR EVERY GARDEN, by A. J. Bliss.

THE SUCCESSFUL CULTIVATION OF IRISES, by W. R. Dykes.

A DISCOURSE ON NYMPHÆAS—II, by F. Laplace.

NOTES ON A CHALK GARDEN, by F. E. Stern.

REPORT OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW.

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VEGETABLES AS A SEPARATE COURSE

A GREAT deal might be written on the excellent subject of separate vegetable courses. These are particularly palatable during the summer months when meat is sometimes not so appetising as it might be. On the other hand it is a mistake to imagine that vegetable cookery, owing to its simplicity, requires little attention. In its very simplicity one is inclined to let the fragrance of the vegetables escape owing to slip-shod methods. There is one kind of utensil which is almost a necessity in the preparation of vegetable dishes and that is those made of brown, unglazed fireproof earthenware, whether saucepan shaped or such as are used for oven cookery. Utensils made of pottery seem to retain the flavour better than those made of metal. They are also useful in that slow, measured cooking which is so necessary in most vegetables.

1. PETIT POIS A LA FRANÇAISE (Peas à la Française).—Take eight small button onions and one lettuce and cut them in small squares. Mix them with one pint of shelled peas and wash them. Melt ¼lb. of butter in an earthenware pan on a slow fire; add the vegetables, a little salt, and two tablespoonfuls of castor sugar. Cook them together for twenty-five minutes, stirring the mixture fairly regularly. The secret of this dish is in the slow cooking.

2. CHOUX FARCIS (Stuffed Cabbage).—Take a large white cabbage and wash it carefully. Place it in a saucepan of cold salted water and cook it until you can remove the leaves without breaking. Then strain it and pick off the leaves one by one and dry them flat on a cloth. Cut up one large onion in small pieces, together with a few mushrooms and two tomatoes. Cook the onion, mushrooms and tomatoes in an earthenware pan with ¼lb. of butter. When the mixture is thoroughly cooked add a teacupful of ready cooked rice, salt and pepper to taste, a bunch of herbs, and a pint of consommé or chicken broth. Cover it with a sheet of buttered paper and cook it in an oven for twenty minutes. When ready add another ¼lb. of butter and mix well. Then take a tablespoonful of the mixture and laying it on the centre of a cabbage leaf, roll the leaf around it. Squeeze the rolls one by one in a clean cloth to remove excess of moisture. The next step is to cut one carrot and one onion in slices and place them in a stewpan with butter and a little consommé. Place the stuffed cabbage leaves in the stewpan and cover it with a sheet of buttered paper. Let it cook slowly in the oven until the carrot and onion slices are soft and the liquid is reduced. This is an exceedingly popular method of stuffing vegetables on the Continent. Lettuces, tomatoes, artichokes and egg plant may be treated in the same way, tomatoes are improved by cutting a hole in the top an hour before cooking and pouring in a teaspoonful of port wine. The method may sound a little complicated, but it is well worth the trouble, for the flavours of the different vegetables are preserved and the result is a most appetising dish.

3. CHOUXFLEURS POLONAISE (Cauliflower Polonaise).—Cut a cauliflower in pieces and cook in salted water until they are tender but not too soft. Then place them in cold water. Brown 2oz. of butter in a pan and when browned heat the cauliflower pieces in it with salt and pepper. For the sauce you take one hard-boiled egg and chop up the yoke and the white separately. Mix with bread crumbs and chopped parsley; then place the mixture in a pan with ¼lb. of melted butter and mix well. Place the cauliflower in a shallow earthenware dish and press the pieces closely together. Just before serving pour the Polonaise sauce over it.

Asparagus may be cooked in the same way, and is an extremely succulent dish.

4. ARTICHAUTS A L'ITALIENNE.—Take some artichokes, remove the leaves and the beard, and carefully trim and clean the bottom. Place them in cold salted water and cook thoroughly; then dry them thoroughly in a cloth. Cook slowly together ½ pint of consommé, a small onion, ½oz. of butter and a sprig of tarragon, then add a little white wine, taking care to stir the mixture all the time. Let the liquid reduce a little, then arrange the artichokes in a flat earthenware pan and pour the sauce over them. Sprinkle breadcrumbs mixed with a spoonful of grated gruyère cheese over them, and brown in the oven.

5. SPINACH WITH VARIOUS DRESSINGS.—Pluck the leaves from the stems of spinach. Wash the spinach carefully, shake it dry; throw it into a saucepan of boiling water for five minutes; remove it and throw it into cold water; press all the water out of it, hash it, pass it through a sieve; put it into a saucepan with 2oz. of fresh butter, salt and pepper; after five minutes it will be cooked. Have ready the yolk of a fresh egg with which you have incorporated 2 dessertspoonfuls of fresh thick cream; mix with the spinach. Now dish up the spinach with a garniture of fried crusts of bread, or with eggs poached in a poacher, or with hard-boiled eggs cut in half. Instead of the yolk of egg and cream, a good clear gravy or meat juice may be used; in this case garnish with fried ham, or braised ham, or tiny sausages, or with poached eggs. For six persons, 4lb. of spinach if the leaves are young, 3lb. if mature. Plenty of salt and pepper is required for this dish.

6. SUBRICS OF SPINACH.—After having blanched, refreshed, pressed and chopped 2lb. of spinach, throw it into hot butter. Salt and pepper, and add a tablespoonful of flour. Let this purée cook for six or seven minutes, then take it off and add three eggs thoroughly beaten. Mix them slowly with the spinach, and, spoonful by spoonful, drop them into a stewpan containing sufficient quantity of steaming butter to fry them. Turn the subrics from one side to the other and let them cook for another three or four minutes; strain and serve them in a turban on a round dish with a good creamy béchamel sauce in the centre.

7. CHOUXFLEURS AU GRATIN (Cauliflower).—Cut the flowers with their stalks from a large cauliflower. (Select it "close" and not too full blown.) Throw them into a basin full of water with a little salt, to kill any insect that may be hidden. Put sufficient water into a saucepan, with a handful of salt, to cover the flowers. When the water boils put the cauliflowers into it and cook until tender. Drain through a strainer and place each piece of flower, stalk upwards, into an ordinary pudding basin, fill the basin, always with the heads of flower downwards, until all the cauliflower is in it, the loose pieces at the last. Press them a little and turn them out on a dish. Throw a béchamel sauce over the cauliflower (that should now have its original shape), grate a little gruyère or parmesan cheese over it, and put into the oven for a few minutes.

The sauce is made with a lump of butter in a small saucepan, a tablespoonful and a half of flour, salt and pepper, mix one with the other and add half a pint of hot milk, turning the sauce for about ten minutes while it boils and becomes as thick as cream.

These few recipes may be of some assistance to our readers in showing how vegetables can become the central dish of a light meal. In an early issue salads will be dealt with.

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THE LIFTING AND STORING OF BULBS

BY W. R. DYKES.

TOO many gardeners bulbs are things to be ordered from a catalogue, planted in the autumn to make a display in spring and then, when they have flowered, to be dug up and either thrown away or left lying about. Another alternative is to cut off the leaves of the bulbs when the flowers are over and to plant over the bulbs annuals or bedding plants. Then in the following year when the bulbs throw up a few weak leaves and no flowers, the excuse given is that they are no good after the first year.

The truth, however, is that most bulbs, when grown in suitable soil, increase rapidly and flower regularly year after year. It is many years ago now since I bought my first tulip bulbs and I remember that ten bulbs of the variety Inglescombe Pink were among them. With careful treatment these increased so rapidly that after a few years I always had as many flowering bulbs as I could find room for and was able in addition to give away several hundred every year.

In dealing with bulbs one thing must always be remembered, and that is that the bulb which is planted exhausts itself in the effort of flowering and that a new bulb has to be formed for the following year. This new bulb can only be built up with the help of the moisture and nourishment which the growing plant extracts from the soil and which is transformed from its crude form into food by the action of light on the green chlorophyll contained in the leaves. Obviously, therefore, nothing must be done to disturb the plant so long as the leaves remain green and continue their function of preparing food for the bulb that is maturing for the following year. Until the leaves are mature and begin to turn yellow, the bulbs should be left undisturbed or, if they must be moved, the operation should be carried out with as little disturbance to the plants and their roots as possible and they should on no account be allowed to become dry, but be replanted and watered in with as little delay as possible.

Another most important point which many seem to overlook in dealing with bulbs is that there are several very different kinds of bulbs and that they vary very much in their behaviour. Some bulbs, like those of tulips and Spanish irises, lose all their roots for a period of some weeks in summer, while others, like those of lilies and Narcissus Poeticus, are practically never rootless. From these differences we can draw useful inferences. Bulbs, which lose all their roots, come from regions where the soil is baked dry and becomes hot for a considerable depth during the long drought of summer. To grow these bulbs successfully we must provide a resting period during which the bulbs must be kept warm and dry, whereas lilies, which delight in a cool, moist soil and which are never rootless, should never be kept long out of the ground and are often difficult to establish if, as in the case of the bulbs imported from Japan, all the main roots are cut off when they are dug up.

Bulbs, which during the resting period in summer lose all their roots, may be moved with impunity every year and, in fact, flower all the better for an annual change of soil. The roots of bulbs are not usually very long and therefore, if the bulbs remain undisturbed, they have to push out into the same soil which nourished their predecessors of the previous years. The result is weaker growth than when the bulbs are moved annually and this is probably the reason why many bulbs, which when cultivated in our gardens increase rapidly by offsets, never in the wild state produce any offsets at all, but flower year after year in the same spot, set seeds, and then die when they have exhausted the soil within reach of their roots.

When bulbs are dug up, they should be allowed to dry for a few days in a cool, airy place, but not in the sun, as is sometimes recommended. Exposure to the sun usually splits the skins of bulbs and tends to cause them to shrivel. When the bulbs are thoroughly dry, they should be cleaned and have their old skins removed. Then they may be stored in boxes or paper bags in a warm, dry place. Crocuses, irises and especially tulips seem to benefit when they are stored in a temperature between 70° and 80° Fahrenheit. Under such conditions they remain dormant longer, but crocuses should be replanted in July and August, irises in October and tulips in November. Narcissi, muscari, fritillarias, snowdrops and chionodoxas derive no benefit from being kept out of the ground, though I am inclined to believe that the Crown Imperial, Fritillaria Imperialis, flowers best when it is lifted annually and replanted after about a month. In every case a sharp look-out must be kept for signs of new growth and the bulbs replanted immediately they appear. While bulbs are out of the ground, they should be kept covered or in closed bags in order to keep off attacks of fly and it is as well to put pieces of naphthalene among the packages for the same purpose.

MR. MILLAIS' NEW BOOK ON RHODODENDRONS

IN rhododendrons and their various hybrids, Second Series (Longmans, Green and Co., 1924, folio, £10 10s. net), Mr. J. G. Millais has carried his labours on the genus rhododendron a step farther. This second series is in every way a worthy successor to his first book on the subject, pubished in 1917.

With the tremendous flow of new species and hybrids into cultivation, it is not, perhaps, so amazing as many people will imagine for a new folio of 265 pages to be written within seven years of the first volume, with entirely new material and little repetition. This influx of new rhododendrons is partly due to the activities of botanical collectors such as George Forrest and F. Kingdon Ward, and partly owing to the recent crosses made by hybridisers, both English and Dutch.

In the first chapter of this new volume Mr. Millais explains the reason for the increase in the popularity of shrubs in general. He says that the pre-war idea of extravagant gardening has disappeared and that the requirements of a present-day gardener are "Smaller lawns, few rose-beds and herbaceous borders, economic and non-weedy paths, less manure, fewer greenhouses, no bedding-out in autumn, fewer beds for annuals, and more space devoted to beds and woodland walks of flowering shrubs." There is little doubt that rhododendrons are among the most satisfactory of all flowering shrubs. Owing to the introduction of such late-flowering species as R. decorum, a new race of late-flowering hybrids is springing up which will prolong the flowering season until well on in the summer, and this removes one of the main arguments against the use of rhododendrons. He then goes on to give notes and extracts from letters of the different collectors in China. These are of the greatest importance, because it is by trying to duplicate their native conditions that we have the greatest chance of success with many of the new species. Unfortunately, many species are slow to flower, and this is, of course, where hybrids have an advantage; but by giving them conditions akin to what they are accustomed to in the wild state, this disadvantage may often be overcome.

In this volume Mr. Millais mentions all new species and named hybrids described or introduced since his last volume. In addition, he gives valuable notes on many of the older plants whose idiosyncrasies have become better known during the past seven years. Whether gardeners in the future will always agree with Mr. Millais' conclusions remains to be seen, for it is often difficult to give judgment on a plant during the first year or two of flowering. It may not have quite got into its swing, and so the colour and shape may improve as the years pass. However, that is one of the difficulties which all who write upon rhododendrons have to face.

Although the price of this volume and the difficulties in obtaining many of the plants mentioned may keep some people from buying it, yet its value to the enthusiast is inestimable. It is a book which he must possess, and, if a word of advice may be given, it is a book which should be in every public library in districts in which rhododendrons will

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grow. In that way many gardeners who might otherwise never have a chance of referring to it may be able to use it as a work of reference. Unlike works on most genera, Mr. Millais' two volumes supply a complete compendium on rhododendrons.

The production of the volume is excellent, and particular mention must be made of the brilliance of the collotype plates. The author has gone to an immense amount of trouble in collecting photographs of rhododendrons growing both in this country and also in their native habitat.

There is little doubt that woodland gardening, in which rhododendrons play such a large part, is becoming more and more popular every year. If the ground is suitably prepared to begin with, they require little attention apart from an annual mulching and watering in times of drought.

It is lack of sufficient preliminary preparation that is most often responsible for failures, that and ignorance of their requirements. Our rhododendron knowledge is rapidly advancing, and a great deal of this knowledge is due to Mr. Millais' efforts.

CORRESPONDENCE

CATALOGUES.

SIR,—In these cosmopolitan days—when gardeners from the Antipodes vie with European raisers of roses and shrubs from strange lands, and the notes in THE GARDEN are eagerly read in the Colonies and on the Riviera—it is a pleasure to read the catalogue of the firm of Hazlewood Brothers, who garden at Epping in New South Wales. A kind friend gave it to me the other day, and I find it is more careful and correct in its notes on the new roses and other plants that are offered than any European catalogue that it has been my fortune or fate to study: so much so that I hope it may be read and studied by the compilers of catalogues in Europe.

Among the excellent rose notes I read that the white rose, Louise Crette, a seedling of Frau Karl Druschki and Kaiserin Victoria, is mentioned as very distinct but a bad opener in wet weather. I have seen no mention of it in English rose shows, so I imagine it is not a success in English gardens. This spring there was a burst of excessive heat in May on the Riviera, and plants of this rose produced such wonderful double blooms, so magnificent in size, shape and lasting powers, that it far surpassed its parents. Under glass or in hot seasons, it should be worth a trial, for one huge and very double bloom cut with a long stem lasted eleven days in water before it faded, and was the admiration of all who saw it. My Australian friend tells me it is even better in autumn and winter, when the blooms are not so excessively double or quite so enormous; so I hope gardeners in the Riviera will try it both under glass and in the open. The hybrids of Rosa gigantea seem to open out a new vista of early spring roses that sounds most inviting—in fact, there is *much* we can learn from our friends in the Antipodes and, as I hear, from the Californian coast also: but as yet I fear there is no other catalogue so careful or moderate in its description of plants offered for sale.—E. H. WOODALL.

THE PROPAGATION OF CHOISYA TERNATA.

SIR,—It is difficult to understand how it is that so many correspondents appear to find Choisya ternata a troublesome shrub to strike. Even assuming that the cuttings are somewhat fastidious in a cold frame (which is certainly not a general experience), no shrub is more easily layered than this one. Any branches that come in contact with the soil will root quickly and well, and in addition to these there will generally be a number of suckers which can be pulled out with roots attached. Then why all this controversy?

Some gardeners really seem to go out of their way to do things in the most difficult manner they can conceive. There is Romneya Coulteri, for example. We are told that you can only propagate this plant successfully from root-cuttings, which means digging up an established clump, bottom heat, and no end of fuss. Yet, by pulling up some of the suckers which R. Coulteri produces only too liberally—and they have got to be pulled up anyway—you will find a goodly proportion of these will have sufficient root attached to them to enable you to plant them out direct into the open ground. I have now a nice little stock of plants all raised in this way.—A. T. JOHNSON.

GENTIANA VERNA.

SIR,—I am much interested in the letter of "Formakin" (page 309) regarding this most fascinating alpine. The enclosed photograph, although being a poor one, will serve

G. VERNA ON A MORAINE.

to show the gentian in question entirely at home on a moraine in my garden. The plant here figured produced no fewer than seventy blooms in 1922, and although the effort somewhat overtaxed its strength, it is still full of blossom as I write. Smaller plants continue to thrive all over the moraine, but apparently this is not a species which can be expected to "ramp" in a British garden. One has to be content to see the little things barely holding their own year after year, and during the present month I shall total at least ninety flowers borne on twelve plants. So far as I can remember these were first set out in 1918.—R. H., *Stratford-on-Avon.*

INDISCRIMINATE HYBRIDISATION.

SIR,—When Barbidge and Baker published "The Narcissus, Its History and Culture," in 1875, the genus narcissus was divided into twenty species and they illustrated 109 species and varieties. Among those varieties are shown on "Plate IX. Narcissus Pseudo-Narcissus. A var. 'Empress.' B var. 'Emperor.'" Anyone consulting the Royal Horticultural Society's classified list of daffodil names, 1923, will find in the principal list over 2,400 names and in the supplementary list printed in smaller type "varieties lost to cultivation or suppressed by modern varieties," nearly 1,500 other names. There is some excuse for this appalling total as the daffodil is one of the first spring flowers to open and can so easily be brought into flower early in the season by suitable pot culture and judicious heat treatment. The increase in the number of varieties has extended the season, but there can be few cultivators of those charming plants who do not realise that those varieties are too numerous and a higher standard should be set before new names are allowed and added to that list.

At present there are about 600 known species of primula and the same merry game of crossing and naming goes on. There is money in it from the nursery trade outlook, and, while there is some justification for it, I do think it is being overdone.

It began many years ago with the European mountain primulas, fortunately some either will not mate or else produce sterile offspring, but the vast aggregate of P. pubescens is a race none can number and might have been even greater, only the so-called auricula was taken up as a florist flower, exact rules laid down to which it had to conform, and those rules imposed some check on its increase.

To-day the hybridiser has turned his attention to certain of the newer Asiatic kinds and rules for checking his zeal have not yet been framed.

Some good has been done as some of those hybrids have in the meantime a more facile constitution and some very beautiful plants, more easily cultivated than the true species have arisen. P. Cockburniana, whose fine colour has blended with others of the same section and given us useful garden plants. P. Red Hugh is one of the best of those mongrels; it comes very nearly true from seed, and by selecting the best coloured plants as seed bearers an even more striking strain might be produced, but every primula cross is not of the same excellence.

P. Juliæ was discovered in the Caucasus in 1901; it was introduced to cultivation about 1915, and has since been discovered by the hybridiser as a fruitful parent of so-called new varieties, Juliæ No. 2, Juliana, Wenda and many others have followed in rapid succession and no nurseryman showing alpines seems content till he has a hybrid of his own raising, which only differs materially from all the others in name.

P. Juliæ is a useful and beautiful plant, and seen early in the spring (and it can be very early), with its blooms reflected in still water in front and with a background of P. denticulata, the type forms a fine spring picture; but one cannot feel satisfied that many of its latest developments would give the same effect. Wenda is a striking colour, but it shrieks at every thing except itself. It is a shade one would welcome in a petunia, but seems out of place in a primrose. Unfortunately P. acaulis is not the only other primula with which P. Juliæ is fertile, a name Theodora emanates from Geneva. Whatever the first cross may have been like I cannot say, but later batches of seedlings are dreadful things, little better than bad P. officinalis forms, which vary from dull purple to dirty yellow.

Instead of devoting time and energy to raising such things it would be far better to

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endeavour to solve some of the pressing problems of cultivating the true species. The nivalis group is full of difficulties and if one could only learn how to make them good perennials what joy it would give.

No hybrid has half the character of the natural species; a good gardener can with time produce a greenhouse variety of P. sinensis, but only nature can produce such species as P. melanops or P. secundiflora.—WILLIAM LOW, *Kincardineshire.*

FRAGRANCE IN FOLIAGE OF RHODODENDRON OREOTREPHES

SIR,—In several descriptions recently read of this fine Chinese rhododendron I see no mention made of the fragrance of the young foliage at this time of year. I was not aware that the shrub possessed this charming attribute until a few weeks ago when, in cutting out some dead wood and removing seed-heads, the tender, pea-green leaves emitted a refreshing, aromatic perfume much like that of our common bog myrtle.—CAMBRIA.

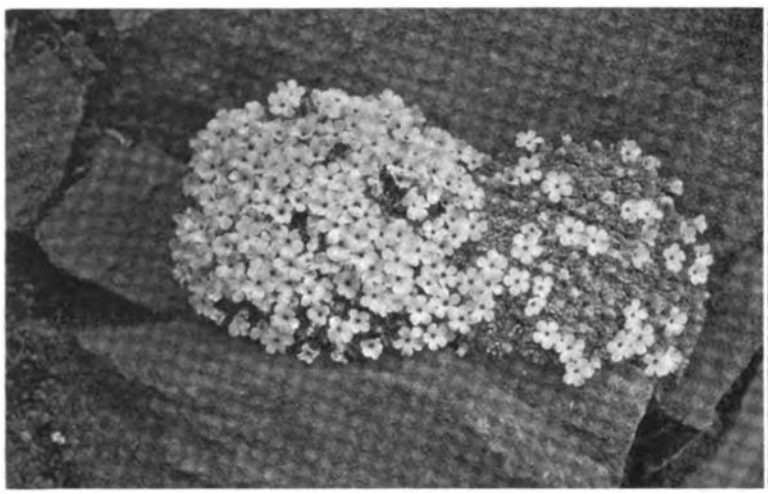
[This fragrance in rhododendron leaves is not at all uncommon. Practically the whole series containing, among others, RR. yunnanense, oreotrephes, ambiguum and Augustinii are aromatic. Other series with aromatic foliage are lapponicum, lepidotum, saluenense and heliolepis.—ED.]

ANDROSACE IMBRICATA AND ANEMONE VERNALIS.

SIR,—In your issue dated January 19th, page 38, you published a photograph of Androsace imbricata which I sent you. I now send you a photograph of the same plants in flower in case it may be of interest to any of your readers. I also enclose a photograph of another high alpine growing here—Anemone vernalis—grown from seed collected in Savoy.—(DR.) N. W. JENKIN, *Hindhead.*

THE VITALITY OF SEEDS.

SIR,—In your issue of the 7th inst., you mention in your notice of the succulent plants exhibited at the Chelsea Show, the mesembryanthemums shown by Miss Worth which had been raised from seed recovered from ss. Kinfauns Castle. The scientific significance of this fact may interest some of your readers. Any such may like to refer to Darwin's experiments concerning the vitality of seeds after immersion in salt water. Limit of space, of course, precludes any detailed reference to the subject in your pages, but Darwin's account of them (mainly in his letters to Sir J. D. Hooker in 1855), will be found in the second volume of "Darwin's Life and Letters," by his son, Francis Darwin. A footnote to one of the letters states that the results were published in the *Gardeners' Chronicle*, May 26th, November 24th, 1855.—A. J. HOWELL.



MANY SAY THAT ANDROSACE IMBRICATA WILL NOT FLOURISH IN ENGLAND.

ANEMONE VERNALIS FROM SEED COLLECTED IN SAVOY.

NOTES FROM CONTRIBUTORS

GERANIUM FARRERI.

LAST winter we secured a plant under the above name (which is, I understand, unofficial), and if this is Sp. F. 201, "two seeds" of which Farrer sent home from the higher altitudes of Tibet, it deserves all the good things said of it by its discoverer. So far this little stranger has behaved with the utmost willingness. Its first leaves, round, green and deeply lobed, somewhat after the style of those of G. argenteum, appeared above ground—for it is apparently herbaceous—in early spring. These made a loose tuft some 4ins. across and half as high, soon to be followed by the branching flower-stems, crimson like those of the leaves, bearing at each extremity a pair of buds. The first of these opened on May 27th, and the beauty of the flower exceeded one's most sanguine expectations. Opening perfectly flat, which is unusual, this blossom measured close upon 1½ins. across, and the broad, overlapping petals, which give the flower a well rounded form, are a most delicate and diaphanous shell pink, the central tuft of silvery stamens standing out prominently and bearing dark, nearly black, anthers. This little treasure is, one may presume, hardy beyond a doubt, and promises to be a great acquisition to our list of dwarf rock garden geraniums. We have it growing in a coolish, well drained pocket of shaley soil with limestone chips and leaf-mould in partial shade, and it seems to be smiling with health at every pore.—N. WALES.

[This plant was shown at Chelsea by Mr. C. T. Musgrave under the name of Farrer's Pink, and it was given an award of merit. An illustration of this plant appeared on page 407 in our issue dated June 7th.—ED.]

THE EFFECT OF WINTER ON PLANTS IN EAST YORKS.

THE following notes were made at the end of May this year on the effect of the long and hard winter on various plants and shrubs. The cold wet spring has been in some cases the saving of plants which were hard hit during the winter. A week or two of hot weather would probably have finished many of them, but as it is they have had a long time for slow recovery. The evergreens in this district were badly affected, and in exposed places privet, aucuba, veronicas and yews were left brown and shrivelled. Gorse appears to be killed. A fine old wistaria on the house is just now putting out a few leaves, but has failed to flower for the first time in our recollection. The white jessamine is much cut back by the frost. On the other hand, Choisya ternata and Piptanthus nepalensis, both considered delicate shrubs, are flowering well and seem unhurt. Young loquats, raised from seed which I brought from Lenno in 1921, have survived, and so has Physianthus, planted out last summer and still alive to the top. These are all on south walls. In the open, Buddleia variabilis has been killed to the ground, but is now growing from the roots, and a 6ft. specimen of Paulownia imperialis seems to be thriving. As an experiment I planted out two roots of greenhouse cyclamens last summer under a Turkey oak and an ash respectively, and both are alive and showing leaf. It remains to see if they flower.—RUTH BICKERSTETH, *Cottingham, East Yorks.*

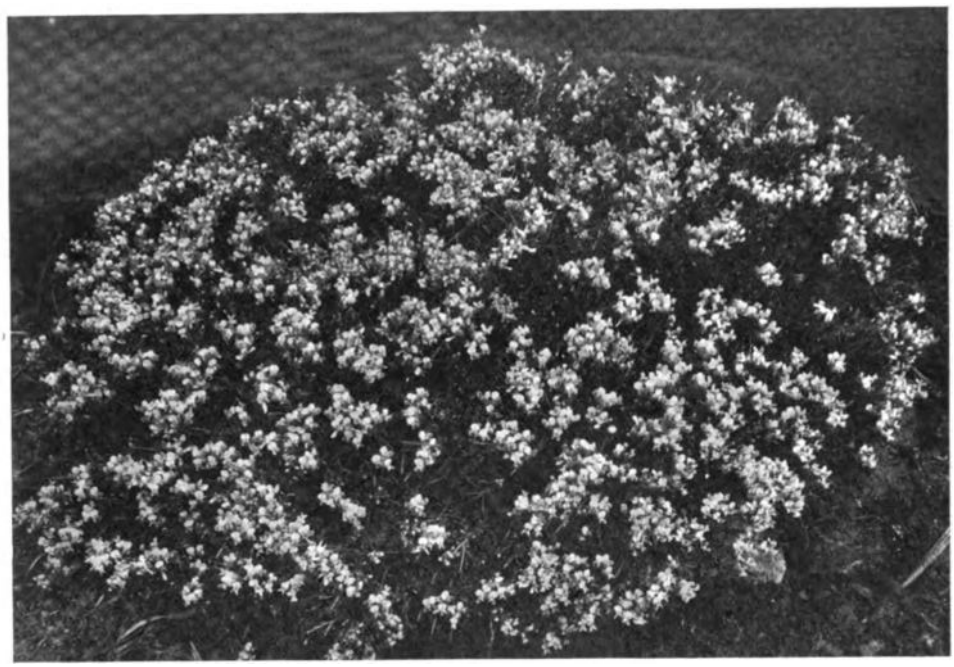
TULIPS IN THE ROSE GARDEN.

THIS season I have made the experiment, by no means new, but at the same time not a particularly common practice, of growing tulips among the roses. My rose garden is quite a small affair and the number of bulbs planted therefore is not very large, but, so far as the practice is justified by the results obtained, most emphatically it is worth while. The effect is particularly pleasing. Despite the unfavourable weather experienced during the last few weeks the tulips put up a very fine show, making a pleasant oasis of what would otherwise have been a desert of more or less bare rose bushes. Usually I have violas growing as a carpet for the roses, and when these are left for a couple of seasons a bright display is forthcoming early in the second year. The greater height of the tulip gives a somewhat more imposing effect perhaps, and at any rate it makes a change. A combination of the two might be worth trying. The growing of violas for two seasons and the planting of tulips to flower the second season should produce an effective result. It goes without saying, however, that such

combinations, and in fact interplanting of any description, should only be attempted where the soil is particularly good. In any case the rose beds will need a thorough top-dressing. With the very large number of varieties of tulips of various types at present in commerce it should now be possible for selections to be made and colour schemes created to suit all tastes.—HOWARD H. CRANE, *Eastcote*.

THE HEDGEHOG BROOM.
ERINACEA PUNGENS.

IN Erinacea pungens we have one of the most beautiful plants for the rock garden, as well as an interesting one, the colour of



A BEAUTIFUL PLANT FOR THE ROCK GARDEN. ERINACEA PUNGENS.

the flowers being distinct, probably more blue than any other hardy tree or shrub of Leguminosæ. It forms a dwarf, much-branched, stiff, spiny shrub, with sharp, erect, needle-like branches bearing a few narrow oblong-obovate or spathulate leaves which are opposite (one of the few instances where the leaves are opposite in Leguminosæ, other instances being in Genista horrida and G. radiata) and from ¼in. to ½in. in length, hardly noticeable against the dense green shoots, being only present at the end of the young branchlets.

The purplish blue flowers are arranged in clusters from three to eight on a short stalk just below the apex of the branchlets during April and May. It has rather a peculiar membranous silky calyx about two-thirds the length of the flower, which becomes inflated after flowering.

Erinacea pungens is a native of South France, Spain, Morocco and Corsica. It was first discovered by Clusius, and one can quite imagine his delight when he first saw this charming little shrub totally unknown to any other botanist at that time. Clusius describes and figures it in his "Hispanicus," which was published in 1576, and remarks on the woody root, large in proportion to the size of the plant. He also mentions that the inhabitants call it "Erizo," the Spanish for hedgehog, which its spines cause it to resemble, and undoubtedly from this he gave it its generic name, a name by which it is now generally known, although later Linnæus considered it a species of anthyllis, and called it A. Erinacea. It was first introduced into the country in 1759, but is still by no means common. Seed is produced very sparingly even in a wild state, and this is partly the reason why the plant is somewhat rare. Then, again, it is not recognised as a hardy plant, although there are few parts of the country where it could not be grown with success if planted in well drained soil and given a sunny nook in a sheltered part of the rock garden. Seeds should be sown as soon as ripe, this being the best method of propagation, although if young shoots with a small heel attached are placed in sandy soil under a handlight it is possible to get a few to root, but layering will be found a better method.

The illustration shows an exceptionally fine specimen 18ins. high and 4ft. in diameter growing here.—F. G. PRESTON, *Botanic Garden, Cambridge*.

OBITUARY

WILLIAM SERJEANTSON.

THE death of the Rev. William Serjeantson on June 9th, at the ripe age of eighty-eight, takes from us one of the best known men from "round the Wrekin." He was a very keen gardener; but as his parish was only a small one and as he divided his clerical responsibility with a priest of the Roman Church, he was able to give his attention to other hobbies. Ever since there was a show at Shrewsbury, until the war interfered with its annual clockwork regularity, he was the judge of wild flowers. He has left his garden after sixty-two years of labour a veritable little Paradise, full of good things. It is a happy blend of bedding out, formal trees, well thought out colour combinations and schemes, and plants old and new, with a well stocked kitchen garden, a hardy fernery and a miniature rock garden thrown in as side lines. Constant selection of the best and constant forethought and foresight were the keynotes of his wonderful success. An old friend writes thus to me: "His death is a loss to us all and his intense love of all things beautiful an example to us all." Let no one think that he was not proud of his parish. He was. The excellent restoration of the Parish Church, which was built by Robert Burnell, the famous Lord Chancellor of Edward I, will for generations to come be an index of the old rector's heart and the love he bore to all his surroundings.

JOSEPH JACOB.

[An illustrated article on the Rectory Garden at Acton Burnell appeared in THE GARDEN, October 15th, 1921, page 512.—ED.]

ANNOUNCEMENTS

Demonstration of Propagation under the auspices of the Botanical Society of Edinburgh, to be held at the Royal Botanic Garden, on Thursday and Friday, July 17th and 18th, 1924, Professor Wright Smith, M.A., F.L.S., F.R.S.E., President, in the chair.

PROGRAMME: Thursday, July 17th.

10 a.m.—1 p.m. Demonstration of Vegetative Propagation by means of Stem Cuttings, illustrated from fifty different plants.

2.30 p.m. Opening Remarks by President.

2.40 p.m. The Propagation of Clematis. By Miss Edith Philip Smith, B.A., F.L.S.

3.10 p.m. On Cuttings of Camphor. By Miss Mona Reid, B.Sc.

3.40 p.m. Horizontal Branch Propagation. By L. B. Stewart.

Friday, July 18th.

10 a.m.—1 p.m. Demonstration of Vegetative Propagation from Leaf and Root, illustrated from fifty different plants.

2.30 p.m. Propagation by Bulb Scales. R. J. D. Graham, M.A., D.Sc.

3 p.m. Root Cuttings. By L. B. Stewart.

3.30 p.m. Discussion of Exhibits.

British Carnation Society. — The following new carnations have been registered with the raiser's description of each:

CORAL GLOW, seedling, terra-cotta, flushed bronze; size, 3½ins.; mild fragrance; compact and free; stem strong.—Messrs. Allwood Brothers, Hayward's Heath. February 2nd, 1924.

SALMON BEAUTY, parentage, Wivelsfield Beauty, deep salmon; size, 3½ins.; sport; strong fragrance, habit and stem like its parent.—Messrs. Allwood Brothers, Haywards Heath. February 6th, 1924.

GEORGE ALLWOOD, seedling, blush salmon; size, 3½ins.; fragrance exceedingly good, habit and stem short and very free, of commercial type.—Messrs. Allwood Brothers, Haywards Heath. February 6th, 1924.

WEMBLEY WONDER, seedling, purple-heliotrope with buff ground over flushed cerise; size, 4ins.; fragrance strong, habit and stem very good.—Messrs. Allwood Brothers, Haywards Heath. February 6th, 1924.

JENIE MAIZE, sport of Jessie Allwood, deep maize, edged pink; size, 5ins.; mild fragrance, habit and stem identical with Jessie Allwood.—Messrs. Allwood Brothers, Haywards Heath. February 6th, 1924.

SIR PHILIP SASSOON, pedigree seedling, crimson; size, 3½ins. to 4ins.; good fragrance, very vigorous grower, stiff stem.—Messrs. Stuart Low and Co., Bush Hill Park, Enfield. February 19th, 1924.

MRS. E. WORMALD, sport from carnation Lady Alington; salmon, large flowers, sweetly scented, robust habit.—Mr. E. Wormald, Sheepwell House, Potters Bar. February 26th, 1924.

FRIEDESWIDE, seedling, pale salmon-pink, fair fragrance, habit and stem good.—Mr. Hubert Blake, Tower Cottage, Alverstoke. March 27th, 1924.

BIS GREENFIELD, seedling, deep scarlet; size, 3½ins.; medium fragrance, habit and stem stout and wiry.—Messrs. John Peed and Sons, West Norwood. March 27th, 1924.

LORD REVELSTOKE, seedling, deep cerise; size, 3ins.; mild fragrance, habit and stem good; parentage, Mrs. C. W. Ward × Triumph; calyx is very good.—Mr. A. J. Pointing, Appleton Nursery, Bulpham, Essex. March 26th, 1924.

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SIMPLE GARDENING

WEEDS.

It has been almost impossible to keep flower, vegetable and fruit borders free from weeds since the early days of March, when seedlings began to get troublesome. Weeds are, undoubtedly, a nuisance, but they are a criterion to go by to a great extent. A blind farmer, being conducted over a new farm with a view to renting it for his son, who accompanied him, put many questions to his son as they passed from field to field. The son said, "Why! father, I cannot see a thistle anywhere"; the father replied, "Then we won't rent the farm my son; land that will not grow thistles will not grow corn."

I mention this occurrence as some measure of comfort for gardeners who find plenty of weeds, among them thistles, in their gardens. The Dutch hoe besides being beneficial to crops, where used regularly when the soil is in a fit state, kills seedling weeds wholesale. Every effort should be made to kill them while they are small and so prevent reproduction by seeding. Hand-weeding is absolutely necessary in some cases, and where groundsel, for instance, is nearing its flowering stage, it is not safe to throw the plants in a heap and leave them there without treatment. These, docks, dandelions and thistles should be subjected to fire by throwing the plants on the garden fire when the heat in the latter is fairly strong, thus destroying the seeds. A notched, pointed stick, dipped in oil of vitriol and used to stab the crowns of coarse weeds on lawns, will cause the death of the weeds. The vitriol, of course, burns and is poisonous.

LIQUID MANURE AND SOOT WATER.

The cultivator who can command an unlimited supply of farmyard liquid manure has a natural advantage over the one who must make the manure artificially. In both cases such manures should be freely diluted before they are applied to growing plants. We are now concerned more with the made liquid manure and soot water. Both ingredients should be procured first in a dry state and kept so while portions of each are being used. Both, too, should be made in separate tubs or similar vessels. In a tub containing 20 gallons of water an old sack containing 1 peck of manure or the same quantity of soot should be placed. As dry soot is not readily moistened through when bound up tightly in a sack or piece of scrim, it is a good plan to put a tied-up saturated bundle of moss or grass in the centre of the soot before tying up. Instead of sinking the bags to the bottom of the water tubs, suspend them in the centre of each by fastening a strong cord round the bag and tying the other end to a strong stick placed across the top of the tub. The manure, or soot bag, as the case may be, should be moved about freely twice each day for four days, when the water will become impregnated and turned into liquid manure or liquid soot. When used, 1 pint to a gallon of water will be, approximately, the right strength. It should be in a clear state, too.

THE TREATMENT OF TOMATOES.

The weather has a good or bad effect upon the plants and their fruits under glass as well as on those grown in the open air. Under glass the plants do receive protection from rains and cold winds; in the open air the success of

the crop depends, mainly, on the warm nights and sunny days. In both instances there should be similar treatment as regards the principle of training except in one particular, namely, that of stopping and the approximate date.

A perfect tomato plant should consist of the main stem and main leaves. Nos. 1, 1, shown in the sketch. The side shoots, Nos. 2, 2, are removed while quite small, and the trusses of fruit are retained in number according to the place wherein the plants are growing. In the open air four trusses are quite enough to retain to mature, and the top of the plant should be taken off the first week in August, as shown at No. 3. Plants growing under glass may be trained on to a later date—the early part of September to bear about seven trusses of fruit—and then stopped as shown at No. 4. The feeding should commence when two trusses are formed on plants under glass, one or two applications being sufficient for outside plants in hot summers; none being needed in dull, cool ones. A dry, buoyant atmosphere is essential for the plants, and this can be secured to a great degree under cover.

TRAINING CHRYSANTHEMUMS.

Owing to the recent long spell of wet weather and the lack of sunshine, these plants, in common with many others, have grown rapidly, being long-jointed in some instances and possessing stems much too soft and sappy. Now, the inexperienced cultivator may be well pleased with the appearance of such specimens, not so the old growers; the latter like stems and leaves that gradually harden as each month passes. Not till late in July will the roots have filled the large pots, and almost exhausted the nutriment contained in the compost, so that there should not be any hurry to feed. Many specimens will be better without stimulants in the meantime. The system of training should be decided upon at an early stage so that the strength of each plant will be concentrated in the stems and main leaves throughout. To grow surplus shoots 1ft. long and then discard them means waste of energy of plant. The main supporting stakes should be driven into the new soil, not into the old ball of soil and roots, else the latter will be damaged. Plants possessing three shoots, to bear blooms for exhibition or large ones for conservatory groups, should be supported by three stakes. Single-stemmed ones will need one stake; small bushes one stake looping the new branches to it. Larger bushes three stakes placed near the side of the pot—the tying material will thus enclose many branches, allowing the latter to grow in a natural form.

STAKING PLANTS.

If a herbaceous plant having a number of separate stems is to be staked, one, two or three stakes may be used. In every case the position of the stakes should be hidden as much as possible, while furnishing the necessary support to the clump when the soft tying material has been passed round it. Tuberous plants, such as begonias, that have produced a large amount of foliage may require support against strong winds by fixing short stakes into the ground near the tubers and merely passing the raffia round the stem just above the tuber, the stake being quite hidden under the leaves. In cases of staking choice pot plants indoors and outside, the stakes used should be very neat, all knots smoothed away, painted green or oak colour, and not be any thicker than is absolutely necessary.

GEORGE GARNER

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Beet.—Where such crops as beetroots and carrots have failed, now is a good time to sow seeds of the globe variety of beet and stump-rooted carrots. Sow the seeds thinly and keep the hoe at work in all parts of the garden.

THE FLOWER GARDEN.

Rambler Roses.—It is advisable to encourage the strong basal growths of rambler roses, and at this season they will need to be tied up rather loosely to prevent damage to the points, an injury which is often the result of carelessness on the part of the man with the lawn-mower. Suckers from both standard and dwarf varieties should be removed, weeds kept down and a close watch for aphis maintained. For spraying the trees with an insecticide a dull day should be chosen, or failing this, do the work late in the evening.

Violas.—To prolong a display of bloom, it will be necessary to examine the plants from time to time and remove the seed pods and old flowers.

Grafted Trees and Shrubs.—Such plants as lilacs, viburnums and rhododendrons are usually grafted on common varieties of the same genus, and it often happens that a large number of basal shoots appear at this season. The beginner is apt to think his plants are doing remarkably well, whereas, if these shoots are not removed, they will in time destroy the plant. The beautiful Viburnum Carlesii may be cited as an example. I have seen several plants almost ruined because the stock was allowed to develop. Plants on their own roots will only need the basal growths slightly thinned if they are numerous, and likely to become overcrowded. The grower should be careful to discriminate between the stock and scion, often the foliage is very much alike.

THE HARDY FRUIT GARDEN.

Red and White Currants.—The summer pruning of these useful fruits does not always receive the attention that it should. Where such work is carried out more light and air is admitted to the centre of the bushes, both fruit and trees being benefited. The leading shoots should be allowed to extend, but all side growths stopped at the fourth or fifth leaf. Cordon trees are treated in a similar way. Nets ought to be placed over the plantation before the currants begin to colour, or there will be considerable losses from birds.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Scarlet Runner Beans.—Plants raised from seed sown in pots or boxes under glass and set out some time ago will be well advanced, but those from sowings made out of doors should be staked now. If tree sticks are not available ordinary pea trainers turned on their ends and supported with stakes will answer quite well.

THE FLOWER GARDEN.

Chrysanthemums. — Border varieties should now be well advanced, and no time should be lost in having the stems securely staked and tied. Bushy plants of the Masse type produce many flowers and may require anything from three to five stakes each, so that the plants will be held in an upright position when plants are in bloom.

Lythrum Salicaria rosea.—We might class this loosestrife among the neat and stately growing herbaceous plants, and those who have raised a batch of seedlings should have these set out in lines 1ft. apart; the seedlings being placed 6ins. distant from each other in the lines.

Sweet Peas.—The plants should now be showing flowers. One year plants raised from autumn-sown seed were not a bit earlier in flowering than the plants raised from spring-sown seed germinated and brought on under glass; both were in flower on the same date. But there was a very great difference in their heights. Those plants raised from November-sown seed were at the time of flowering over 6ft. high, while the plants raised from the March-sown seed were only 4½ft. high when coming into flower. If a prolonged supply of good flowers is expected one must keep picking and allow no seed pods to form on the plants.

THE HARDY FRUIT GARDEN.

Strawberries.—There may be a delay in a somewhat late season of putting the straw between the plants, or of spreading the nets on, but the work should be done at the earliest opportunity, and also nets hung up in front of cherry trees on walls.

FRUITS UNDER GLASS.

Melons.—These plants should be progressing rapidly now and where the beds are somewhat narrow or shallow, it may be advisable to apply a top-dressing further to sustain the plants. Continue to maintain a moist atmosphere so that thrips and red spider will be kept in check, as reliance cannot be placed on mild fumigations to kill these pests.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Arctotis aureola.—This beautiful South African plant is very difficult to propagate by means of cuttings and it is not generally known that it is readily increased by layering. For this purpose the plants should be turned out of their pots and planted out in the open, or better still, in a cold frame; afterwards layering them in the usual way. By this method a good stock of young plants is easily maintained. When well rooted, the layers should be lifted and placed in 48-sized pots, afterwards standing them in cold frames. The latter should be kept close for a week or so until the plants become established. Afterwards they should be given plenty of air and ordinary cool greenhouse treatment.

Arctotis revoluta and A. aspera.—Although both these plants are desirable for the greenhouse, they are by no means such showy plants as A. aureola. They are both easily propagated at this time by means of cuttings, which root readily under a bell glass in a cool greenhouse.

Calceolarias of the herbaceous section should now be raised from seed. As the seed is very fine the seed pots should be prepared and well watered the day before sowing, using a light, sandy compost. The seed should be sown on the surface and barely covered with a sprinkling of sand. Cover the seed pots with a piece of glass and keep them shaded until germination takes place. These plants require perfectly cool treatment at all times, with moist atmospheric conditions. When large enough to handle the young seedlings should be pricked off into pans or boxes containing a light, rich compost; later transferring them to small pots. Subsequent treatment consists in potting them on as they require it. Green fly should be guarded against by frequent light fumigations.

Malmaison Carnations.—As these plants pass out of flower set young stock aside for potting on. Good healthy plants should also be selected for layering. For this purpose the plants should be turned out of their pots, planting them out in cold frames, afterwards layering them in the usual way. When well rooted, lift and pot up into 48-sized pots, using for this purpose a good medium loam. To ensure free drainage old mortar rubble may be used instead of sand, as all carnations are lime lovers. After potting, the plants may be stored in cold frames or in a cool greenhouse.

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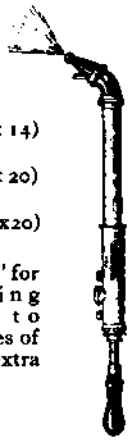

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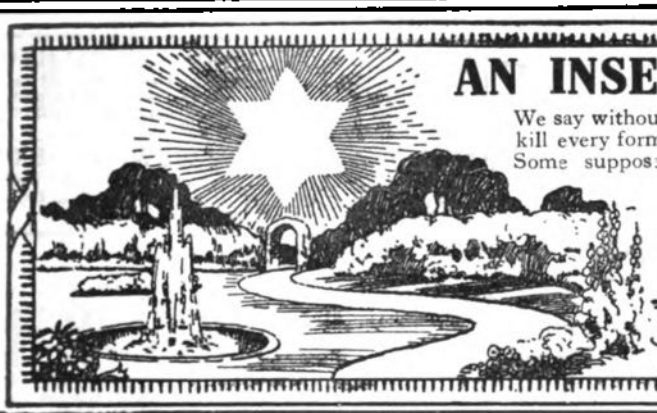

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ANSWERS TO CORRESPONDENTS

THE FLOWER GARDEN.

Hollyhock Disease (Felsted).—The fungus causing the hollyhock disease first appears in minute rusty spots on the undersides of the leaves. Then the brown spots increase in size and spread rapidly. When the fungus pustules are fruiting they break through the skin of the leaf, producing spores, each possessing two cells at the point of growth. Our correspondent should examine the leaves under a magnifying glass and so ascertain if these conditions prevail. If so, the plants affected should be uprooted and burned. The fungus on the lawn may be killed by pouring strong liquid manure, undiluted, into holes made 9ins. deep with an iron rod and 1ft. apart; or by using sulphate of ammonia in tiny holes a few inches deep and 1ft. apart. The nitrogenous matter from the decaying fungi causes the grass to grow strongly and of a dark green colour.

FRUIT GARDEN.

Pear-tree Shoots Dying (Mrs. C.).—No doubt the roots of the tree are in an uncongenial rooting medium and their past and present condition is the real cause of the tips of the young shoots dying. There are no insects—grubs—in the shoot sent. The pear thrives best in a rich loam, inclined to be heavy, but the drainage of the land should be sound. It would be best so to prepare ground and plant a young tree in the autumn.

MISCELLANEOUS.

To Eradicate Woodlice (A. C. B.).—Woodlice like darkened places where there is also dryness. They eat much food and are always found close to a supply of it. It is not possible to apply boiling water near the roots of plants, only in open quarters where this risk does not exist. But in confined places, such as the greenhouse, place cut potatoes in small, empty flower pots, scatter a small quantity of bran on the cut parts, add some dry moss, and lay down the pots, inverted, on the floor or stage. Examine every morning and shake out the woodlice into boiling water. It should not take a long time to clear away the pests.

How to Rid a Pond of Scum ("Enquirer," Dunfermline).—As there are fish in the pond it is not possible to take drastic measures to clear it of scum. Water snails are, in same cases, objected to, but they will clear the surface of scum. Tench are better than carp for the same purpose. Either, or both, of these experiments could be tried, the tench being the least objectionable.

To Make Grape Wine (J. H. S.).—Although a few tendrils and the ends of young shoots improve the flavour of the wine, the shoots themselves do not make such good wine as that from the berries and bunches at thinning-out time. The following are quantities and the process. Use a tub, also a small cask. In the tub place 24lb. of grapes and young shoots; add 2 gallons of water after well bruising the fruit with a wooden article. Stir well, cover with a blanket, allow it to stand for twenty-four hours. Draw off liquid through a tap near the bottom, add 1 gallon of clear water, stir and draw the liquid off. Wash the tub; return the clear liquid and 1 gallon of clear water. Add 18lb. of brown sugar, stir, then make a paste of half an ounce of baker's yeast and tepid water. Place three pieces of ordinary toasted bread on the liquid in the tub, and cover these with yeast paste. Cover the tub with a blanket. The temperature of the room should range about 65°. In from thirty to fifty hours the fermentation should be complete. Then draw off liquid again, passing it through a clean woollen cloth or blanket and fill up the cask. Leave the latter slightly tilted so that the froth can run out, fill up with clear water from time to time. In ten days or so active fermentation will cease, the bunghole may be closed, but a vent-hole must be made near and duly pegged. Put in a small quantity of isinglass during cold weather in autumn.

Names of Plants.—(G. R.).—1, Billbergia nutans; 2, Gasteria species; 3, Cannot recognise other specimen without flowers. ——(W. V. P.).—A, Veronica prostrata; B. Arenaria montana; C, Saxifraga canaliculata.——(Col. S., Perth).—1, Pernettya mucronata; 2, Pieris japonica.——("Hedgerley").—1, Iris Gambal; 2, I. pallida var.; 3, I. Mrs. Newbronner; 4. I. squallens var. ——Mrs. C.—1, Saxifraga canaliculata; 2, S. cuneifolia; 3. Dicentra formosa.

Clay Challenge Cup.—The Clay Challenge Cup, presented by Messrs. Clay for a rose of good form and colour not in commerce, possessing the true old rose scent, such as may be found in the old cabbage or Provence rose, in Marie Baumann, General McArthur, etc., will be offered at the Royal Horticultural Society's Fortnightly Show at Vincent Square on July 8th next. The scent known as "Tea Rose" is not, for this competition, to be accounted as true old rose scent. Not more than three varieties may be shown by any one competitor, and at least three and not more than six cut blooms of each variety, are required. The cup will only be awarded once for the same rose. It is hoped that this year all leading rose growers in the United Kingdom will send in entries for this cup. The public shows each year an increasing interest in roses, especially those possessing the true old rose scent, and the Royal Horticultural Society hopes that Messrs. Clay's generosity in presenting this cup will lead to the introduction of new roses with good scent.

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THE GARDEN

VOL. LXXXVIII.—No. 2746. JULY 5, 1924.

A PEACEFUL SETTING OF IRISES BY THE RIVERSIDE. FEW PLANTS ARE SO WELL SHOWN OFF BY WATER AS IRISES.

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THE GARDEN

JULY 5, 1924

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EDITORIAL

THIS article is written round a correspondent's answer to a short note of a week or two ago entitled "Encouragement." It is entered in this place in the paper partly because I like to have an article noticed—as a newcomer to horticultural journalism my vanity is pleasantly titillated, surely a sufficient excuse?—and partly because it brings forward a point which requires an answer. It is good news to hear from people who appreciate THE GARDEN: it is also gratifying to learn that readers are helping the paper along by pointing out its merits to their friends.

"The leader on 'Encouragement' in THE GARDEN for June 14th would, I venture to say, be perused with much interest by readers everywhere. The Editor has taken us into his confidence by telling us, that since the paper appeared in its new form, he has received numbers of congratulatory letters. That is good news! But he goes further than this; he 'let's the cat out of the bag' by a candid admission, when he says certain critics have expressed their opinion that the catering of THE GARDEN has been in the direction of the *advanced* gardener. May there not be some truth in this? May not the man whose garden is only of moderate dimensions have a feeling, after reading some of the articles by learned specialists in their particular domain of horticulture, that they bordered on the academic, and, therefore, held little in common for him? I have a deal of sympathy for the average gardener—and by this I mean the possessor of the small, or at any rate, moderate-sized plot, and I regard the one or two letters received by the Editor with respect to catering for the advanced school as representing quite a large proportion of readers of the paper. We are assured, however, that—whatever the policy of THE GARDEN may have been in the past—it is not its intention to ignore those whose interest in gardening may be real and keen, but owing to limitation of ground, have perforce to 'cut their coat according to the cloth,' and who, if they are unable to boast of a rock garden, may be able with not a little pride, to point to a *rockery* in their little garden 'brimming over with flowers to mark the days and weeks and months.' It seems to me that by the introduction of 'Simple Gardening,' the Editor has earned the congratulations of all who look at gardening in its widest sense, and by this Forward Movement, has considerably enhanced the scope of the paper. I have often passed on THE GARDEN to friends, who, while praising its high level and the beauty of its illustrations, have said to me, that many of the articles were more calculated to arouse enthusiasm in the hearts of Fellows of the R.H.S. or others whose particular interest was of a botanical order, and that there was little to help the beginner, or the owner of a small villa garden. That charge cannot be sustained any longer, at all events, with the advent of 'Simple Gardening.' It is conducted by a man of wide experience, both as a practising horticulturist and contributor to the gardening press. He will give us of his best, couched in language that even the veriest tyro may understand. We are up against this fact to-day, more than ever before, that *amateur* gardeners—whether we like the designation or not—are in the ascendancy; they represent by far the greatest number of those who wield the spade, and that, among such, the majority own comparatively small gardens. To them is submitted advice about lowly plants and vegetables which they are able to grow, and this appeals to them more than a dissertation upon forest trees, aquatic plants, orchids, or fruit-growing under glass, and, therefore, I cannot help thinking that while THE GARDEN, with its traditions, will continue to cater for the advanced school, it has enhanced its reputation in providing food for thought for the larger body of gardeners. I have read THE GARDEN regularly for very many years—longer, indeed, than I care to remember—and knowing its worth in early days and its recent expansion, I feel sure that the step it has now taken will not in any way lessen, but will add to its value and circulation by making new friends. We may all do something by pushing it along, by showing our copy to those who have not seen it in its new dress. I wish it all success."

The point that requires an answer is this: Our correspondent perhaps takes it for granted that a small gardener is always in a beginner's standard and that a beginner remains a beginner. Now we have found in THE GARDEN that this is not the case. However small a plot a man may cultivate, sooner or later he will find that some particular flower, vegetable or fruit becomes, perhaps not a passion, but a favourite. Therefore we do not expect those readers who may be satisfied with our "Simple Gardening" page at the beginning of their experience to consider it after a year or so as their only solace and comfort. But apart from that we hope that even beginners will find something of interest in the other pages of THE GARDEN. Gardening knowledge is only a question of degree and it is amazing how quickly one's standard may rise provided that an intelligent interest is always taken in the subject.

E. H. M. C.

FORTHCOMING EVENTS.

July 8.—Royal Horticultural Society's Fortnightly Meeting.

July 9.—Brighton, Hove and Sussex Horticultural Society's Exhibition (two days).

July 10.—National Sweet Pea Society's Show at the R.H.S. Hall (two days).

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IRISES FOR EVERY GARDEN

BY A. J. BLISS.

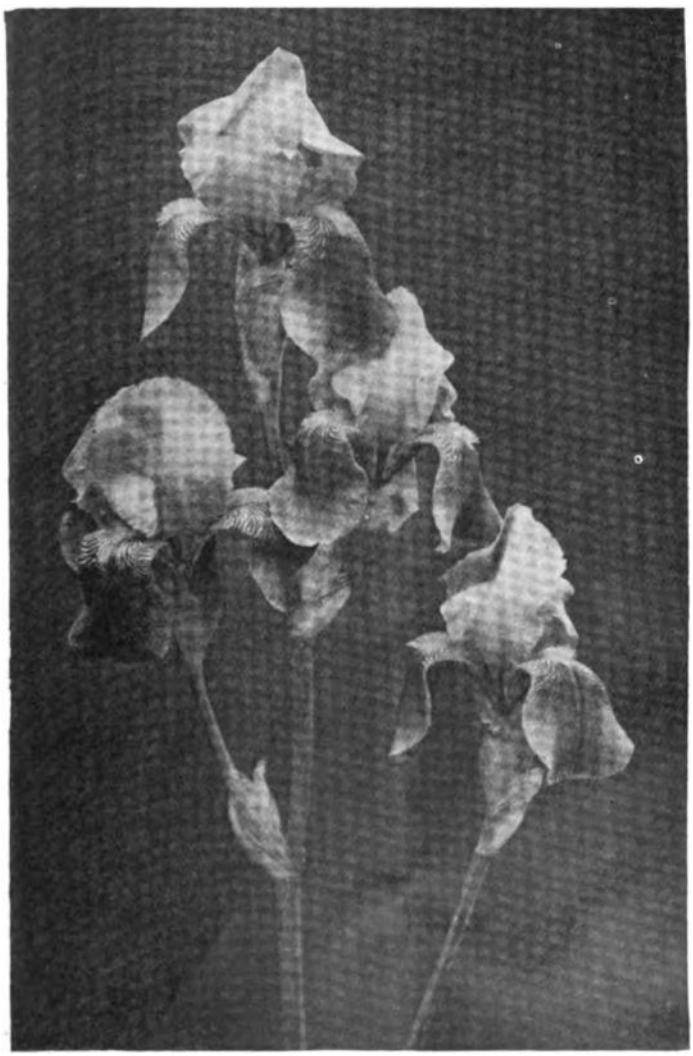
MANY GARDENERS FIND A SUITABLE CHOICE OF IRISES FOR THEIR GARDEN A MATTER OF SOME DIFFICULTY. IN THIS ARTICLE A SELECTION OF SOME OF THE BEST VARIETIES IS GIVEN.

TO make separate selections of the best irises for every type of garden is manifestly an impossibility: for garden ideals are many, and every maker of a garden will impress something of his individuality in the making of it. But, broadly, all garden ideals can be divided into those in which the general effect is chiefly aimed at—colour-scheme gardens and colour massing—and those in which the individual plant or flower is the first consideration. Admittedly these aims overlap, and in all gardens will be combined in varying proportions.

Colour being the most important consideration in the garden, the colour classification will be followed as far as possible, the best in each colour group being noted, followed by any that may be distinct or useful for special purposes.

WHITE.—The three best—in three different types—are *Kashmir White*, tall, with large pure white flowers of fine form; it is reputed to be a shy flowerer, but with abundance of lime—a heavy dressing every year—it grows well and flowers freely. *Taj Mahal*, an American seedling of quite a different type, being derived from I. plicata; a strong grower, with large flowers, pure white except for the light lavender reticulations on the haft. *Mystic*, large flowers of fine form on rather close spikes, white with red-violet reticulations on the hafts; it is exceptionally free, and should eventually supersede Mrs. H. Darwin. To these may be added: *Bolingbroke*, which is practically as fine as Kashmir White, with larger flowers, though less distinctive in form. Being a seedling of Trojana-pallida and Kashmir White, it may succeed where Kashmir White fails. *White Queen*, a pure white, with smallish flowers and comparatively dwarf, but very free, and the best for the front of the border. *Innocenza*, a cream-white, very free and quite distinct from any of the above, being derived from variegata.

I. CITRONELLA, OF PALLIDA HEIGHT AND HABIT.



PRACTICALLY A VIOLET-PURPLE BICOLOR, IRIS PROSPERO.

PLICATA.—All plicatas are beautiful, but few are outstanding. Of the violet-blue margined plicatas, *Princess Osra* is undoubtedly the finest in size, form, and in the delicate effect of the clear and defined spotting of the margins. Others that may be noted are: *Mme. Chereau*, which, though eighty years old, is still worthy of a place in any garden; *Ma Mie*, which has a rather deeper and bluer frilling; and *Hilda*, in which the margin-colour is still deeper and more defined, and which, from its closer habit and exceptional freedom, is the best for massing. Of the red-violet plicatas, *Francina* is practically the only one, but there is scope for improvement in this colour type. Of the rose and lilac plicatas, though there are very many, and all beautiful, no one can yet be picked out as exceptional. The squalens-plicata type is comparatively new, but some think Verdier's *Mercedes*, though now twenty years old, is still the most beautiful of these; while M. Denis' *Mme. Chobaut* would appeal equally, perhaps, to others.

AMŒNA.—This has always been a small section. *Rhein Nixe* is one of the strongest growing and freest of all irises, but the colour of the falls is too pale to make an effective contrast with the white standards. *Daphne* has deeper violet falls, and is otherwise a counterpart of Rhein Nixe,

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and probably will eventually supersede it. *Tristram* is exceptional for the contrast of the white standards and indigo-violet—almost black—falls, and supersedes the older Thorbeck. *Dalila* is a distinct and striking flower, with cream-white standards and rich red-purple falls.

BICOLORS.—These include irises of really very different types: (1) Those with tall branching Trojana-pallida habit, blue-violet or red-violet; and (2) those of more Neglecta habit, with the same colour range. The Dominion race also comes naturally here, though some merge into the bicolor squalens.

Of type (1), the tall bicolors, the best are *Lord of June*, violet-blue; *Prospero*, which, though classed as a squalens, is practically a violet-purple bicolor; *Paladin*, a distinct iris with very large flowers, and early; *Baronet* and *Crusader*, for their special blue tone; and lastly, *Magnifica*, light red-violet, a magnificent iris worthy of its name.

Of type (2), *Dominion* is, of course, unique. *Perfection*, with deep indigo falls, is still unmatched. *Azure* and *Du Guesclin* are the best blue-toned for massing or large groups, the former richer and deeper coloured and a rampant grower, and the latter a brighter blue and of closer habit. *Monsignor* and *Syphax* are, perhaps, the two best red-violet of this type. Monsignor has fine-formed flowers, and Syphax is distinct and striking, but neither are outstanding.

Of the Dominion race the best of the violet and violet-blue are *Swazi*, *Hyperion*, *Bertrand* and *Yeoman*, in the order given. *Cardinal* and *Romola* are the two best of the red-violet, and perhaps the most beautiful of all. Of the deep-coloured, ranging from pansy purple to blackish purple, the best are *Moa*, *Tenebræ* and *Duke of Bedford*. Of the semi-squalens type, *Bruno* is unique, *Glamour* perhaps the most beautiful in colouring, and *Majestic* the most imposing in size and form. In the same class as these are *Lent A. Williamson*, comparable with Bruno, being freer flowering but less rich in colour, and *Ambassadeur*, comparable with Moa, having smaller flowers, but even darker falls.

SELF VIOLET, BLUE AND RED.—Of the lighter coloured the best are: *Ballerine*, violet-blue; *Gabriel*, *Ann Page* and *Morwell*, somewhat lighter and bluer; and *Leonato*, lavender-mauve. *Princess Beatrice* is still the finest pale lavender-blue pallida. *Queen Caterina* is unsurpassed for the satiny lustre of its pale lavender-violet flowers. And *Souvenir de Mme. Gaudichau* is by far the finest deep violet-purple iris yet raised. Besides these, there are some, not so outstanding, perhaps, but distinct and notable. *Mlle. Schwartz*, for its height and large flowers of clear fresh pale lavender-blue; and *Leoné Trenance*, with perfect-formed flowers of a luminous violet-blue, and exceptionally free. *Mrs. Tinley* is the best of the Ciengialti hybrids; and *Miranda* is a very distinct violet iris of Ciengialti type, but taller and early flowering. For massing, *Commodore*, when better known, will be widely grown. Of ideal compact habit, yet increasing very fast, the colour is a uniform self violet. For a blue tone, *Rodney* or *Isis* are the best.

Of the "red" selfs, *Seminole* is undoubtedly the best, far surpassing any other in the brightness and purity of its colour, and is very free. *Opera* is one of the richest coloured of irises, an indescribable blend of crimson-toned purple and sepia. *Edouard Michel* is still the best of its colour, a reddish claret.

Following these come naturally the shades of colour that range from mauve to pink. *Lady Byng* is by far the best and purest mauve, and will probably prove a more popular colour than its parent Phyllis Bliss. *Sweet Lavender*, two shades of rosy mauve, owes its charm perhaps as much to its light and open branching habit as to its colour. *Troost* is unique in colour, a raspberry-rose, with large flowers of fine distinct form. *Isoline* is still unmatched. *Dream* at first opening seems almost a true rose colour, but really is a lilac rose. *Aphrodite* is of similar colouring but a finer flower, and with a much better habit. *Susan Bliss* is the best of these and the nearest to a true rose-pink; but *Queen of May* is still worthy of a place in any garden.

I. DAPHNE, WHICH WILL PROBABLY SUPERSEDE I. RHEIN NIXE.

ONE OF THE BEST OF THE DOMINION RACE, I. BERTRAND.

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SQUALENS—There is probably more scope for improvement in this class than any other, since, except for Bruno and Ambassadeur, there are few outstanding varieties, and they mostly lie on the borderland of other sections. It is remarkable, too, that *Jacquesiana* after eighty years is still the best "red" squalens, though *Mrs. Cowley*, of similar colouring, is better for massing, being of closer habit and freer. The only other "full" squalens of note is *Prosper Laugier*, which is exceptionally free and a strong grower. It is often compared with Jacquesiana, but it is really quite different in colour effect, which is brown rather than red. *Asia*, the finest, after Bruno and Ambassadeur, of those now classed as squalens, is intermediate between the older type of squalens and trojana. *Alcazar*—almost a purple bicolor—is of splendid habit, but the colouring is dull and undistinguished. *Dora Longdon*, an iris of beautiful colouring and exceptionally free, is on the borderland of squalens and amœna. And *Iris King* is so near a variegata that it is practically superseded by Flammenschwert.

I. FLAVESCENS IS INDISPENSABLE WHERE BROAD EFFECTS ARE DESIRED.

VARIEGATA.—*Flammenschwert* is undoubtedly the finest pure variegata; the flowers are large and of fine form, and the yellow is rich and clear. *Marsh Marigold* is distinct with lighter yellow standards and more "solid" coloured falls with a defined yellow margin. *Knysna* is the tallest and, being exceptionally free and strong-growing, is indispensable for massing. *Citronella*, though classed as a variegata, is really in a class by itself, being of pallida height and habit, and the fall colour is a crimson-toned red instead of the typical variegata brown-red. *Shekinah*, a luminous pale yellow self, is also of pallida type and will eventually supersede flavescens. Meanwhile, *I. flavescens* is still indispensable where broad effects are desired. *Aurea* is the richest deep yellow self.

To conclude, the irises in this selection number about eighty, all are distinct and notable, and some thirty-five are outstanding.

HOW TO HYBRIDISE IRISES

BY SIR ARTHUR HORT, BT.

IT is well known that most irises cannot fertilise themselves, the stigma being so placed that the pollen does not fall on it, as in self-fertilised flowers. It may be as well to mention that the stigma (or stigmatic surface) is the sticky "lip" under the end of the style branch: the anthers, which bear the pollen are below this. Again, it is unlikely that pollen borne by wind would catch on this surface. It follows that the iris is "cross fertilised," that is, requires the co-operation of insects. Irises of the most popular and well known section, the bearded group, are in fact fertilised by bees. It is most interesting to watch a bee at work: guided, it is supposed, by the "signal" (which in the group under consideration is a "beard," in other sections a "crest," or modified beard, or a streak of different colour to the rest of the "fall"), he, or rather it, goes straight down the narrow walled passage made by the "haft" of the fall to secure the drop of nectar which lies at the base. He cannot get at it otherwise, because the edges of the fall turn upwards so as nearly to meet the style branch above, forming with it a tunnel; he must go between the walls and not over them; if, as nature intends, he perches on the signal, the fall is depressed a little by his weight, so that the tunnel is enlarged and he has an easy passage. You may sometimes see him try a short cut, and fail. (If this description seems complicated, and the terms are unfamiliar, a glance at the diagram at the beginning of Mr. Dyke's new "Handbook of Garden Irises," will make all plain.) As he goes down and then returns backwards, pollen from the anthers, which adhere to the underside of the style branch above him, gets brushed off on to his back and sticks to the hairs. Then he enters another flower, and, as he goes down, some of this pollen rubs off on to the stigmatic surface, if it is ready; when it is ready, it stands out a little from the style branch, to which at first it adheres, and becomes sticky. The bee then has, in pursuit of his own ends, unconsciously paid the iris for his honey; he has enabled No. 2 flower to set seed and propagate its kind, by conveying to it the pollen of flower No. 1.

The hybridiser takes his cue from the bee, and does slowly and clumsily what the insect does rapidly by unerring instinct. Artificial pollination may be done with a stick of sealing wax rubbed on the sleeve so that it becomes charged with electricity and the pollen grains will stick to it; they can then be wiped off on the stigma of the flower which is to be fertilised. But perhaps an easier plan, with a flower whose parts are so large and conspicuous as those of most irises, is to nip out a whole anther with a small pair of tweezers; the tweezers firmly held and the pollen stroked off on to the stigma. Several anthers of the same kind may be carried in a small box from flower to flower; wind is sometimes troublesome, or one may drop an anther by mistake down the "tunnel" or on to the ground. The flower which has been treated may be marked with a small label (or price ticket) tied on below it to show what the cross was; the simplest way is to put a number corresponding to a number in a pocket book against which the cross is entered. Thus, if I cross Iris pallida with I. trojana, I may label the pollinated flower 23; then, when I gather the seed, I look at my pocket book and find 23, "pall. × troj."—in indicating a cross the seed parent should be mentioned first.

If it is desirable to make sure of the cross, certain further precautions must be taken. The flower should be tied up in a muslin bag till the stigma is ready, to keep the bees off, and bagged again after pollinating. But amateurs will probably not care to disfigure their borders in this way, and will take the chance of being forestalled by a bee or followed by one bearing pollen which prevails over that artificially applied.

There is no mystery about this simple process; with a little practice a dozen flowers may be pollinated in a few minutes. No doubt it is best to do it as early as possible; some practitioners, I believe, even assist the bud to open with their fingers, and so cut out at all events the risk of the anticipating bee. It is difficult to work in a high wind, and it is useless in wet weather, since the pollen grains then burst—as our most competent authority, Mr. Dykes, informs us.

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It is useful to tie the stem bearing a pollinated flower to a short stick; iris stems break rather easily in a wind, especially under the weight of seed pods. Then, when old stems are being cut down, as they should be, unless seed is wanted, those tied up are easily recognised and spared.

So much for a rather fascinating pastime. However, many amateurs who have little time for such deliberate hybridising may yet find great pleasure and profit in saving seeds naturally formed, letting the bees do the preliminary work for them. In that case, to secure interesting results, it is only necessary to start with a fair selection of good irises growing together, and either to keep bees or have a neighbour who does so. Some kinds, such as pallida, bear abundant seed naturally; I have often seen five or six pods on one stem. Nor need the old stems be left long on the plants on the chance of seed; it is easy to see when pods are forming, in fact, the ovary begins to swell almost as soon as the flower has faded.

HINTS on the CULTIVATION OF IRISES

BY W. R. DYKES.

THE genus iris contains so many species of totally different types that no general rules can be given for the cultivation of irises as a whole. Some gardeners seem to think that, because our native yellow I. Pseudacorus grows by the river-side, all irises want abundant moisture, while others have no knowledge of the existence of any irises

IRIS KÆMPFERI ON A HILLTOP, PROVING THAT THIS IS NOT A WATER-LOVING SPECIES.

besides bearded irises and Spanish irises. There are, however, many different sections and groups within the genus, the members of each of which need approximately the same treatment.

In cultivating unfamiliar plants it is usually helpful to consider the climate of the country from which they come, and this rule holds good with irises. The commonest irises in our garden are hybrids of certain bearded species belonging to the Pogoniris section and these species are all natives of regions which have what geographers call a continental climate and where the long period of drought during the summer months forces plants to undergo a resting period. This enforced rest seems to economise their energies and to prepare them for an outburst of rapid and continuous growth as soon as moisture comes, either in autumn or with the melting of the winter snow. Consequently, in attempting to cultivate these irises in our gardens we must plant them where they will enjoy all the available sun and in such positions that sharp drainage will keep the rhizomes comparatively dry. In southern countries the ground is often so hot in summer that it is almost impossible to rest the bare hand for long on a rock and the iris rhizomes, which love to grow in sunny, rocky positions, get a ripening which they miss here. However, we must do our best for them by planting them practically on the surface, so near it, in fact, that by the time the earth has settled down, the upper half of each rhizome will be exposed. The other essential point about the cultivation of bearded irises is that they all come from districts with a limestone soil and they never remain healthy for long in a soil that is deficient in lime. The best addition to soil in which irises are to be grown is old mortar rubble, for this, besides supplying lime, seems to improve the texture both of heavy and light soils. If mortar rubble is unobtainable, it is best to use finely ground chalk on light soil and slaked lime on heavy soil, applied, if possible, when beds are being dug in readiness for planting and in the autumn to established beds.

In the early spring of this year there were numerous complaints from iris growers, especially in the north and in the colder districts, that parts of their plants looked unhealthy and were collapsing. This unhealthy, pale, yellowish appearance is, I believe, not directly produced by disease, but by premature growth from imperfectly ripened rhizomes. This unhealthy condition of the rhizomes may lead to attacks of rhizome rot, which causes the tufts of leaves and the stems to fall over at flowering time. The remedy is to cut out all diseased parts and to dress the remainder and the surrounding soil with superphosphate of lime, of which the acid reaction is fatal to the bacillus which causes the disease. If the healthy remnants of the plants can be moved into fresh soil, which has been freely sprinkled with superphosphate, so much the better.

There are two other diseases to which bearded irises are prone in this country; one is leaf spot and the other a reddish-brown rust, which I first obtained from Sir Michael Foster's garden at Shelford and from which I have never yet been entirely free, though I am inclined to believe that it could be stamped out if I had the time to spray all my plants at weekly intervals for a month or six weeks with a solution of copper carbonate. Only a few irises seem really liable to this rust.

The leaf spot is much more common and more unsightly, for the spots or patches of brown on the leaves spread in size and increase in number until the foliage is more or less destroyed. This weakens the rhizomes and lessens the chance of flowers in the succeeding year. The remedy is, I believe, abundance of lime or chalk in the soil to keep the rhizomes healthy and frequent spraying with disinfectants, such as permanganate of potash or Bordeaux mixture, when there are signs of an attack.

The minor sections of bearded irises, such as the Regelias from Turkestan and the Oncocyclus species from Syria, Asia Minor and Persia, are so dependent on thorough ripening in summer that we have to dig up the rhizomes about the middle of July and keep them warm and dry until they are replanted in October. On the other hand, the Himalayan Pseudoregelias are difficult to cultivate in this country because, although they enjoy the moisture of our average summer, yet they want dry autumns and winters. In their native homes they doubtless lie entirely dormant under the snow until they are roused to life again by its melting in spring.

The beardless or Apogon species have, as a rule, much more slender rhizomes than those of the bearded irises and

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consequently are, as a whole, far less adapted to withstand drought. Some, such as the sibiricas, have compensation for the slenderness of their rhizomes in the extraordinary abundance of the actual roots, which supply the plants with the copious moisture needed to sustain the exuberant growth of the leaves and flower stems. Others, such as the Californian species, have slender rhizomes and yet, at the same time, remarkably few roots, an indication that their growth is slow and that they will flourish in a soil which is inclined to be cool and well supplied with nourishment. Some irises are obviously water plants and in these there are always present minute black specks, which can be clearly seen, when a leaf is held up against the light. They are found, for instance, in our native I. Pseudacorus, in its American cousin, I. versicolor, and in I. lævigata, which is a totally distinct species from I. Kæmpferi, from which the Japanese have evolved their innumerable garden hybrids. I. Kæmpferi is, therefore, not strictly a water iris and the Japanese have found the truth of this and so arrange their iris gardens that the beds stand high and comparatively dry in winter, though they are surrounded by and soaked with water during the period of rapid growth in spring and summer.

All the bulbous species of iris, with one exception, enjoy a rest in summer, and therefore should be planted in rather light, well drained soil. The single exception is I. xiphioides, sometimes called the English iris, though it is a native of the Pyrenees. There, except in winter, when the ground is doubtless frozen, the bulbs get abundant supplies of moisture and flourish in the wet alpine pastures. This fact should be remembered when Spanish irises do not do well. The best course is probably to plant I. xiphioides instead.

Much has been written on the best time to transplant irises. Bulbous species should, obviously, be moved in summer, when the bulbs are dormant, and, with regard to the others, the best rule is to examine the roots and never move the plants unless new roots are being made. Plants shifted at other times merely lie in the ground without taking hold of it and suffer accordingly. Iris sibirica will, therefore, be moved either early in spring or as soon as the ground is really wet in September and while the plants still have time to form new roots before winter. The Californians will only be moved during spring and early summer, while Japanese irises and the Spuria group may be moved either in spring or in August or early September, provided that the soil is moist till the plants have taken hold.

Bearded irises of the Pogoniris section may be moved when in flower, provided that the rhizomes do not remain long out of the ground, for otherwise the young roots will wither. If they have to go a journey, then August or early September are best, for the main roots will then be mature and many of them still unbranched, so that they are prepared to branch out and lay hold of their new homes. Avoid July, for it seems probable that it is during this month that the flower buds are formed for the following year. Disturbance at this time is apt to lead to loss of bloom in the following season.

A DISCOURSE ON NYMPHÆAS—II

BY F. LAPLACE.

THE water lily hybrids, the result of somewhat complicated hybridisation, give a very varied series of colours. It is unnecessary to give a complete list, as a choice of good varieties is much more useful:

Note.—L. M. stands in all cases for Latour Marliac.

WHITE.

Albatros (L. M. 1910).—Very large milk-white flower.

Candida (Bohemia).

Gladstoniana Richardson.—Very robust, pure white.

Hermine (L. M. 1910).—Tulip-shaped flower, pure white.

Virginalis (L. M.).—Very large flower, pure white, early and late flowering.

ROSE-COLOURED AND SALMON PINK.

Colossea (L. M. 1901).—Flowers flesh pink, flowering continuously till the first frost.

W. Doogue (Dreer.).—Rose-white.

Goliath (L. M. 1912).—Tulip-shaped flowers, curling outwards, white washed with bright rose.

Lusitania (L. M. 1912).—Very interesting on account of its large and abundant flowers, white speckled with bright rose.

Marliacea rosea (L. M. 1887).—Very large pale rose flowers.

Masaniello (L. M. 1908).—Very robust with a quantity of rose flowers.

Newton (L. M. 1910).—Bright rose vermilion, narrow petals, giving the flower the appearance of a star.

Mrs. Richmond (L. M. 1910).—A fine variety with pale rosy-mauve flowers.

Marguerite Laplace (L. M. 1912).—Very robust with a quantity of pale rose flowers, brighter towards the centre.

Somptuosa (L. M. 1909).—Flowers very full pale rose dotted with carmine.

YELLOW, ORANGE-YELLOW, COPPER.

Aurora (L. M. 1895).—Flowers passing, from the first day to the third, from a yellow pink to dark red.

Chrysantha (L. M. 1905).—Flowers passing from yellow to a yellow vermilion.

Comanche (L. M. 1908).—Large flowers, coppery yellow ochre.

Graziella (L. M. 1904).—Flowers pale orange-red.

Indiana (L. M. 1912).—Very pretty variety, the colour passing from orange yellow to an intense coppery red.

Marliacea chromatella (L. M. 1877).—Very robust and floriferous, bright canary yellow.

Moorei.—Bright yellow.

Odorata sulphurea grandiflora (L. M. 1888).—Flowers sulphur yellow, strongly scented.

Paul Hariot (L. M. 1905).—Fine variety with pale yellow flowers shaded to copper yellow.

NYMPHÆA MASANIELLO WITH ROSE-COLOURED FLOWERS.

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Pygmæa helvola (L. M. 1879).—Very pretty small variety with tiny canary yellow flowers.

Seignometi (L. M. 1893).—Flowers pale yellow shaded to canary yellow.

Sioux (L. M. 1908)—Narrow petals of a coppery yellow, fringed with red.

RED-CRIMSON.

Andreana (L. M., 1895).—Pretty variety with red flowers shading to ochre.

Arethusa (Dreer).—Flowers with wide petals bright rose-crimson.

Atropurpurea (L. M., 1901).—One of the most robust and most floriferous of the varieties. Very large dark crimson flowers.

Attraction (L. M., 1910).—Very large flowers, dark purple-red.

Ellisiana (L. M., 1896).—Fine variety; flowers large red-vermilion.

Escarboucle (L. M., 1909).—The bright vermilion-red of this variety places it in the first rank of the red lilies.

ONE OF THE BEST OF RED NYMPHÆAS, N. ESCARBOUCLE.

Froebeli (Froebel).—This seems to be a descendant of N. sphœrocarpa, but it has dark wine-red flowers.

James Hudson (L. M., 1912).—The flower is tulip-shaped, a fine dark rose with mauve lights.

James Brydon Dreer.—This recalls Arethusa, but the colour is slightly stronger.

Laydekeri fulgens (L.M., 1893).—Fine variety with medium-sized red-purple flowers.

The varieties Laydekeri lilacea, L. purpurata, L. rosea, are fine plants, differing from each other by the intensity of their colour.

Marliacea flammea (L. M., 1894).—Extremely robust, very large flowers, wine-red.

Marliacea ignea (L. M., 1893).—Differing from Marliacea flammea by its fine carmine-red.

Meteor (L. M., 1909).—Very large flowers, purple-red.

Robinsoniana (L. M., 1895).—Result of the same hybridisation as N. Andreana, its colour is a fine dark yellow shaded vermilion.

Sanguinea (L. M., 1894).—Fine dark carmine-red.

Sultan (L. M., 1910).—Brilliant cherry red.

Vésuve (L. M., 1906).—A good variety with large red flowers strongly shaded purple.

VARIEGATED.

In this series the flowers, pink or red, have streaks or stripes of white. The varieties recommended are: Darwin (L. M., 1909), Esmeralda (L. M., 1912) and Livingstone (L. M., 1909).

The varieties of semi-hardy water lilies with blue flowers are fairly numerous in addition to the types enumerated above. The following can be cultivated with success out of doors in the summer:

Pennsylvania, pale blue.

Pulcherrima, a fine blue.

William Stone, dark blue.

Scutifolia, from the Cape, blue.

Finally come the zanzibarensis, the flowers of which easily attain 18cm. to 20cm. diameter, and bloom from July till the first frost.

Some of these types and varieties are uncertain in colour.

The following varieties are true to colour:

Frank Treelove, dark reddish brown.

William Ward, a fine rose-pink.

Gracilis, pure white.

CULTIVATION, ETC.

The cultivation of water lilies is of the simplest. They ask very little. The chief thing is a sunny position so that the water is easily warmed: the current should not be too rapid, for the same reason. The soil should be rich. Good clean soil should be used to which can be added some pond mud. A good precaution is to prepare a compost at least a year in advance, of, say, two-fifths clean soil, two-fifths pond mud, one-fifth well rotted stable manure. The whole should be thoroughly mixed and turned once or twice in the year. Water lilies respond equally well to the action of artificial manures. Calcined bone or horn can be used, each plant receiving 100g. to 200g., according to the richness of the soil.

Several methods of growing can be employed. That which gives the best results is to plant the lilies directly in the soil, when their growth is greater and quicker. Cultivation in sunk baskets is also good, but then a change of soil should be made every two or three years; that is to say, a part of the used earth should be removed and replaced by new suitably mixed with manure. As regards depth of water or, rather, depth of submersion, it is important that the water should not be more than 40cm. deep, the bottom of the pond being in proportion. The baskets can then be arranged on pedestals of a suitable height.

The best time to plant is the summer, but one can plant from April 15th till August 15th. Planting is quite simple, but it is a good thing to put a stone on the top of the plant, without, of course, covering the bud, so that the rhizome is not disturbed.

It may also be useful to state that some small varieties can be grown in small aquaria in the house. These are N. pygmæa, N. p. helvola, etc.

The cultivation of half-hardy water lilies out of doors is a little different. Planting should not be undertaken till after May 15th and only till the end of June. In the autumn the rhizomes must be taken up and put in the hot-house in vessels or baskets, the temperature being maintained at 12°–15° C. During the winter they lie dormant, and in the spring the temperature should be slightly raised to 18°–20° C., so as to start them.

To increase their number the rhizomes are usually divided. This can be done from the spring till towards the end of August. Sowing is also sometimes used for hardy water lilies. The ripe seeds should be sown after they have been gathered in vessels full of earth and placed in baskets so that the level of the earth is 1cm. below that of the water; later the young plants should be pricked out and the depth of water increased in proportion to the development of the plants.

The same method of sowing is used for the half-hardy water lilies, but the temperature of the water must be kept

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at between 18° and 20° C.; their development is, however, very rapid, and seeds sown in February flower in August of the same year.

A certain number of parasites attack water lilies. There are grubs which can be got rid of by spraying with nicotine; then the larvæ of water insects, which must be relentlessly pursued; and then certain plants, which may hinder the development of the rhizomes and the leaves—for instance, Elodea canadensis, various potamogeton, etc., which can only be got rid of by being torn up repeatedly. If there are no fish in the pond, a solution of sulphate of copper can be poured straight into the water; and the potamogeton will quickly disappear.

Finally, it need only be mentioned that the rapid development of the leaves may prevent the flowers from opening properly in summer; it is, therefore, a good thing to suppress from time to time some of the leaves from the centre. This does not in any way injure the health of the plant or its development.

NOTES FROM A CHALK GARDEN

BY F. E. STERN.

ALL GARDENERS WHO LIVE ON CHALK SHOULD FIND THESE NOTES OF GREAT INTEREST. THEY RECOUNT ACTUAL EXPERIENCES OF TESTING PLANTS IN A CHALK PIT GARDEN.

MANY people seem to think that only a few plants will grow on chalk soils. This is a fallacy, and should be known as such to all those who live on chalk or lime soils. The rhododendron family and kalmias are known haters of lime, but even with the rhododendrons there is a suspicion that some of the new species from China may tolerate it. R. rubiginosum has grown and flowered in our garden at Highdown, Sussex, for the last few years. The heath family are also said to dislike it, but we have found by experience that EE. carnea, mediterranea, darleyensis and australis all grow as well on lime as elsewhere.

There is one great rule to remember when planting on chalk, and that is to break up the subsoil. Gardeners are apt to dig a hole in the chalk, then plant their tree or shrub, and after a few years, when the foliage turns yellow, the plants are said to dislike lime. In many cases the reason is that the chalk which is as hard as rock underneath, acts like a pot, and plants become pot-bound and starved. They would grow perfectly well if the hard subsoil beneath was broken up.

Iris unguicularis (or I. stylosa, a pleasanter name) begins to flower in January, growing in pure rubble chalk at the bottom of the cliff. It flowers and grows better there than in good soil in other parts of the garden.

The spring is a glorious time in the chalk garden, as nearly all bulbs enjoy the perfect drainage that well broken chalk rubble gives. Crocuses, daffodils, chionodoxas and fritillarias all revel in the perfect conditions. The crocus species are well worth growing, and C. Sieberi, one of the best of them, has been splendid this year. Daffodil King Alfred flowers here with great vigour: its long stems and deep yellow flowers are most attractive.

All anemones enjoy chalk. The first to flower is A. Ingrami, the deep blue windflower from Greece, and A. Pulsatilla, a real chalk plant. They both seed themselves, and always

A GENERAL VIEW OF MR. STERN'S CHALK PIT GARDEN.

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seem to look best where they are self-sown. One thinks that no anemone could beat these two until A. fulgens bursts out with its scarlet flowers. Other anemones are also out at this time, such as apennina, blue and white, and the most delicate coloured anemone of all, A. nemorosa Robinsoniana. There are plenty of others to make the herbaceous border gay in April before the larger plants grow up, such as the St. Brigid and St. Bavo types.

All the tulip species add colour to the garden in April. The first to flower is T. Kaufmanniana and then T. præstans, and at the end of April T. Greigi is splendid with its huge scarlet flowers; but perhaps the best of all in this garden is T. Eichleri. The latter withstands the weather best, and its dazzling scarlet is beyond description. Then T. Sprengeri finishes up the tulip season.

All the irises, except Kæmpferi and its type, which dislike lime, grow well here. Two uncommon irises, I. Wattii and the hardy form of Iris chinensis, have been planted out for two years, and now are making buds for the first time. I. Wattii comes from North India. This curious plant forms long stems, from the top of which come the leaves and flowers.

¶ Before leaving the iris family I should like to draw attention to the Oncocyclus and Regelia irises. These irises are easy to manage if properly treated. They should be lifted in June or July and planted out again in October. There are such magnificent species of these types, such as Hoogiana, Gatesii and Susiana, and many hybrids, that it seems a pity they should not be more popular. A mass of Iris Hoogiana in flower is a sight worth seeing—surely one of the most wonderful sights in all gardening.

All the different muscari and scillas grow and seed themselves readily on chalky soils. Scilla messeniaca is an unusual and very charming bulb worth growing in the rock garden.

We have just begun to experiment with the erythroniums: the best so far is E. californicum, which flowers well and is increasing in a half shady place in good soil under beech trees. All hardy cyclamens also grow well under beech trees, and do not seem to mind the deep shade in summer.

It may be of interest to know that Myosotidium nobile is flowering well in our Sussex garden. The plants were put out over a year ago and are growing with great luxuriance. During January and February they had a sheet of Windolite spread 1ft.over the top of them with the sides open, and although we had over 12° of frost last winter, they have come through without damage.

There are some shrubs which grow on the pure chalk rubble at the base of the cliffs and are absolutely at home there. The best are Spartium junceum, the Spanish gorse, Ulex hispanica, and the forsythias. These all flourish and grow with great vigour in rubble in which many would hesitate to plant anything. The same may be said of the shrubby veronicas. Many speciosa hybrids were planted on this rubble chalk cliff as an experiment some twelve years ago, and they have never been touched or helped in any way, and are now over 8ft. high. The veronicas are fine evergreens for seaside gardens. They withstand the gales better than most other shrubs, and different species and varieties are in flower during nearly every month of the year. The earliest to flower in this garden are V. macrocarpa, a tall-growing shrub with long racemes of white flowers; and V. Lewisii, which has an attractive pink and white flower and seems hardier than V. macrocarpa. V. Hulkeana is the next in succession, and is, perhaps, the prettiest of them all. It does best here on the rubble of the cliff, facing south. Veronica cupressoides, though usually quoted in catalogues as a dwarf, grows to 3ft. high and looks more like a young cypress than a veronica. It is covered with small pink flowers in June. After these come the angustifolia type, a hardy form which really seems to enjoy the south-west gales. These plants grow into large specimens and are simply covered with flowers during the summer. We have three colours here, white, pink and blue, and also a dwarf form known to me as Bowles' variety.

There is another fine summer-flowering variety called Girdwoodiana, with lavender blue flowers. This variety is quite unlike that of any other veronica I have seen. It has withstood 12° of frost and seems to be hardy. Then in August all speciosa hybrids begin to flower and keep the garden gay right through the autumn with every shade of pink and purple to deepest red, and blue and white. This family of shrubs is invaluable to wind-swept gardens near the coast.

All the viburnum family seem to like the chalk. It is difficult to choose the best. V. fragrans comes out in February and scents the air when nothing much else is out, but V. Carlesii in my opinion is superior to it. A much neglected viburnum is bitchuiense: it is not particularly attractive when small, and was once considered an ugly type of Carlesii. When it grows up to some 4ft., it is a fine plant. It has larger flowers than Carlesii—which are white and the underneath of the truss is pink. The scent is as good as Carlesii and the plant seems to grow more vigorously.

With regard to the berberis family, the true berberis grows better on the chalk than the Mahonia section. What finer shrubs exist than BB. stenophylla, Darwinii and Knightii? I do not think than any of the newer Chinese berberises are on a level with these three. The family all take two or three years really to establish themselves on chalk, but when once they have taken hold, they go ahead fast.

Another great family which enjoys the chalk is the buddleia. B. variabilis grows on the pure chalk rubble and shows its appreciation by seeding itself in all directions. B. alternifolia is another first-class plant. The weeping habit and way of flowering all down the old wood makes it especially unusual and attractive. B. Fallowana is a new and delightful member of this family and seems to be perfectly hardy. Another one with the uncomfortable name of B. cylindrostachya flowered here for the first time last year. It is after the type of variabilis, but the flowers are a mauve which is almost blue. Buddleia Colvilei should also be grown in all gardens on the south coast. It is one of the finest flowering shrubs we have. It grows into a large evergreen bush and its flowers are a delicate rose colour unlike any other buddleia flower.

It is curious that in some families one or two members enjoy the chalk and the rest dislike it, or *vice versa*. The eucryphias and tricuspidarias are two such families. E. cordifolia and T. dependens both enjoy the chalk; on the other hand, according to my experience, E. pinnatifolia and T. lanceolata dislike it and die quickly. This is a fine problem for some botanist to tackle. It is doubly curious because, as Mr. Bean tells us in his book ("Trees and Shrubs Hardy in the British Isles"), these four shrubs all come from Chili, and E. cordifolia and T. lanceolata both come from Valdivia and the Island of Chiloé. There are two more families which all grow in this soil with one exception in each case. The ceanothus and cistus families all grow splendidly except Ceanothus papillosus and Cistus Loreti. All the spring-flowering shrubs, such as ribes, cydonias and lilacs, grow quite happily. Lilacs seem to flower on the chalk with greater vigour and with larger flowers than they do on other soils. I think two of Farrer's new syringas, Potannini and Juliæ, one white and the other lilac, both sweet-smelling shrubs, are the best of all the new syringas lately introduced from China. The introduction of so many new plants from China in the last twenty years has entirely revolutionised the making of gardens on lime soils. If one leaves out the rhododendrons, there is hardly a shrub that has been introduced which will not grow on lime; also, I am not satisfied yet that even some of the rhododendrons will not grow on lime.

Other recent introductions from China which do well here and are worth growing are Caryopteris tangutica, Potentilla Farreri, Philadelphus manshuricus, Hamamelis mollis, Cotoneaster lactea, Prunus dehiscens, Acer griseum and Davidia involucrata. Many good clematises have recently come from China, such as CC. Armandi, montana var. Wilsoni and montana rubra, and a yellow August-flowering one, tangutica. These are all first-class climbers which are extremely easy to grow and are happy, like all the clematis family, growing in lime. New Zealand and South America also produce a number of plants which will grow on lime. From New Zealand, besides the veronicas, we get Plagianthus Lyalli and the olearias, of which the best seem to be O. macrodonta and O. semidentata. We also get the pittosporums. These fine evergreens grow over 12ft. high and do not seem to mind the wind. South America provides us with such plants as Desfontainea spinosa, Berberis Darwinii, Berberidopsis corallina, Solanum crispum, Fabiana imbricata and the fuchsias. On the other hand, very few of the North American shrubs will stand lime.

Part of the garden in the chalk pit is devoted to tropical-looking plants, such as Chamærops Fortunei and yuccas.

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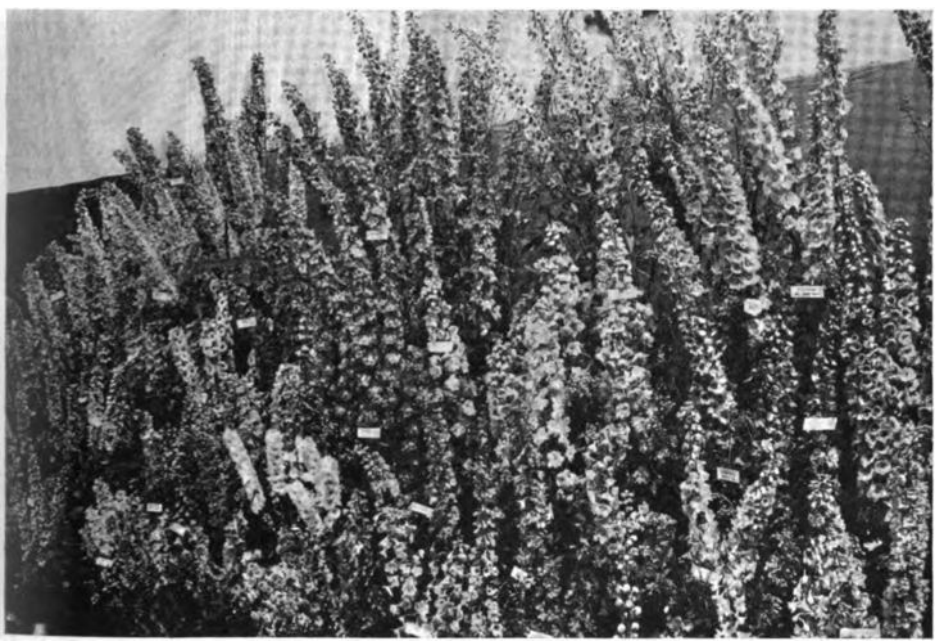
The yucca is one of the few shrubs that really requires lime. If anyone takes the trouble to put some pieces of chalk round about their roots and then dig down in a year's time, they will find the roots of the yucca clutching every piece of chalk within reach. Here we also have Beschorneria yuccoides, kniphofias and eremuri. The latter are most interesting and easy plants to grow. They should be planted in a place sheltered from the wind, with excellent drainage. They cannot stand wind, or dampness at their roots. The different sorts go on flowering most of the summer. Another class of plants which do very well indeed on chalk are roses. I do not believe that clay is necessary for them, or that they like living on clay any more than human beings do. All hybrid roses grow splendidly. Some plants of Mme. Ravary have been flowering here for twelve years and are still in a flourishing condition. There are also many species which are wonderfully fine plants and should be grown in every garden on the lime, such as RR. Hugonis and Moyesii.

SWEET PEAS, PEONIES AND DELPHINIUMS AT VINCENT SQUARE

ALTHOUGH it was supposed to be "strawberry time" at the fortnightly meeting of the Royal Horticultural Society on June 24th and 25th, there was only one trade exhibit. The Mrs. Harding Cup for Peonies exhibited by amateurs was not awarded. There were only two exhibits for the cup, and the Council thought that the flowers shown were not up to standard.



MESSRS. BLACKMORE AND LANGDON'S STAND OF DELPHINIUMS.

Messrs. Robert Bolton and Son had a large exhibit of sweet peas very tastefully arranged in baskets. The flowers were in excellent condition and exceedingly well grown. Here were to be seen their new varieties, Wembley, soft pale bluish lavender; and Empire, pale soft rose. Other notable sorts were Powerscourt, lavender; Picture, creamy pink; and Supreme, satin pink.

Close by, Messrs. Sutton and Sons had a large exhibit of these beautiful annuals. This exhibit was also very tastefully arranged. Notable sorts were Burpee's Giant White, Sutton's Blackseeded Cream, Warrior (chocolate-maroon), Picture, Sensation (scarlet), Hawlmark Pink, Butterfly, Spencer (red and white bicolor) and Apple Blossom.

Yet another attractive exhibit came from Messrs. J. K. King and Sons, Limited, of Coggeshall. Outstanding varieties were Daffodil, Celeste, Faerie Queen, Royal Purple and Wild Rose.

A large exhibit of peonies was shown by Messrs. R. H. Bath, Limited, and these were interspersed with delphiniums and gladioli. Conspicuous among the peonies was Sarah Bernhardt (see "New and Rare Plants"). Other outstanding sorts were Mandarin, a single-flowered variety of rose colouring with golden centre; Mme. Emile Lemoine (see "New and Rare Plants"); Lady Carrington, Canarie, Flambeau, Critic and Karl Rosenfield.

An excellent exhibit of delphiniums came from Messrs. Blackmore and Langdon. Conspicuous among them were Mrs. Townley Parker, sky blue single with white eye; Mrs. Christie-Miller, large-flowering cream sort; Sir Douglas Haig, deep purple and blue, a wonderful flower; Purple King, Millicent Blackmore, blue and mauve, black centre; King of Delphiniums, blue and plum, white eye. A new variety is Edward Bromet, of rich purplish colour and a white eye. This should soon become popular.

Mr. T. Carlile also had an exhibit of these beautiful plants. Here were to be seen Norah Ferguson, which received an award of merit; Peggy Wiseman, mauve with paler suffusion; Mrs. Robert Ascroft, sky blue, deeper at edges; Loddon Guard, large spike pale blue suffused mauve; Mrs. Thos. Carlile, Parma violet, petals shading to pink; and Blue Lagoon, blue, primrose eye. Mr. Carlile also showed peonies and irises.

Greenhouse plants were shown by Messrs. John Peed and Son, and Messrs. Stuart Low and Co. The latter also showed roses and carnations.

A large batch of Bermuda lilies (Lilium longiflorum eximium) was exhibited by Messrs. L. R. Russell, Limited. The flowers were very good. They were grown for the Commissioner for Bermuda, British Empire Exhibition.

Roses were shown by Messrs. B. R. Cant and Sons, and the Rev. J. H. Pemberton.

Several vases of sweet peas were shown by Major Geoffrey Lubbock of Pangbourne. They were well grown and conspicuous among them were Wild Rose, Picture, Powerscourt, Matchless and Jean Ireland (Improved).

Messrs. Barr and Sons had a airly large exhibit of irises and delphiniums. They also had an excellent exhibit of vegetables, including carrots, radishes, tomatoes, kohl-rabi, marrows, chives, peas, tarragon, cauliflowers, etc.

Perpetual-flowering carnations and Dianthus Allwoodii were shown by Messrs. Allwood Brothers.

Messrs. Harkness and Sons showed their well known lupins, also poppies. Among the lupins were Yellow Hammer, clouded yellow; Golden Thoughts, fawn, yellow wings; Merry Times, biscuit fawn, shaded fawn; Sunshine (Improved), buttercup yellow; Joy, apricot pink, yellow wings. There were some wonderful shades to be seen in many of the flowers shown.

Lettuces in great variety were shown by Messrs. James Carter and Co., and this exhibit aroused much interest. Here were both cos and cabbage varieties. Prominent sorts were Purple Oak Leaf (cabbage), Green Oak Leaf (cabbage) and Green Curled (cabbage).

Irises and gladioli were staged by Messrs. Lowe and Gibson. Among the gladioli were many beautiful seedlings.

Irises and lilies were shown by Messrs. R. W. Wallace and Co. The following were prominent among the irises: Ed. Michel, Prospero, Citronella, Rodney and Delavayi. Among the lilies were Golden Orb and Mrs. R. O. Backhou

Messrs. Wallace also showed peoni

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Mr. J. C. Allgrove sent some very interesting plants, including Eremuri magnifica and Warei, the brilliant Trollius Ledebourii, Rodgersias sambucifolia and æsculifolia, delphiniums and peonies.

Alpines, sprays of flowering trees and shrubs, lilies and Cypripedium spectabile were included in an exhibit set up by Mr. G. Reuthe.

Perpetual-flowering carnations were staged by Mr. C. Engelmann.

Mr. Charles Turner showed some interesting shrubs.

Poppies, Canterbury bells and some very showy pelargoniums were staged by Messrs. Godfrey and Son.

Mr. G. J. Daws of East Moseley showed two dishes of Royal Sovereign strawberries. The fruits were firm, of good size and colour.

Mr. W. Wells, jun., showed hardy plants and alpines. Plants of outstanding merit were Erigeron Merstham Glory, lavender; Gillenia trifoliata, Achillea Cerise Queen and Delphinium Cashmiriana album.

Several dishes of strawberries were shown by Sir Charles Nall-Cain.

Delphiniums and peonies were shown by Messrs. Kelway and Son. Among the peonies the following sorts were conspicuous: Kelway's Success, a double-flowered variety with pink guard petals and cream and flesh pink central petals; Belgium, bright cherry, golden anthers (this is not quite a double); Lena Ashwell, rose; Queen Alexandra, white, golden centre. Of the delphiniums the following were prominent: Lloyd George, blue and violet, white eye; Boy Kelway, blue suffused rose, white eye, striped blue; Smoke of War, violet and purple, black centre; and Bluebell, bright blue. St. Brigid anemones were shown by Messrs. Reamsbottom and Co.

A very tempting array of strawberries was shown by Messrs. Laxton Brothers. There were many baskets of their new strawberry The Duke. This variety is claimed to be the earliest forcer, the earliest outdoor variety, the heaviest cropper and the most vigorous grower. The fruits are of good size and of excellent flavour.

Several flowers of Magnolias Watsoni and parviflora floating in bowls were shown by Mr. J. H. Lowinsky.

The following firms showed hardy plants: Messrs. Ladhams, Messrs. Maxwell and Beale, The Chalk Hill Nurseries, Messrs. Tucker and Son, Messrs. Carter Page and Co., Messrs. M. Prichard and Sons, Messrs. Gavin Jones and Ingwersen, Messrs. Herbert Vigers and Co., Messrs. John Waterer, Sons and Crisp, Messrs. Bakers, Mr. F. G. Wood, Messrs. W. H. Rogers and Sons, Messrs. Skelton and Kirby, The Orpington Nurseries Co., Misses Hopkins, and Messrs. Rich and Co.

NEW AND RARE PLANTS.

CARPENTERIA CALIFORNICA LADHAM'S VARIETY.—A larger flower than the type, having six or seven petals. Award of merit. Shown by Messrs. Ladhams.

CHARIEIS HETEROPHYLLA.—An interesting annual with light blue flowers, very much in the way of agathæa. Shown by the Director, R.H.S. Gardens, Wisley.

CLADRASTIS TINCTORIA.—Sprays of the yellow wood were shown. The white flowers are borne on terminal panicles and somewhat resemble a white wistaria.

PEONY SARAH BERNHARDT, SHOWN BY MESSRS. R. H. BATH.

Award of merit. Shown by the Director, Royal Botanic Gardens, Kew.

CORDYLINE AUSTRACHIS (C. australis × C. Banksii erythrorachis).—Very much in the way of C. australis, but panicle rather larger, more open and feathery. First-class certificate. Shown by Mr. Reginald Cory.

CORNUS KOUSA CHINENSIS.—A larger form than the type. The plant appears to be very free flowering. Shown by the Director, Royal Botanic Gardens, Kew.

DELPHINIUM TATSIENENSE.—A Chinese species with almost gentian blue flowers. This plant is about 18ins. to 2ft. high and forms neat rounded bushes. Shown by Mr. R. C. Notcutt.

DELPHINIUM NORAH FERGUSON.—A very fine variety. The flowers are light blue, suffused rosy mauve and are semi-double. This plant should prove very popular. Award of merit. Shown by Mr. T. Carlile.

DIMORPHOTHECA PLUVIALIS.—The flowers are white with a distinct purple zone. Quite a showy plant. Award of merit. Shown by the Director, R.H.S. Gardens, Wisley.

GENISTA CINEREA.—Although introduced into this country from south-west Europe many years ago, this plant is still rare in gardens. This is rather surprising as it is one of the best of the genistas. The flowers are produced in short clusters and are bright yellow in colour. Altogether it is a very desirable shrub. Award of merit. Shown by the Director, Royal Botanic Gardens, Kew.

KOLWITZIA AMABILIS.—Good large sprays of this little known, rather weigelia-like shrub were shown by Colonel Stephenson R. Clarke, C.B.

PEONY MME. EMILE LEMOINE.—A large, double-flowered white sort. Award of merit.

PEONY SARAH BERNHARDT.—A beautiful double-flowered variety. The flowers are very large, deep flesh pink, paling towards the edges. It is a very desirable sort. Award of merit. Both these peonies were shown by Messrs. R. H. Bath, Limited.

RHODODENDRON CRASSUM.—A Chinese species, originally found in Yunnan by one of the French missionaries. The flowers are large and semi-tubular, rather thick in texture, white, faintly flushed rose. Award of merit.

R. ERIOGYNUM.—One of Forrest's discoveries in Yunnan. Flowers brilliant blood scarlet, but unfortunately not over hardy. Award of merit. These two Rhododendrons were shown by Mr. Lowinsky.

ROSA MIRIFICA.—A beautiful and distinct American species, native of Sacramento Mountains, New Mexico. The flowers are a purplish rose. Award of merit. Shown by the Director, Royal Botanic Gardens, Kew.

ORCHIDS

ODONTOGLOSSUM DOREEN VAR. D. A. COWAN (Empress of India × eximium).—One of the best forms yet seen and well worthy of the high award given. The spike bore five large flowers, the massive segments rose tinted and profusely marked with reddish-purple bars and spots. First-class certificate. Shown by Mr. J. J. Bolton of Claygate.

CYPRIPEDIUM GODEFROYÆ LEUCOCHILUM GIGANTEUM.—A handsome flower, well above the average size, honey-yellow colour, the sepals and petals heavily marked with maroon. Native of Siam. Award of merit. Shown by Sir Jeremiah Colman, Bt.

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THE YORKSHIRE GALA

THE horticultural exhibits at York, although perhaps not so numerous as at Chelsea, have during recent years been almost equal in quality and nearly as varied as those at the great metropolitan show, and this year the display proved no exception to the rule. Two large marquees were filled with exhibits brought by most of the leading growers in the land, and these proved a source of pleasure to the thousands of visitors who came from all corners of the county of broad acres and beyond. There is a vast flower-loving public in the north, and they are not slow to appreciate the early summer glory of the kingdom of Flora that is brought annually into their midst from the sunny south. York Gala comes at a time when our northern gardens have not yet put on their gayest dress. Perhaps owing to that reason we appreciate the floral banquet there all the more. There is also a difference between the typical visitor to the northern shows and the southern enthusiast. The latter needs no telling that most of the hardy exhibits will thrive in his locality, the northerner is more sceptical. He wonders if the plant he fancies will succeed where sunshine is sometimes at a minimum and mists and grey skies prevail at certain seasons. Consequently he wants to think things over before he places his orders. It may have happened that some order books have not been filled as they were expected to be, but when sowing and planting time comes round again it is possible that the exhibitor will then reap his reward. Of course, with easily grown plants, such as sweet peas, roses, antirrhinums, pansies and violas and the like, there is never any doubt about them, but there are many northern growers who doubt the possibility of success with border carnations. Let me assure them that they are quite easy to grow and there is no reason why they should not be as largely cultivated in the north as in the south.

ROSES.—I saw the roses early in the morning of the first day of the show, and they were of excellent quality and looked very fresh and clean. Both Mr. Hicks and Mr. Prince brought of their best, and on the exhibits from Hurst I noticed fine specimens of Betty Uprichard, America, Mrs. Herbert Stevens (larger and of better substance than I have seen it for many years), Sunstar, Lucille Barker, Mme. Herriot and Hoosier Beauty. Mr. Prince made a grand display with his lovely deep crimson pillar rose, Allan Chandler, which is to be distributed in the autumn, and which promises to be a decided acquisition. When I saw this shown for the first time I was not favourably impressed with it, but it appears to have outgrown its chief faults, and now seems to have developed into a desirable variety that should make as vivid a splash of colour as Paul's Scarlet Climber. Other noteworthy roses on his stand were Lady Gwendolin Colvin (another lovely pillar rose, but unfortunately only summer-flowering), Lamia and K. of K.

SWEET PEAS.—Messrs. Robert Bolton and Sons, Messrs. Ireland and Hitchcock, and Messrs. Sutton and Sons provided the bulk of the sweet peas. The former had a magnificent exhibit with rich orange and salmon shades predominating, and a number of exquisite lavenders intermingled among various shades of pink. The colour effect was brilliant in the extreme, and the general arrangement and blending of the varieties was almost faultless. The novelties Wembley, Angele, Mammoth, Supreme, Empire and Philadelphia were all in excellent condition. The first three varieties received awards. Messrs. Ireland and Hitchcock had a graceful exhibit with pillars of the leading novelties and vases of the best standard varieties. The Beacon (rich orange) and Moonbeam (lilac and bluish purple) both received awards, and a similar honour was gained with the new hybrid dianthus, which combines the best qualities of the sweet william and the pink, and which is certain to be a favourite flower of the near future.

CARNATIONS.—Mr. Englemann and Messrs. Stuart Low each had splendid examples of the perpetual-flowering types, and on the former stand there were some excellent flowers of Donald (crimson), Scarlet Iona (a very fine novelty of brilliant colouring), Vera (rose pink) and Topsy (crimson).

Mr. James Douglas had a good lot of border carnations. Wonder Clove, Bookham Flame, Virginia, Steerforth, Salmon Clove, Sabrina, E. G. Quick, Crystal Clove, Margaret Keep and Gleam were the most noteworthy.

PANSIES AND VIOLAS.—Messrs. Dobbie and Co. brought a comprehensive collection of pansies and violas of all types, and these were exhibited in vases after the English fashion. In bedding pansies, Bellfield, Sunset, Dunedin, Ophir and Ladybird were the most prominent, and James Terris, Mrs. Andrew Stevenson, Peggy Barr and Lily Stark were the pick of the violas.

ANTIRRHINUMS.—Messrs. W. H. Simpson and Sons had a beautiful exhibit of these popular flowers, and such notable varieties as Mrs. R. F. Felton, The Fawn, Lady Roberts, Golden Gem, Yellow King, Fascination, Gloria, Bonfire and Sybil Eckford were well shown.

ORCHIDS.—In the trade exhibits Messrs. J. Cypher and Sons, Messrs. Mansell and Hatcher and Messrs. A. J. Keeling and Son were well to the fore, while Mr. J. McCartney, Hey House, Bolton, an amateur, made a meritorious display. Outstanding varieties in these exhibits were Cattleya Mossiæ Wagneri, Lælio-Cattleyas Britannia, Canhamiana, Dominiana, Oncidium manacranthum, Miltonia vexallaria var. Lyoth, Dendrobium chrysotoxum superbum and Odontoglossums Gladys, amabile and Trentino magnificum.

ROCK AND WATER GARDENS.—These were a prominent feature of the Show, and many local exhibitors gained notable awards. Messrs. Broadhead of Huddersfield had a large rock and water garden with a central pool and background of conifers with primulas and mimulas in variety. Mr. P. Gardner had a pretty water garden flanked with rhododendrons and azaleas. Mr. John Winn, Moorgate, York, obtained premier award for a neatly constructed rock garden made with Ingleborough stone and a varied assortment of alpines, including ramondias, campanulas, saxifrages and armerias. Messrs. Kent and Brydon had a miniature rock garden with a background of Japanese maples. An interesting specimen in this exhibit was Enkianthus campanulatus. Messrs. Backhouse, Limited, York, were awarded a gold medal for a very neat and well arranged exhibit containing a large collection of over 150 species of alpines. The colours were beautifully blended. Oxalis enneaphylla rosea, a scarce plant from the Falkland Islands, was well shown in this display.

VARIOUS EXHIBITS.—Mr. H. J. Jones showed a magnificent bank of hydrangeas in many beautiful colours. Messrs. Sutton and Sons showed a large collection of flowers, fruit and vegetables in their usual tasteful style; the begonias and delphiniums of Messrs. Blackmore and Langdon were all that could be desired from a firm of such repute; Mr. Stark had some fine spikes of his new Campanula Ryburgh Bells; Messrs. Reamsbottom's St. Brigid anemones were very beautiful; and there were some good examples of Gladioli primulinus on the stand of Messrs. R. H. Bath, Limited. Messrs. John Peed and Son had a very fine exhibit of miscellaneous greenhouse plants, and their gloxinias and caladiums were particularly good. Two notable exhibits of fruit were those of Messrs. T. Rivers and Sons and Messrs. G. Bunyard and Co. The former showed pot-grown specimens and the latter some very choice apples in mahogany baskets. These had been stored in boxes, the fruit being wrapped in newspaper. The quality of the apples, particularly Cox's Orange Pippin, was excellent, and proves that English-grown fruit, if carefully gathered and properly stored, can be kept over a very long period. Messrs. G. Gibson and Co. and Messrs. Harkness and Sons were the leading exhibitors with collections of hardy perennials.

NORMAN LAMBERT.

NOTES FROM CONTRIBUTORS

TRIFOLIUM UNIFLORUM.

IT is rather surprising that the above plant had been allowed to die out previous to its re-introduction recently. It is a native of south Europe, and Linnæus, who originally described it in the eighteenth century, gave Syria, Arabia, Judæa, Constantinople and Crete as other habitats for it. The date recorded for its first introduction to this country is 1800. The colour was given as blue, but a variety of it introduced in 1822 had white flowers. Judging by the names given by pre-Linnæan authors, purple and white forms were known. That in cultivation at present has rosy flowers, so there is still room for the introduction of other varieties. The flowers are large and very freely produced on well established plants, so that they are quite conspicuous and pretty. The fact that they are produced singly and not in heads gives one an idea that it is anything but a clover. On account of its very dwarf habit it is well adapted for ledges near the base of the rock garden, where it would be directly under the eye. There was a fine plant of it at the Chelsea Show on the rock garden of Mr. George G. Whitelegg.—J. FRASER.

AN UNCONVENTIONAL BED OF ROSES.

ONLY in one tiny bit of my garden have I gone in for planting for effect. It is a large oval bed in a quiet corner, half surrounded at a little distance by Cupressus Lawsoniana, with the open side facing south. Here are installed Rosa Moyesii (three plants) in the centre, while all round it and below it are tangles of Rosa Hugonis and R. Willmottiæ. Below these again there are Golden Spur and Emperor daffodils, and Blue Queen and Large White (alba maxima) Scilla campanulata. I consigned the plants in their childhood to the ground in faith founded on personal observation and hearsay, and all have turned out as I hoped. The wild towering mass of Moyesii makes a grand centre, while the well flowered streamers of Hugonis and the pale rose-clad arms of Willmottiæ make an effective circle of bloom almost up to its middle. Alas! the persistent bouts of fearfully heavy rain this year so battered the primrose blooms of Hugonis that they have never been able

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to open properly. It was hard lines, because plants had put forth their high-water mark of bloom and there were plenty of the smaller and more fragile-looking rosy Willmottiæ to bear them company. As I write, Moyesii looks fine. There is a goodly show of buds. Before long I hope to see a well broken up mass of its smooth, substantial-looking, saucer-shaped flowers. None of the roses is pruned, beyond cutting off branches that would otherwise have trespassed over the path.—JOSEPH JACOB.

LUPINS AT CHICHESTER.

FOR many years past, one has always associated carnations, roses, sweet peas, and so on with the well known firms who specialise in them. From now onwards, the name of Downer will undoubtedly bring to the minds of many horticulturists the famous lupins grown at Chichester.

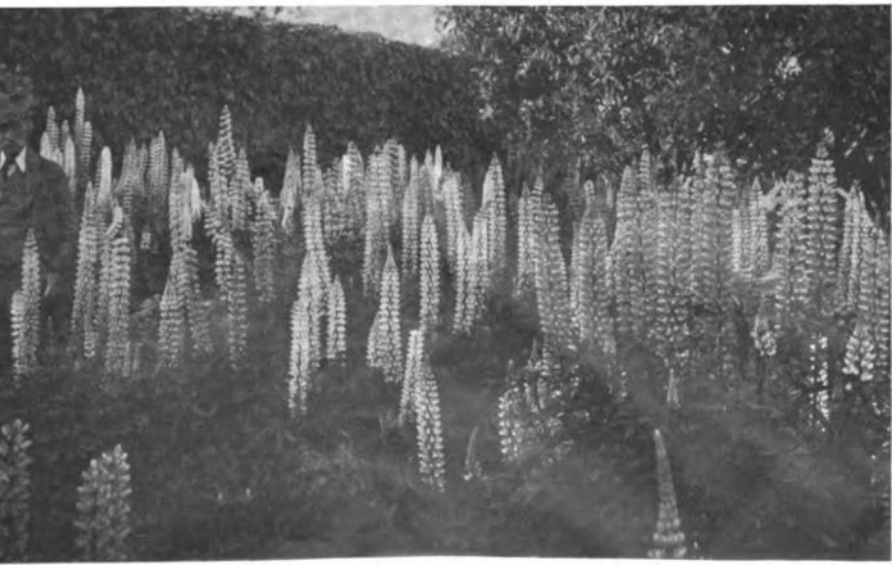
I was recently afforded the opportunity of visiting this nursery, and must confess that I was greatly impressed at the progress made in the cultivation of this particular plant. I was informed by Mr. Downer that he had been experimenting for the past twelve years, concentrating solely on the polyphyllus strain. Judging from the masses of exquisite blooms which were to be seen on all sides, he has certainly been blessed with a very fair amount of success, and it is not to be wondered at that this useful early summer flowering plant is becoming very popular.

One long bed containing over 5,000 plants, most of which were in full flower, formed a sight not soon to be forgotten. The flowering spikes were from 3ft. to 5ft. in height, and formed a veritable sea of colour, ranging from the most delicate shades of pinks and blues to the richest reds and darkest purples. Some varieties worthy of special mention were:

May Queen, royal purple (affectionately termed "Granny" on the nursery from the fact that it was raised ten years ago); Artist, delicate blue and rose; Mount Everest, pure white; Traveller, bicolor, Wedgwood blue with white hoods; Goodwood, magnificent old rose; Saxe Blue, rich blue; Downer's Delight, bicolor, old rose with crimson hood, A.M., R.H.S.; Downer's Pink Pearl, A.M., R.H.S., deep rose; May Princess, A.M., R.H.S., deep purple; Tunic, shell pink and white, A.M., R.H.S.

Among many new seedlings, I particularly noticed Mrs. Brock, a very beautiful clear rose pink, and the Countess of March, a blue and white variety in which the flowers open a pure white and turn gradually into a clear blue, giving a very pleasing effect. Both of these varieties should prove exceedingly popular when stock warrants them being put into commerce.

Another feature, quite apart from the lupins, was a very fine collection of sedums and alpines, in great variety. The writer looks forward to another visit to this very charming spot.—A. J. C.



MR. DOWNER AMONG HIS LUPINS.

A BEAUTIFUL NEW YELLOW IRIS: CHASSEUR.

THE number of yellow bearded irises in existence is not large. One of the most commonly met with is Mrs. Neubronner, intense in colouring and very floriferous, but unfortunately of short stature and small or middle sized flowers. Aurea is somewhat taller, but of paler tint; while Canari increases in height only to lose some of its brilliancy of colour. Klondyke is rather large-flowered and often attains 2ft., but has paler divisions than Mrs. Neubronner; these are striated browny violet at the base. Belcolor has creamy white flowers of fine appearance, but is too pale for a yellow; and the yellow form of I. Alberti has no particular merit other than its earliness. As for Shekinah, a variety of American origin much heard of lately, the writer has had no opportunity of observing it. There are, of course, numerous varieties of irises in which fine yellow is associated with other colours in the falls, such as Iris King, intense yellow and brilliant browny red, a fine flower; Knysma, Fro, cannæflora, Prince d'Orange, etc.; and also the variety Simile, which is probable the latest-flowering of all garden irises.

THE STRONG, RIGID SPIKES OF IRIS CHASSEUR.

With the introduction of Chasseur a great stride forward has been made. This is one of the many plants raised at the Verrières nurseries of MM. Vilmorin-Andrieux et Cie., near Paris, and was given a first prize on the occasion of the Iris Conference in London in 1922. It has since been propagated, and is now understood to be in commerce. Many points make it a first-rate variety. First, the strong, rigid spikes that stand quite erect and are fully 2½ft. in height, often 3ft.: then the large flowers, sweetly scented, of the best shape and constitution; and lastly, a colouring that is rich and attractive.

As is the case of most modern varieties, the buds are well developed and extremely showy by themselves in their last stages of development. They are of the deepest yellow colour, their base tinted reddish brown, a shade that veins the interior part of the divisions in a faint and most pleasing way when they expand. The flowers are borne five to eight on each stem and remain deeply tinted at first; then, after a few days, the centre of the divisions become paler, the margin and base retaining their rich early yellow. This gives the flower a most distinct and lovely appearance. At all stages the colour is bright. The best time, however, is during the early period of flowering.

This variety flowers in a late season, with varieties Ambassadeur, Raffet, Richard II, Black Prince, Duc Decazes, etc. As for its constitution, it is all that can be desired: the plant grows luxuriantly and produces masses of flowers.

It may be interesting to note that the plant was far less admired on its first appearance than it is to-day. It belongs to the class of irises that has to be seen in masses to make gardeners realise their worth.

Iris Chasseur, no doubt, will become a great favourite in gardens when sufficiently known, and, at the same time, probably prove of great value to the hybridiser who wants to produce a very large-flowered yellow iris with stems 4ft. or 5ft. in length, an object that many a gardener has in view.—C. L., *Paris*.

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A BOG GARDEN IN A BASIN.

THE first of our miniature bog gardens was planted in an old and leaky enamel hand-basin. This was four years ago and it still flourishes. Sphagnum and other mosses are established and growing there, and among them sundews sow themselves and come up every year, and pinguiculas flower and increase. Both these plants are difficult to grow, but the bog basin seems to have solved the problem. It is kept in the open, fully exposed to the weather both in summer and winter. Since the first was started we have made several more miniature bog gardens in a variety of boxes and pans, and now have eleven, but the original one has needed no renewing. Pinguiculas are flowering particularly well this year, including some large ones which I brought from Norway in 1922. Among the plants in our various portable bogs are Loiseleuria procumbens (azalea), Silene acaulis, montias, Saxifraga stellaris (very pretty with its white flowers and red seed vessels), bog myrtle and trientalis, all brought from Inverness-shire last year; heaths, grass of Parnassus and yellow bog pimpernel brought from Goathland in 1921; Astrantia minor from Bognanco, also in 1921; and pyrolas from Norway, and many other plants which I have not mentioned. Stagshorn moss has proved very difficult to establish. We had two varieties from Norway, but they succumbed, I believe, to the use of hard water during a dry spell last summer. Stagshorn brought from Inverness-shire last autumn is still alive, perhaps because up till now it has had rain in plenty. It is fortunate that something should enjoy this wretched summer, and it is certainly pleasing to our bogs!—RUTH BICKERSTETH, *Cottingham, East Yorks.*

WAYSIDE FLOWERS OF SERBIA.

ON the fatal battlefield of Kossovo, five hundred years ago, the victorious Sultan Murad was assasinated; he has for a monument a white mosque over his tomb, standing in a silent walled garden bordered with a tangle of briar roses. Another smaller mosque is the monument of two of Murad's Turkish generals; and in the rough grass of the knoll on which this shrine stands, rounded half sunken stones mark the tombs of fallen Turks. For Lazart, the defeated Serbian Emperor, and for the soldiers of Serbia, men have not yet built a monument, but a slim white cross and the first scratchings of a garden, enclosed by barbed wire, show the place consecrated by a thousand legends of old Serbia and for which Mestrovic has designed his famous sculptured Temple of Kossovo. And meanwhile, during the five centuries of Turkish mis-rule, nature has provided the loveliest of memorials, for it is the blood of the heroes—so legend admirably says—which accounts for the redness of the once white peonies of Kossovo. Among low bushes of white hawthorn and white rose in flower the peonies spring up in clumps. Thousands on thousands of them, not weighed down by being monstrously doubled like their garden offspring, but holding their blood crimson cups erect in the sun. I do not remember a lovelier sight, in the way of wild flowers, than these peonies—"bon-jours" the people call them—in their setting of white-blossom on Kossovo down. The remote snows of Shar Planina, blurred by heat, remind one of cool heights as one walks down there on the rolling sun-burnt plain, choosing each bon-jour one comes to as the finest and crimsonest among its neighbours. In some places, instead of hawthorn, the setting consists of white poet's narcissus.

To see these Peonies growing in natural conditions may give one a fresh idea as to how to use them in the garden. The peony in question is, I take it, the single type of P. officinalis; it grows and flowers profusely even in that poor soil in full sunlight, where it must get roasted, burnt up, long before the summer is over. I have noticed that white flowers, such as the white Camassia Leichtlinii and white irises, make good company for the single scarlet peonies, such as Fire King. Having seen the peonies of Kossovo I must try growing other white flowers with them. There is no doubt, I think, that these cup-shaped single species, such as officinalis, arietina, Whitleyi and Mlokosewitschi, have many advantages over the double garden sorts, effective as those are.

Another lovely sight in the neighbourhood of Kossovo is the purple annual delphiniums and the purple Verbascum (Wiedmannianum?) which grows thickly among the blue-green blades of the barley. This verbascum, by the way, surely deserves to be more commonly planted; it is a delightful plant to associate with other violet and purple flowers in the border, such as Thalictrum aquilegifolium atropurpureum and Iris Alcazar.

Will someone tell me about the beautiful white poppy that is fairly common in the neighbourhood of Belgrade and which I found in profusion at one place on the road between Kraljevo and Kaska; it seems to be simply a white form of the scarlet field poppy. Where I found it it grew on rock faces and screes, the flowers solitary and nodding, with dark centres. It has something of the grace of Farrer's beautiful Meconopsis quintuplinervia. I noticed in one or two places a variant form more or less stained with pink, which is presumably a cross with the scarlet species.

One of the strongest impressions of travel in Serbia in May is the scent of the acacia; out of every hedge, in every copse, over every garden wall, this delightful tree hangs, its scented wistaria-like trails more beautiful in colour against the unclouded blue sky than even laburnum would be.

I had not time to hunt for flowers in any remote places; I could not get up into those inviting Albanian mountains, partly because, though I might I suppose have found say Ramondia Heldreichii, I should probably have been found myself by picturesque but none the less real brigands. So these notes can have no interest to the botanist. I can only say that if a traveller goes through Serbia in May he will find, besides a delightful and friendly country, golden drop (onosma), burning bush (dictamnus), smoke bush (Rhus cotinus), and lithospermum by the wayside, plumes of saxifrage on shady banks, and a harvest of dog-tooth violet seed in the woods. Quite common things, you say. Well, go and see those peonies on Kossovo, no common sight.—A PAINTER.

A LETTER FROM NAIROBI.

IT may interest you to know, in connection with your statement in THE GARDEN, April 26th, page 274, regarding annuals for Nairobi and your apparent ignorance of our very important country, that we have two societies in connection with horticulture, the most important being the Kenya Horticultural Society, which is affiliated to the Royal Horticultural Society of England.

In connection with this Society we run what we imagine to be a most important part of our work, viz., a gardening page in the local paper, the *East African Standard*, in which we endeavour to give newcomers the benefit of our experiences in the realms of horticulture. There are many beautiful gardens in Nairobi, and it would be easier to give you a list of what will not grow well, rather than a list of the flowers that do splendidly—for their name is legion. Take the Colony as a whole, it is a gardeners' and botanists' Paradise. At the coast you get the glaring hot sun of the Tropics with a heavy rainfall, and from there through every degree of temperature and climate till you pass the alpine belt climbing Mount Kenya and reach the snows. I have had over sixteen years' experience of gardening in this country. There are wonderful wild gladioli, for instance, crinums, moræa, orchids, thunbergia, delphiniums, senecios, verbascums, violets, tritomas, etc., to make anybody's horticultural mouth water, and for the most part the country is botanically unexplored. Not many months ago I found a new mesembryanthemum and a most glorious lissochilus.

I find your paper very interesting and always look forward to its arrival on mail days.—(Mrs.) LUCY M. LANGRIDGE.

FLOWERING LILIES.

MAY I beg a corner of your space to ask if those of your readers who have good flowering specimens of any of the following lilies, will kindly communicate with me at 2, Albion Street, W.2. I am in need of a photograph of a representative specimen of each lily for a Dictionary I am preparing of the genus. Concolor, Kelloggii, japonicum, maritimum, philadelphicum, pomponium, rubellum, tenuifolium.—A. GROVE.

A GOOD WOODLAND COLUMBINE.

THE ideal woodland columbine must possess, in addition to a pleasing colour and grace in flower and foliage, a trustworthy constitution. It should, for preference, be a true perennial, one that will stand up to life among woodland herbage in sun or shade, sow its own seedlings and disdain to intermarry with others of its genus. All these attributes can be claimed by Aquilegia formosa, a form of A. canadensis, which latter is to the former what water is to wine. Our stock of this charming thing came from British Columbia (Vancouver Island, to be more exact) many years ago, and it has ever since been one of the most charming plants of the woodland garden.

A. formosa grows about 2ft. in height, commencing with a tuft of broad-leaved foliage in early spring of that peculiarly soft yet vivid green of the young fronds of a maidenhair fern. Above this rise in May the flower-stems, which, branching freely, bear at their tips elegant, short-spurred flowers of large size in a most alluring orange-scarlet with rich butter yellow petals. These lovely blooms are not only a more delightful colour than those of canadensis but they are broader and ampler, and their poise on the slender stems gives the whole plant a lighter, more refined loveliness. A. formosa has become naturalised in our light woodland loam, and while the stray little colonies of plants which crop up here and there are never out of place, they are rarely so charming as when associated with native ferns in the dappled light of thin deciduous trees.—A. T. JOHNSON, *North Wales.*

THE PROPAGATION OF CHOISYA TERNATA.

IN my garden I have no difficulty in increasing Choisya ternata. I just turn a branch down on to the ground, press it in and put a stone on it, and in a few months it strikes. Often it roots of itself without any help.—D. E. BULWER, *Sussex.*

PRIMULA LADY THURSBY.

IN the report of the Royal Horticultural Society's meeting of May 13th and 14th (page 360), you comment on my Primula Lady Thursby. Your remark as to its not being a hybrid is quite correct. It is true pulverulenta and I have been working for several years to obtain a fertile pink plant. The award card was filled in wrongly. I sent up a hybrid primula as well and this was put on the award card, and in correcting the name, the word "hybrida" was not erased. The word "pulverulenta" should have been inserted in its place. There is a vast difference between a pure bred plant and a hybrid.—G. H. DALRYMPLE.

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LEEKS AND ONIONS.

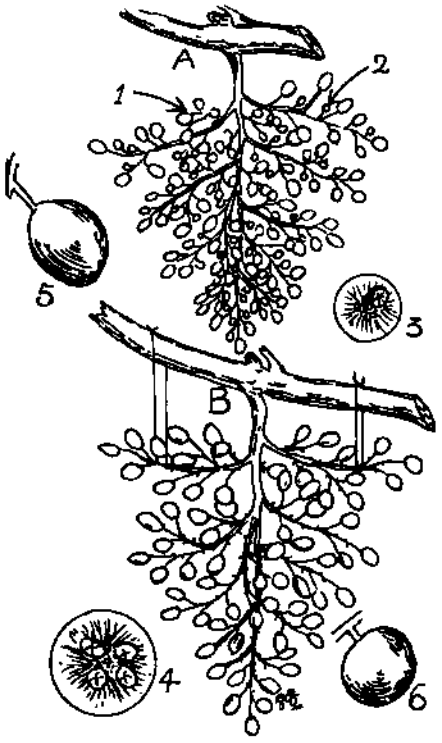
Specimens that are being grown for exhibition at the autumn shows should be encouraged to make as much growth as possible from midsummer to the end of July—that is growth of stem and leaves. The bulbs, in the case of onions, will begin to form freely towards the middle of July and, according to variety, locality and soil, will mature ready for harvesting from the end of August to the beginning of October. Even where fairly dry soils obtain and in the absence of rain, artificial watering should be avoided as much as possible. Twice each week the surface soil should be hoed with a Dutch hoe to create a dust mulch, and early in August a surface dressing of 4oz. of bonemeal per sq. yd. covered with one 2ins. thick of rotted manure will prove very beneficial. I do not recommend ordinary surface watering, nor feeding in this way, for onions and leeks, but at a distance of 2ft. apart, in the centre between two rows, make small holes 16ins. deep and fill them with diluted liquid manure twice a week. The general treatment should be such as to induce the roots to go deeply during dry weather and not to bring them to the surface. Such stimulants as sulphate of ammonia and nitrate of soda should not be applied by the inexperienced, as the slightest overdose would cripple the tender, fleshy roots. The blanching of early leeks should commence at the end of June by placing pure sand round the base.

THE COLD FRAME IN SUMMER.

The cultivator rarely experiences any difficulty in filling the frame from October to May. But throughout the summer months many frames remain empty except for the weeds which not only fill them but depend from the sides, flower, seed and stock the borders near by with young, undesirable plants. All who now plead guilty, should at once clean out the frames, put in nice beds of rich compost and plant ridge cucumbers or vegetable marrows. These would be exhausted in September. But the cold frame, especially the movable one, is an ideal shelter for such plants as cinerarias, primulas, calceolarias, cyclamens, schizanthuses, winter-flowering stocks, solanums, young fuchsias, salvias, etc. The permanent fixture frames should be shaded judiciously throughout the summer, the movable ones may be placed to secure a north aspect. In the case of vegetable marrows and ridge cucumbers the haulm should be allowed rather free growth as that portion outside the structure usually bears more and finer fruits. In northern counties these frames are more generally used in the summer, and in them choice alpines, violas and similar plants find a comfortable home. In some gardens which may lack walls or fences, on the north side of which Indian azaleas may be placed during the hottest days of the year, the walls of a frame may act as a protection to the pots and roots from the sun. Daily syringing in sunny weather promotes a healthy growth and keeps down red spider and thrips.

THINNING GRAPES.

When the cultivator possesses a good crop of nicely shaped, clean bunches the work of thinning out the berries is a very



pleasant one. The bunches of all grapes subjected to heat were thinned a few weeks ago, but there are many bunches in cool structures that need attention in this way, now. Fig. A shows at No. 1 the right kind of berry to retain, and at No. 2 the small ones that should be removed. Fig. B shows the bunch properly thinned and the shoulders neatly tied to the stem above. More berries may always be safely left near the top of the bunch than at the bottom—the point. The three end berries on all berry-bearing branches of the bunch should be retained if they are well stoned. No. 3 shows a badly set berry containing one stone; No. 4 a well set one with full complement of four stones. More berries may be left in a bunch with oval-shaped berries possessing long foot-stalks (No. 5) than in the case of round berries with short foot-stalks (No. 6). The berries should not be rubbed nor handled.

FOWL MANURE.

Where, ten years ago, a dozen fowl houses could be seen by a passer-by in one district, fifty may be seen to-day. The droppings from the fowls in these houses form very valuable manure for general use in the garden. Here and there a poultry keeper knows this and takes proper care of the droppings from day to day; but I am afraid the great majority do not realise how valuable this manure is. Pigeon manure is of even greater value, possessing more than double the quantity of nitrogen, about double that of phosphates and potash respectively. For gross-growing vegetables one pound per square yard is a suitable quantity to use. I have seen enormous crops of tomatoes and potatoes grown as a result of judicious applications, and from personal experience I can recommend it. For tomatoes 8oz. per sq. yd. is sufficient, prior to planting and mixed with loam for surface dressings. One ounce per 10in. pot and mixed with fibrous loam, is a right quantity for top-dressing tomatoes and chrysanthemums—the latter after the buds are taken. But the manure should be kept quite dry and spread out in a thin layer in a cool, airy shed. Before using it should be broken up as finely as possible. If it is placed in a heap outside and allowed to get saturated, the fermentation is rapid and more than half its manurial properties wasted.

STOCKS FOR EARLY SPRING FLOWERING

All who possess a greenhouse or a conservatory should grow a batch of stocks in pots for furnishing such structures in the early part of the year. Few, indeed, are the plants that are more easily grown and managed generally. A dozen plants will fill the house with perfume and add also to the display of colour, as carmine, rosy carmine, white, light blue, golden buff and salmon pink are all available. The seeds should be sown late in summer in pots or boxes filled with a sweet compost of fibrous loam, leaf-soil and old mortar rubble, as stocks thrive where there is a small quantity of old mortar in the soil. The seedlings are best raised in the open air, as there should not be any coddling, but protection from much rain is advisable. Sow the seeds thinly and transplant the resultant seedlings singly in small pots when each possesses two rough leaves. The repotting should be attended to in due course till the flowering pots, 6in. or 7in. ones, are filled. A little bonemeal at the final potting is all the stimulant required. Frame treatment from October to Christmas, then greenhouse till the flowers begin to lessen. The Beauty of Nice Mammoth stocks are among the best ones to grow.

GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Winter Crops.—Such plants as kales, savoys, winter and spring broccoli should be planted without further delay, making the ground fairly firm before planting. Allow plenty of space between the rows, and keep the hoe at work when the plants are established.

Spinach Beet.—Make another sowing of this useful vegetable in lines 1ft. apart, and finally thin the plants to 8ins. in the rows. A sowing of the prickly or winter variety of spinach may also be made.

Peas.—Most growers try to keep up a supply of peas as late as possible, and although a late variety, such as Late Queen, may succeed, it is much safer to depend on the early varieties, which do not take so long to mature. Shallow trenches with a layer of manure in the bottom are recommended, and if the soil is dry at the time of sowing it should be saturated with water a few hours before the seeds are sown, otherwise they will remain dormant until it rains. Stake early crops before the haulm bends over, and use the hoe freely between the rows.

Vegetable Marrows.—The fruits should be removed from the plants when they have attained a reasonable size, or the plants will cease to be productive. Regulate the growths and remove the points occasionally. An application of weak liquid manure once each week will help the plants considerably.

THE FLOWER GARDEN.

Pinks.—These charming flowers are always admired, and to maintain strong flowering clumps it will be necessary to propagate a few plants each year to keep up a young healthy stock. There are now plenty of cuttings or pipings on the old plants, and they will root freely if placed in a cold frame containing a layer of sandy soil. Shade them from strong sunlight and lightly spray the cuttings once or twice daily according to the weather. When the cuttings have rooted the lights should be removed.

Chrysanthemums.—For autumn decoration these are most valuable, and the plants should be staked before the growths bend over or they will be useless for cutting. Stout bamboo canes should be employed, and the shoots tied loosely to allow them plenty of space to develop. Keep the plants clean and afford a light mulching of decayed manure. Pinching the shoots should cease.

VEGETABLES UNDER GLASS.

Tomatoes.—An autumn supply of tomatoes is often desired, and where accommodation can be found for the plants later on seeds should now be sown. Sow the seeds very thinly, and they will germinate readily in a closed frame. Keep the seedlings close to the glass, and pot them off singly as soon as possible. These plants should be grown hard during the next few months, and when established they may be fully exposed both night and day. Sturdy plants always give the best results. Plants raised about this date will also be suitable for planting in houses or pits from which an early crop has been gathered. Seedlings in their early stages of growth ought not to become pot-bound, and good fibrous loam with a little old mortar rubble constitutes a suitable rooting medium. Best of All and Princess of Wales are reliable varieties.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Brassicas.—As crops of cabbages and cauliflowers advance in growth they should have the earth drawn close up to the stems on either side of the lines. Where blanks occur from one cause or another among vegetable crops they should be filled with other plants. Sprouting broccoli and savoys may still be planted.

Seeds to Sow.—Carrots of an early maturing variety may be sown on ground from which early potatoes have been lifted. A small sowing should be made of the following varieties of cabbages: Edinburgh Market, Sutton's Flower of Spring or Pringle's Imperial. Set the young plants out when large enough. These plants should come in for cutting in the early part of next year. Kidney beans, parsley and Spinach Prickly Seeded may also be sown.

THE FLOWER GARDEN.

Herbaceous Borders.—As plants pass out of flower the old flower heads should be cut off—except if seed of some scarce or special plant is required. This will not only add to the tidiness of the borders, but in some cases a second floral display may be obtained from plants, such as lupins. This year these handsome plants—including a few which we moved somewhat late—have flowered well, and except for an odd plant or so bud dropping on the white-flowered plants is negligible.

Narcissi.—Where the beds have become overcrowded the bulbs should be dug up and separated. The best bulbs should be kept and replanted in lines 1ft. apart, allowing 4ins. to 6ins. between each bulb in the lines according to variety. This should be done as soon as the ground has been dug and enriched with old manure or leaf-mould.

Pinks.—If a further increase or a young stock is required, cuttings or slips should be secured now from the old plants. Young shoots 3ins. or 4ins. long should be selected and simply torn from the old stems. They should be dibbled 2ins. or 3ins. apart into sandy soil made quite firm in a cold frame. After being thoroughly watered the frame lights should be put on and kept closed for two or three weeks. The cuttings should be occasionally sprayed and at all times shaded from bright sunshine until rooted.

THE HARDY FRUIT GARDEN.

Strawberries.—Those who have not tried what is called the American method, but which I practised before ever hearing of such a name, will find it a fairly convenient way of providing a stock of plants for early planting. At this time we select and sever from the plantations the runners we require; these are set out in lines fairly close together in a cold frame and receive a thorough good watering. The frame is kept closed and the runners occasionally sprayed, and kept shaded from bright sunshine for two or three weeks, and gradually hardened off.

FRUITS UNDER GLASS.

Melons.—Most growers know the tendency melon plants have of decaying at the neck, and often going off altogether when the plants are a good size. Various things are tried to check decay, such as lime or powdered charcoal, and even a little styptic may be used, and if conditions are favourable it will prove quite effective.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Campanula Medium and its numerous varieties when grown in pots are very useful for conservatory decoration during the spring. To obtain plants for this purpose seed should be sown in boxes at this time, standing them in cold frames, and keeping them shaded until germination takes place. When large enough to handle the seedlings should be pricked off into boxes and when the plants are large enough, planted out in the reserve garden. During the autumn they should be lifted and placed in pots, so that they can be wintered in cold frames. Early in the year they will require a shift into larger pots, 8in. being a suitable size to flower them in.

Campanula persicifolia and its fine variety, Telham Beauty, are also very suitable for pot work. If not already done strong offsets should be secured and planted out in the nursery garden where they should make good plants for potting up during the autumn. They may be stood at the bottom of a wall for the winter, or in cold frames, but the lights should be kept off whenever the weather permits.

Richardia Elliottiana, E. Pentlandii and the hybrid Mrs. Roosevelt, after having finished flowering should be kept going until the foliage shows signs of dying down, when water should be gradually withheld. When dried off they may be stored for the winter in their pots, or they may be turned out and stored in dry sand. Good strong tubers are essential for successful flowering, and RR. Elliottiana and Pentlandii may be raised from seed, treating the young plants in much the same way as hippeastrums.

Gloriosa Rothschildiana is generally regarded as requiring stove treatment, whereas it is really much better in an ordinary greenhouse, the flowers under cooler treatment being a much better colour and lasting longer. The tubers are best started in a warm house, but afterwards should be grown in an intermediate temperature until they come into flower, when they may be removed to the conservatory. This plant, of course, should now be in flower, and where stocks exist the plants should be tried in the greenhouse. This species sets and ripens seed freely under cultivation, and thus affords a ready means of increase.

Bougainvilleas are very useful for conservatory decoration, either planted out or grown in pots. B. glabra Sanderiana being the most suitable for pot work, as it flowers freely in a small state. In addition to this we now have B. Mrs. Butt. It is the brightest of them all, and the flowers may be described as a brilliant cerise-red, and young plants will produce flowers in 48-sized pots, which is certainly unusual for a bougainvillæa. Cuttings made from half-ripened twiggy shoots root readily in a close case with slight bottom heat. Stocks of this plant are now in the trade and it should prove very useful for decorative work.

Clethra arborea, with its beautiful white lily-of-the-valley like flowers, is very suitable for a large conservatory, either planted out, or grown in tubs. This plant is easily propagated at this time by means of half-ripened shoots, which root readily under a bell glass in a cool house.

J. COUTTS.
Royal Botanic Gardens, Kew.

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ANSWERS TO CORRESPONDENTS

THE FLOWER GARDEN.

About Rose Shoots (R. D.).—The rose bushes are not diseased. The shoots sent are quite healthy—normal. But owing to the recent wet weather the young shoots are sappy, and the youngest leaves curl a little in the sunshine. If the soil in the particular bed is naturally more moist than in the others it would conduce to the soft growth.

Peonies Unsatisfactory (M. H. A.).—It is very likely, judging from the appearance of the stems, leaves and buds sent, that they were frozen at an early stage of growth and exposure to the sun while in that state, caused the mischief. The plants would be strengthened if they occupied a richer rooting medium. This could be given them after October. In open, sunny positions, plants require judicious feeding directly the flower buds are formed.

Lilies of the Valley and Irises Unsatisfactory (Countess).—The lily of the valley has been attacked by the fungus (Ovularia elliptica). When the leaves die naturally, gather them up but do not force them away from the crowns. Clean the surface soil of all foreign matter and replace with a layer, nearly 2ins. deep, of sweet leaf-soil on a dusting of powdered sulphur. The trouble may not occur again. If any crowns are to be replanted do the work at the end of February. If the leaves are those of the flag iris, they appear to be suffering from too much moisture, as a well drained soil is essential. There is, not, otherwise, any apparent reason for the present appearance of the leaves. A rich soil and open sunny position is best for these; and a deep, moist soil in a sunny position in the case of Iris Kæmpferi.

English Irises, Plants Dying (M. T. P., Devon).—Judging from the specimens sent by our correspondent we think the trouble comes from the soil. The latter is too moist for them this year, the roots having perished wholesale, even the bases of the bulbs are rotting. Although perfectly hardy these plants require a loose, sandy soil to grow in, then they may be left undisturbed for a number of years. Such a rooting-medium should be prepared for the plants in due course.

Black Spot in Roses (J. E. T. Y.).—The black leaf-spot, a troublesome fungus, is unfortunately, very common. All infected leaves should be removed as soon as the spots are noticed and before the fungus has fruited. Then use a solution of sulphide of potassium at the rate of half an ounce to a gallon of water, thoroughly moistening all the foliage. Regularly clean up and burn affected leaves, and others, that fall. The Lilium plants are probably affected by canker owing to too much moisture in the soil. In due course lift the bulbs, dry in a cool shed, well cover them with powdered sulphur, shaking it into the scales and remove the roots. Store in a cool, dry shed and replant in September and in a fresh position. In the meantime, deeply dig the soil and add rotted manure to the lower portion.

FRUIT GARDEN.

Peach Tree Leaves Diseased ("Puzzled").—The leaves sent by our correspondent are badly blistered. The fungus Ascomyces deformans has had weather favourable to its spreading this season. The fungus increases among the cells in the internal portions of the "blister" and comes to the surface when its fruit is ripening. There should be old lime rubble or lime mixed with the soil. The latter should be maintained in an even state of moisture while light protection from the east winds is beneficial, but spraying in due course is the most important item to attend to, and thin training of the young shoots combined with cleanliness.

About a Fig Tree (E. F.).—It is very difficult to identify a fig from a leaf only. Judging from the specimen sent by our correspondent, it resembles that of the variety Precussata. We doubt very much the possibility of the tree being the result of a seed sown except from a fruit ripened abroad, as seeds do not ripen outside in this country. As a small fruit has been seen on the tree it is possible that more may form; if so, pinch off the end—tip only—of the shoot beyond the fruits when the latter are quite small, and send a specimen or two for examination.

Peaches Unsatisfactory (G. A.).—Peach trees should be so disbudded in the spring and stopped—regarding lateral shoots in the summer—that very little winter pruning will be necessary. Undoubtedly, the roots are crippled and should be attended to next autumn. Checks, from roots or temperature, or both, have caused the fruits to drop.

About Gooseberries and Poplars ("Limington").—The gooseberries are badly affected by the gooseberry mildew fungus, and all the trees, roots included, should be uprooted and burned. A new position for a fresh plantation should be selected. The old soil should be dressed with gas lime, 6 oz. per square yard, next autumn. The poplars are not diseased, but simply damaged by storms.

Apple Branches Diseased (J. M.).—The tree from which the branches were taken is in a bad state of health; its roots are in an unsuitable soil, the best soil for the apple being a good deep loam on a well drained subsoil. The youngest leaves have been infested with black aphides, and other insects which we do not recognise, and, furthermore, the foliage is suffering from leaf-curl, partly caused by the aphides and partly by fungus. The branches are slightly cankered, and if the trees are old it would be better to destroy them and plant young ones next autumn. If not old, renovate the trees next winter by giving attention to the roots. The best course would be to uproot them.

Young Pear Fruits Damaged (R. J. G. R., Berks.).—The young fruits sent are attacked by a grub, Tortricina asiaphilus, which eats fruits, leaves and very young stems. The fruits are also affected by the fungus Fusicladium dentriticum. All affected leaves and fruits should be collected and burned and also the leaves in the autumn, afterwards spraying thoroughly with Bordeaux mixture, and a second time, in the spring, before the buds burst.

FRUITS UNDER GLASS.

Grape Vines Unsatisfactory (A. J.).—Both the bunches and the leaves are very badly mildewed. Flowers of sulphur, freely sprinkled on the leaves, would lessen the trouble but not remedy it completely. It would have a very unsightly appearance used on the bunches. "Abol," used as per instructions, would cleanse the berries of mildew, but it destroys the "bloom" on them. Mildew does this, too, and renders the fruit unfit to eat. Too wet or too dry borders, irregular ventilation at the wrong time, and cold draughts all causes mildew to spread on the vines. If the roots are too deep in the border it may be advisable to renovate it next winter.

THE KITCHEN GARDEN.

Peas Dying (R. C. D.).—The "eggs" our correspondent refers to are nodules on the roots of the plants and are quite healthy. The plants succumbed to attacks by small slugs. In future treatment use old soot freely and dry lime moderately around, not on, the plants. The plants feed through the presence of the nodules.

MISCELLANEOUS.

Names of Plants.—W. T. H., Worthing.—Sagina apetala.——B. C. T., Wilts.—1, Lonicera sempervirens; 2, Jasminum humile.——B. M. C., Shropshire.—Lilium pyrenaicum. This species is quite hardy.——E. E. B., Hawick.—Lonicera Ledebourii.——N. W., N. Wales.—Rosa spinosissima flore luteo pleno, the "Double Scotch Rose." This rose does not require pruning.——H. C., Sussex.—1, Corokia Cotoneaster; 2, Davidia involucrata.

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THE GARDEN

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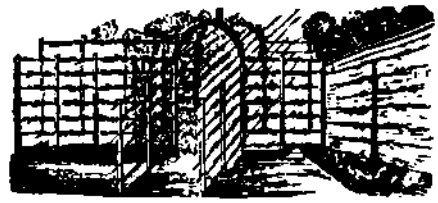

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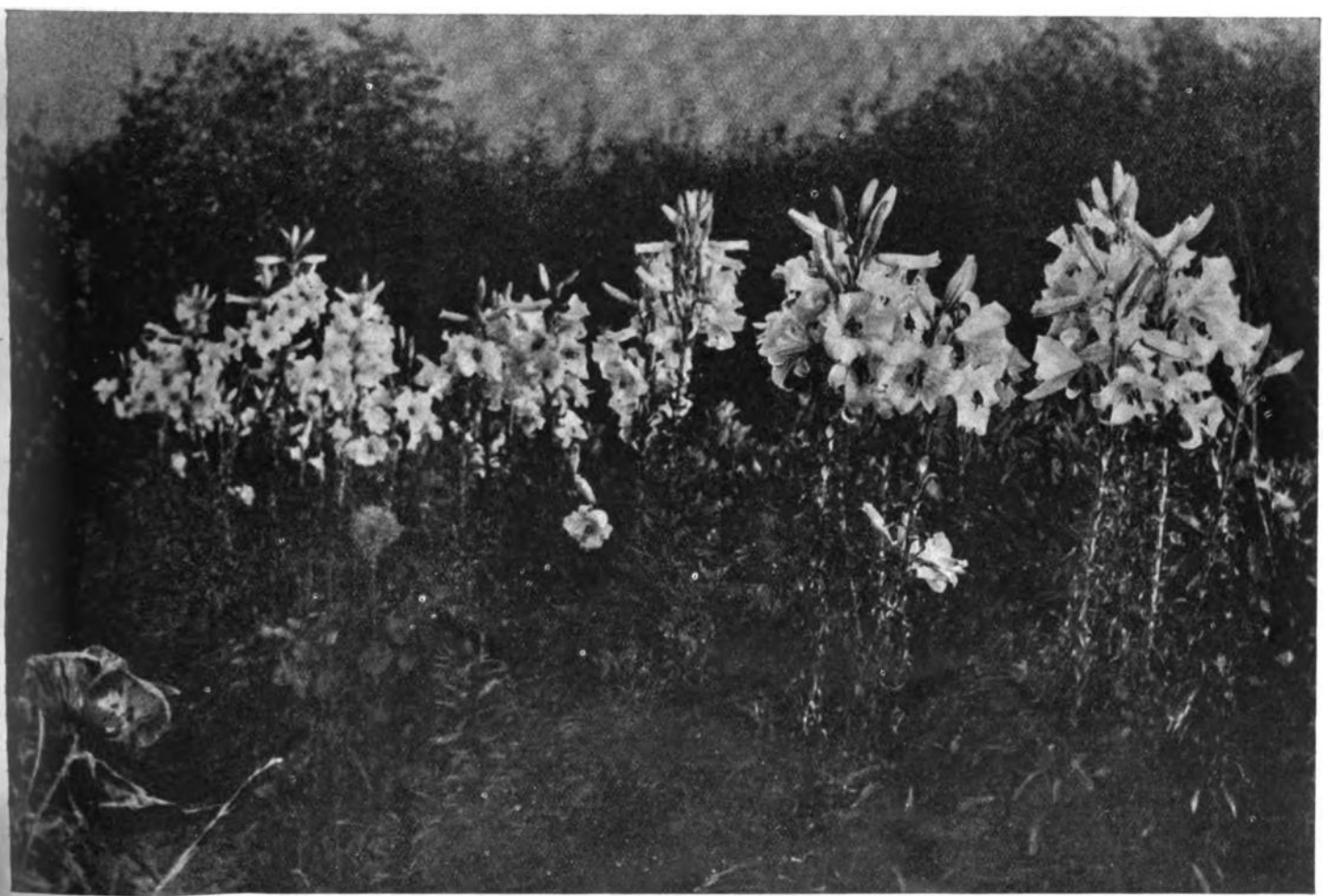

"THERE WERE ROWS OF STATELY LILIES."

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THE GARDEN

JULY 12, 1924

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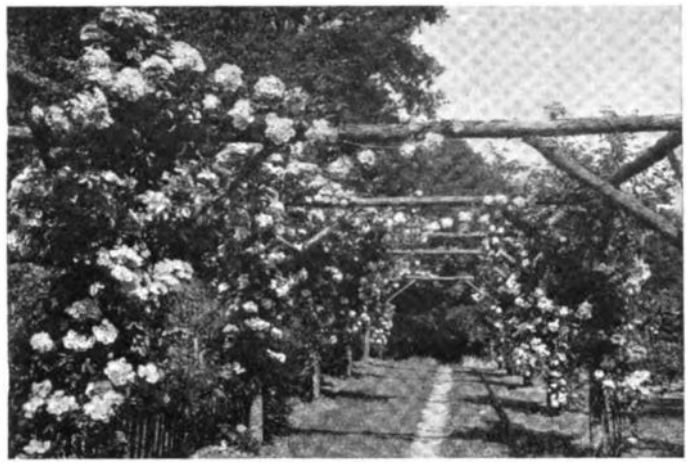

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A SERVICE BUREAU

WE are receiving an increasing number of letters from the Colonies and from countries abroad asking for information and advice upon matters horticultural, so it has been decided to start a regular Service Bureau. The objects in view are as follow:

(1) To assist our readers abroad to gain special information upon branches of horticulture with relation to their particular locality and climate. We have correspondents throughout the world, and so have every opportunity of obtaining information from the best sources.

(2) To advise readers about the suitability of plants grown in the British Isles, including fruit trees, when transferred to different parts of the globe.

(3) To assist readers in obtaining seeds, plants and horticultural sundries from the best sources in England. Readers, however, must realise that we are not responsible for customs regulations in different countries abroad. We cannot guarantee that plants and seeds will not be held up by the various customs authorities, nor can we guarantee that plants will arrive in good condition, although every effort will be made by firms and individuals, to whom we hand on orders, to despatch suitable plants and to secure adequate packing.

(4) To place overseas readers who may be enthusiasts in one particular branch in horticulture, in touch with similar enthusiasts in all parts of the world.

(5) To assist them in all things appertaining to horticulture and arboriculture to the best of our ability

This service is free.

Although this Bureau is primarily intended for readers overseas, yet there is no reason why subscribers in the British Isles should not make use of our services. Naturally, there is information which is not so necessary in this country and yet is of assistance to those who garden abroad. Horticulture in this country has been in a flourishing state for many years, the horticultural trade has been organised to supply people at home with what they require, while there are dozens of flower shows both in London and in the country where traders show their wares and gardeners can see what a plant looks like. These are all points of which lovers of gardens abroad, particularly in new countries, are not always able to take advantage, and it is information of this kind that we hope to supply. On the other hand, we feel that our readers in the British Isles do not make nearly enough use of THE GARDEN. We are here to supply information, either through the columns of the paper or by direct correspondence. As this is a species of mutual benefit association between the paper and its readers, in our case we hope to gain by an even more rapid increase in circulation and in added response to advertisements. We also hope that readers will mention THE GARDEN when corresponding about plants or merchandise mentioned in the advertisement columns.

In addition, we are anxious to start a reference file of all our readers, both at home and abroad, who are interested in any particular kind of plant or class of gardening. We are sometimes asked by subscribers to put them in touch with fellow-enthusiasts, and we feel that this desire for interchange of views is worthy of every assistance on our part. By this means not only can information be gained but particular plants exchanged, for it is in this way that plants can be circulated with a knowledge that they will be appreciated and cared for. We would therefore ask all readers who are interested in one particular branch of horticulture to send us their names, addresses, and specialities, for indexing.

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

SUMMER BORDERS, by Miss Gertrude Jekyll.
AVENUES, by Professor Augustine Henry.
COTTAGE AND STATION GARDENS.
ROSES IN OLD RECEIPT BOOKS.
REPORT OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW AT VINCENT SQUARE.

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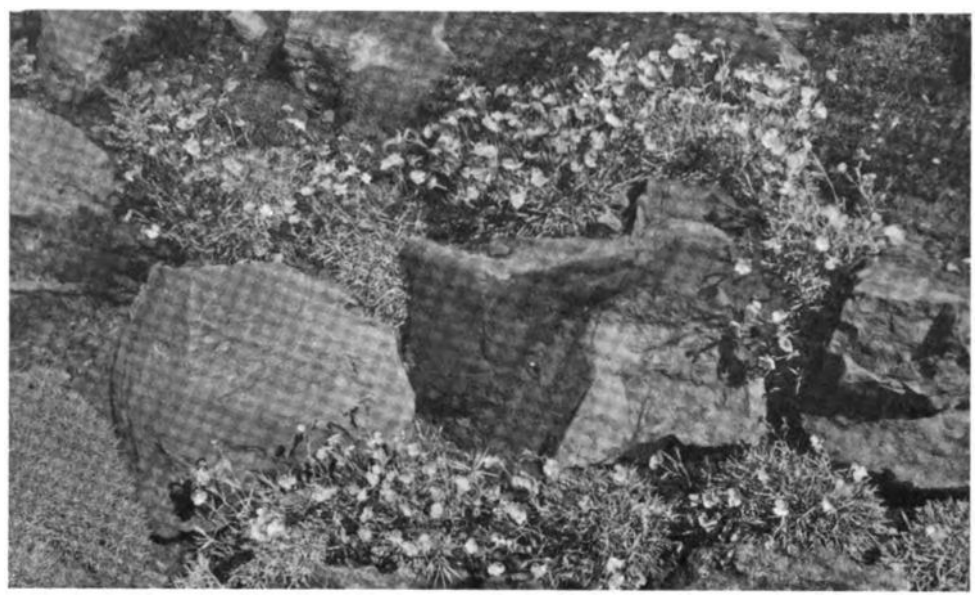
SUMMER COLOURING IN THE ROCK GARDEN

BY DR. LLOYD PRAEGER.

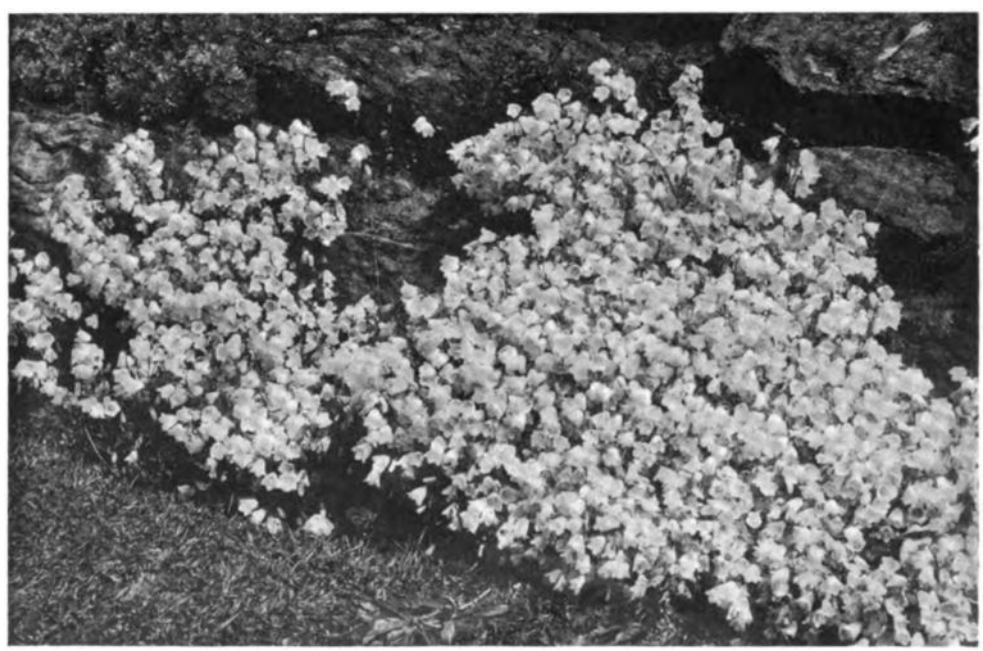
MANY GARDENERS FIND A DIFFICULTY IN KEEPING THEIR ROCK GARDEN FILLED WITH A SUCCESSION OF BLOOM DURING THE SUMMER MONTHS. THIS ARTICLE GIVES SUGGESTIONS FOR A GOOD BEGINNING.

THE subject of the present notes is not of my choosing and what I have to say about it may be thought somewhat unorthodox. But if my readers do not agree with me, so much the better. Progress lies that way rather than in acceptance of ideas only because one is rash enough to put them in print. Among the points which I should like to discuss, and on which I should be glad of criticism, are these. (1) To what extent is a blaze of colour the main object to be aimed at? (2) Is it good to mass plants which do not naturally grow in masses in order to enhance their colour effect? (3) How far is the inclusion of annuals and of "florists' flowers" justifiable for the same object? These are questions in garden æsthetics rather than in practical gardening. You want to produce effects which satisfy your sense of the beautiful and the appropriate, and everything depends on what you consider beautiful and appropriate in the rock garden. Now, rock gardening differs from many other departments of horticulture—from the greenhouse, the arboretum, the rose garden, the herbaceous border—in this: that its practice admittedly involves an attempt to imitate Nature. The books on the subject are full of instructions how to lay out the ground "naturally"; how to place the rocks "naturally"; how to arrange the plants "naturally." The desire to imitate Nature will, I think, be admitted; and the implications involved in this admission are far-reaching, and include answers to the questions which I have propounded. Our rock gardens should reproduce—subject, alas! to the many restrictions imposed by climate, soil and practical considerations—the best bits of natural rock garden of the Alps or Pyrenees. Of course, purism may easily be carried too far. I do not suggest, for instance, that only species which are found growing together on a mountain range should consort with each other in the garden, as is done in the great rock garden at Dahlem. This arrangement is of much interest to the botanical geographer, but most gardeners will not go far wrong in mixing together species from any part of the world—*provided they are rock plants*. That is, I think, where a sense of appropriateness, of propriety, should make itself felt. The proviso gives us ample scope, goodness knows! For the term "rock plant" is very wide; indeed, the only definition that seems to cover it is *a small perennial*, be that perennial herb or shrub.

If we observe the natural rock gardens which are to serve as our guide in the construction of artificial ones—be they Norwegian cliffs, Alpine moraines or Karst limestones—we will note that their pleasing features do not arise solely from their brilliant flowers. The form of the plants and the colour of their leaves and stems are very important contributory features. This supplies a strong hint by way of answer to the first of my questions. Again, annual plants are in these places usually few and not important from the decorative standpoint. To increase the wealth of summer colour in the rock garden by gaudy splashes of lowland southern annuals seems to me inappropriate and not even pleasing, as it tends to spoil the quieter tones of the more legitimate occupants. Even for late summer, when the rock garden is notoriously in want of brightening up, I think the use of miscellaneous annuals shows a lack of appreciation of the true *metier* of the rock garden.



USEFUL FOR MASSING. DIANTHUS CAESIUS.



ONE OF THE MANY FORMS OF THE DAINTY CAMPANULA PUSILLA.

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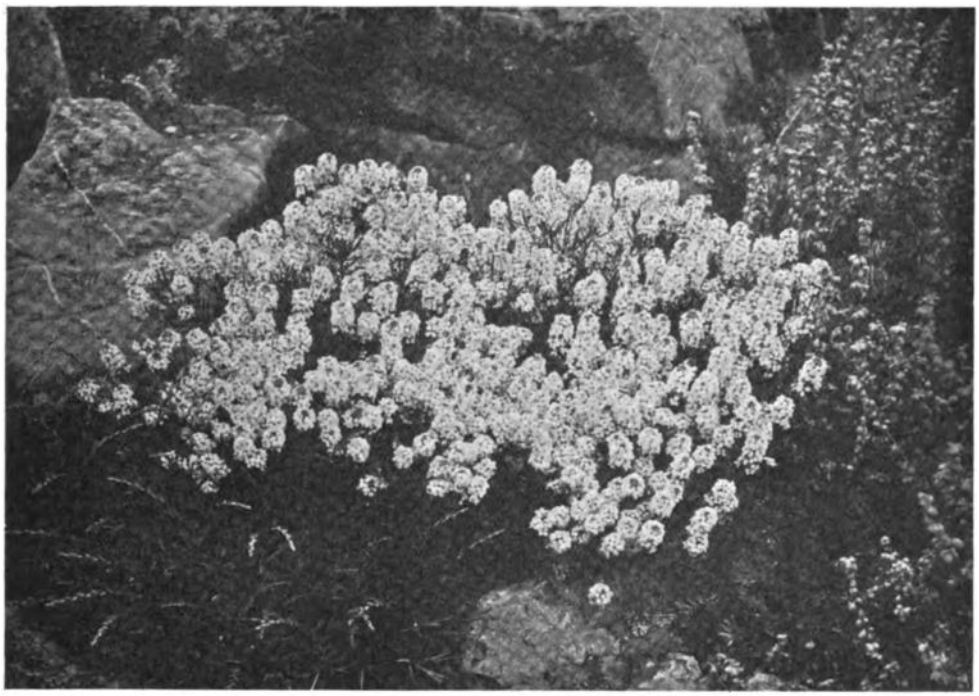
Besides, with care and thought the rock garden can be made very pleasant even in late summer and autumn; there are many interesting late-flowering rock plants, though mostly of subdued tone, and plenty of possibilities in the way of foliage effects.

Lastly, I think the grouping together, as in a bed of lettuces, of many specimens of plants which in Nature grow singly,



ÆTHIONEMA PULCHELLUM SHOULD HAVE SUN AND A LIGHT SOIL.

in order to produce a mass of colour, is generally not desirable. The plant which naturally grows singly in the open has often a graceful and characteristic outline—figure, if one may call it so—which is lost if planted massed. Take phyteuma, for instance, with its stiff or spreading straight stems rising from the graceful tuft of arching leaves. Campanula Tommasiniana and C. Raddeana are other examples of what I mean, and most subshrubs and shrubs. On the other hand, plants which are inclined to straggle when in flower, like the larger potentillas, usually grow naturally among other vegetation, where the weak stems obtain some support; to plant a group of them together is quite allowable, and enhances their effect.

The questions set at the beginning having been now in some degree answered, and the point of view made clear, it remains to take a rapid view of a few of the plants available for the production of summer colour in the rock garden. By "summer," early summer is understood—leafy June. The months which follow are more difficult, and merit a separate chapter some day. June in the rock garden differs from May mainly in that a much greater number of plants are in bloom, with a corresponding increase in variety of form and tint. At the same time June seldom offers masses of colour equalling those of the preceding months, for few plants indeed are so free or so floriferous as those great stand-bys of May, Alyssum saxatile, Arabis albida, Aubrietia deltoidea, and the white and red mossy saxifrages. Only the campanulas of the Portenschlagiana group, a few creeping veronicas, the rock roses, some of the pinks and a few sedums, like album and sexangulare, can vie in mere mass of colour with these May champions; but the June plants offer much more variety of tint, including some very precious blues, and the wonderful range of shades found in helianthemum, running from white and yellow through pink, orange, salmon and apricot to scarlet and crimson. For big splashes of blue the good forms of Veronica Teucrium dubia are very hard to beat—this common plant is a real treasure. Blue-purples are supplied in abundance by the campanulas, not only the large sheets of Portenschlagiana and its allies, and the imperial purple of pulla and its associates, but the pale tints of garganica, the dainty pusilla with its many forms, the fairy-like arvatica and many others. Later than these, the numerous rotundifolia section—the true harebells—come in when colour is beginning to wane, and are doubly welcome on that account. It is easy to brighten the June rock garden with the innumerable garden forms of pinks, but the wild species are so pleasing that this doubtful expedient is uncalled for. For masses of colour we have D. suavis (white), D. cæsius and D. plumarius (pink), and for general purposes a lovely array of species from 3ft. forms of D. Carthusianorum to 3in. D. subacaulis, with D. neglectus, which is easy and several others which are not so, where a spot of intense colour is desired. Another invaluable group when you wish colour laid on with a large brush, so to speak, is the creeping thymes; from white and pink up to the intense crimson of T. Serpyllum coccineum. Then the lithospermums and their cousin moltkia give very precious masses of blue—if they will grow with you. On my own light limy soil I find L. intermedium much the easiest—a very valuable plant.

The erodiums, which came in in May, are still in full bloom in June, and are very desirable, not only for their pleasant pink flowers, but for their graceful green or greyish foliage. The silver saxifrages are at their best, and in a year of good flower they make a fine display. They are too well known to need further comment here. Among the mossy section two excellent plants which flower in summer are S. trifurcata and its neighbour ceratophylla. Both form large cushions of stiff dark green foliage and bear a great wealth of china white blossom on dark wiry stems. Some of the later genistas are June flowerers and give good masses of yellow—G. tinctoria in its double form, for instance, and the quaint trailing G. sagittalis. The more dwarf hypericums also supply fine blobs of yellow—notably olympicum, fragile and Coris. Delightful little bushes of pink and rose are furnished by the æthionemas, which should have sun and a light soil. The sea pinks (Armeria) must not be overlooked, with their plump cushions and erect flower-heads of pink running to fine crimson, as in A. maritima Laucheana and A. plantaginea splendens.

This catalogue could be prolonged indefinitely by the addition of other genera and species which, though generally less showy individually than those which have been referred to, equal or exceed them in beauty and interest. But the text which was given to me was *colour* in the rock garden, so I have confined my attention to a few of the more showy things. It remains to point out that mere masses of bright colour are not the only things to be aimed at for permanent satisfaction. The softer tones are needed to rest the eye and to set off the brilliant spots of colour, and proper attention should be given to plants in which the foliage is a leading feature. Thus the achilleas are of first importance, not so much on account of their greyish white flowers as their silver and grey-green, fine-cut leaves. And the dainty mounds of delicate foliage supplied by the various species of corydalis, the grey, green or brown carpets of acæna and cotula, the silver of the artemisias, and the green or blue tones of the dwarf conifers must all be called into service in our scheme for the complete rock garden.

Even among those genera which supply most of the summer colour in the rock garden beauty of form will make a more permanent appeal than mere wealth of bloom. Gaudiness cannot long hold out against grace, and ultimately one's favourites will often lie among the less showy things. Thus Campanula Raddeana with its thin tuft of graceful leaves and deep purple flowers, and C. Tommasiniana with its hundreds of slender bells hidden away among the narrow foliage on its arching stems will outlive C. portenschlagiana in one's affections, and one will cherish Hypericum cuneatum long after one has ceased to thrill over H. olympicum.

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HEALTH AMONG THE ROSES

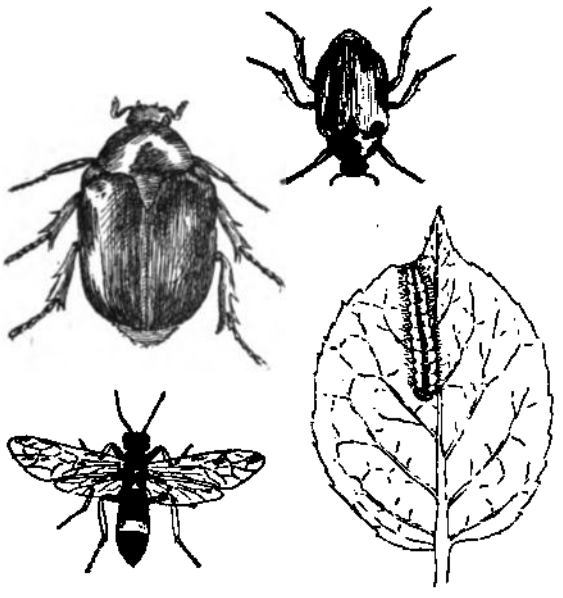
THIS IS THE TIME OF YEAR WHEN ROSES HAVE TO BE WATCHED WITH THE GREATEST CARE FOR SIGNS OF INSECT PEST OR DISEASE. UNFORTUNATELY, THEY SEEM TO BE RELISHED BY PESTS MORE THAN MOST FLOWERS.

SINCE the mission of the rose is to give pleasure, not only should its blossoms excite admiration and, if possible, surprise, but twig, branch and tree should unite in presenting a picture of perfection and beauty; but it is far from easy for even an expert to achieve this, the rose being good food for many insects and several kinds of fungus. Its raiders are many and various and leave behind them nakedness or disfigurement.

To meet such attacks with success, the health of the tree must be maintained, and suckers watched for and thoroughly eliminated. It should have the advantage of a position suited to its variety, sheltered from the more trying winds of its district on ground that has been well drained. It should also be supplied each year with sufficient manure to support its blossoms and water enough to keep it in free growth.

If not doing well after standing long in one place, transplanting and root pruning may separate it from underground foes and renew its health and vigour. While if it seems drastically out of health, buds or cuttings should be taken to renew the stock.

The aphis, from its small size and powers of quick reproduction is a most troublesome pest. As soon as it is noticed the tree should be sprayed with an emulsion of soft soap and water with tobacco or quassia; repeated on the next day, and in a bad case again on that following. A thorough syringing with plain water should follow the use of the emulsion some twenty-four hours later, to cleanse the leaves from the soap. The larvæ of the lady-bird (coccinellidæ), lace wing (chrysopidæ), and hover fly (syrphidæ), live upon aphides, scale, etc., and should be protected.



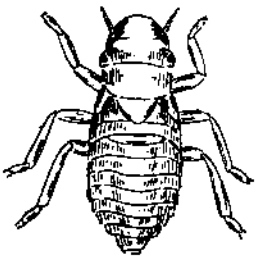
CETONIA AURATA. PHYLLOPERTHA HORTICOLA.
EMPHYTUS CINCTUS. LARVÆ OF SAWFLY.

The leaf hopper appears something like the aphis, but is flatter, has shorter legs and is fish-shaped, with a pointed tail. The larva runs quickly and the pupa can scarcely be distinguished from it without careful comparison, except that it has two "buds" where its wings will develop later. The perfect form has long wings covering and protruding from its body and a sudden and disconcerting habit of hopping. The leaves on which it has fed have a whitish look in the parts from which it has eaten the epidermis and green colouring. It destroys the digestive work of the leaves and should be sprayed with tobacco emulsion or other mild wash under as well as above the leaves.

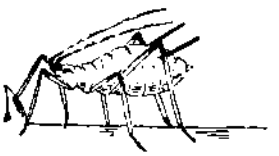
The scale (coccidæ) is not as easy of detection as the aphis, resembling a rounded protrusion of the bark, but its presence is very weakening to its host. When young it is small and active. The female takes a position on the stem, thrusts her haustellum, or beak, through the cuticle and spends the rest of her life in absorbing nourishment, building a scale to cover herself and progeny, and depositing the eggs which hatch under her minute roof. The male coccidæ have wings and no beak. Like the aphis many females of this family are parthenogenetic. If a paraffin and soap emulsion be used against this pest it should be applied before the budding of the leaves. If time can be given, the scale may be rubbed off with a cloth wetted with an emulsion of soap with tobacco or quassia, watch being kept and the treatment repeated at short intervals. Observation in late summer would be necessary lest any scale be left to start a new cycle.

The frog-hopper (cercopidæ) is more easily dealt with, but should on no account be neglected. The froth inside which the larva is usually concealed, being manufactured from the sap of the host plant is an evidence of those deleterious misdoings which cause serious drainage of sap, likely to affect the production of blossoms and general health of the tree. The insect is variable in colour. Of a group of six just found in a piece of froth on a leaf they vary in size round three-sixteenths of an inch, and in colour between pale green and creamy yellow. Two widely separated brown eyes help to give a reason for the name of "frog," emphasised in their perfect form by their habit of hopping. The trees may be treated by syringing with a tobacco emulsion, but this is better preceded by hand picking or at least by strong syringing with plain water, as the froth is adhesive and protects the hopper both from the force of the spraying and its chemical effects.

The larvæ of the sawfly make their attack in different ways according to their species. The leaves may be found rolled with the green larva of Blenocampa pusilla inside and should at once be picked off and crushed. The upper surface of the leaf may be eaten



THE FROG-HOPPER.



ROSE APHIS.

by Eriocampa rosea (light green), or Emphytus cinctus (dark green spotted with white), may eat up the leaf. In any case the tree should be sprayed with hellebore or other suitable wash and the surface soil taken away in the winter and burned.

Chafers are troublesome in two ways; in the first place their larvæ feed upon the roots, and if there should be reason to suspect their presence, the earth round the trees should be dug in winter and thoroughly examined for white grubs, the end of whose bodies are bent beneath them.

Three kinds of chafers, the June bug or cock chafer (Melolontha vulgaris), the garden chafer (Phyllopertha horticola), and the summer chafer (Rhizotrogus solstitialis), beside the beautiful rose beetle or green rose chafer, feed in their perfect stage upon the actual leaves and petals of the rose. The only way of preventing this is to watch for, pick off and destroy the intruders. They are strong fliers so that at no time are the roses safe from them.

A close watch should also be kept for caterpillars, large and small, those from a dozen or so of moths find wholesome food on the rose tree and as some are minute they may elude anything but careful search. The perfect form of one of these, the winter moth, has only rudimentary wings, cannot fly and is scarcely recognisable as a moth.

All folded or rolled leaves should be picked off and dropped into insecticide, as well as those blistered or spotted,

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indeed, the latter are far better burned without delay.

Thrips, those minute black insects known as "thunder-flies" (Thysanoptera), feed on the coloured layers of leaf and flower and may be cleared by spraying with water or a mild wash.

Red spider is only likely to be troublesome under glass and is best treated by fumigation. If it should be found out of doors, spray with black sulphur at intervals.

Fungus is a most insidious and annoying enemy; it shows itself in several forms the chief of which are given here.

Mildew (Sphærotheca pannosa) is an appearance of mould over-spreading the leaves which is apt to attack immature growth and must not be confused with the whitish patches which result from the attacks of the leaf-hopper. While good washing and watering is helpful, a damp close atmosphere is deleterious. Mr. F. V. Theobald recommends fine spraying with one part of sulphuric acid in one thousand of water after scraping off and burning the fungus or dusting with flowers of sulphur.

Black spot (Actinonema rosea) shows in dark or black patches from the middle of June or earlier, and may cause the affected leaves to fall too early. These leaves should be removed and burned when first seen and both tree and surrounding earth kept free from dead leaves and stems. For this and other fungi black sulphur (sulphate of potassium) may be used on the spring shoots.

Rose rust (Phragmidillim subcorticum), producing orange spots, and leaf scorch (Septoria rosea), causing brown marks, call for prompt treatment. Affected leaves should be removed and burned, and the spring shoots sprayed with an emulsion of sulphate of potassium; or, where the stems are affected, equal parts of methylated spirit and water may be rubbed upon them.

Sooty mould (Fumago), which lives upon honeydew, sometimes follows upon the presence of aphides. Measures should be taken against the latter and the mould will cease to be troublesome.

A practical gardener recommends for insect pests in general a mixture of a wineglassful of paraffin in a gallon and a half of water, the mixture to be repeatedly drawn with a syringe from the bottom of the receptacle and returned to the surface of the blend immediately before use, so that there is no danger of touching the foliage with a drop of crude paraffin.

M. L. BROOKE.

BLUE FLOWERS

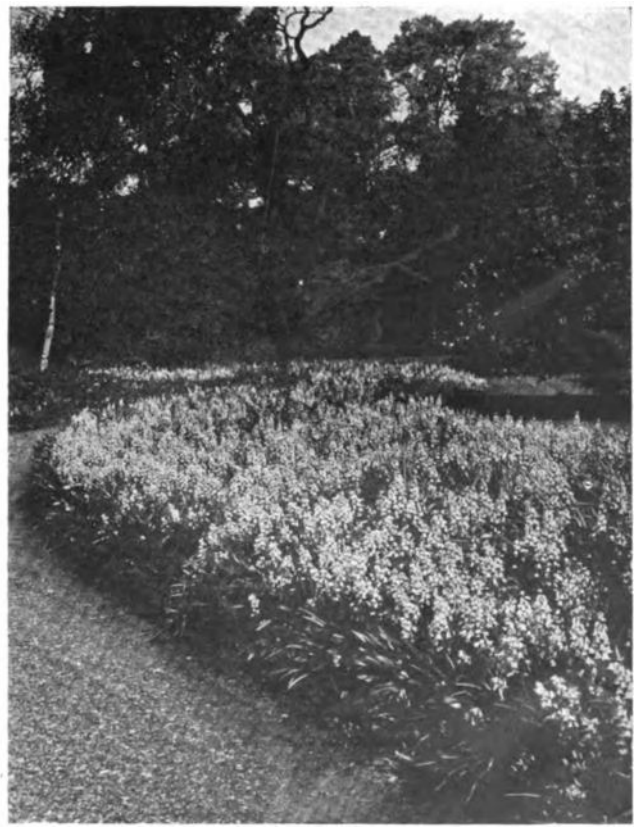
BY SIR HERBERT MAXWELL, BART.

THIS IS A TIMELY ARTICLE POINTING OUT THAT THERE ARE BLUES AND BLUES. MOST PEOPLE REALISE THE NECESSITY OF SEGREGATING MANY PINK AND ROSE SHADES, BUT FOR SOME REASON BLUES HAVE BEEN LEFT TO MIX AS THEY CHOOSE, AND SOMETIMES THEY CLASH.

Greens forsaken and yellows foresworn
But blue is the prettiest colour that's worn.

WHATEVER truth there may be in this old country jingle, it is certainly a fact that blue flowers attract most attention from casual visitors in a garden. There are blues and blues, of course, and it is well that in flowers this colour, which affects the human optic nerve more powerfully than any other, is all but invariably softened by an admixture, however slight, of red, as in echium; of yellow, as in Bailey's variety of Meconopsis simplicifolia, or of both, as in Aconitum Fischeri. Even the blossoms of Salvia patens and Gentiana verna, which approach crude blue more nearly than any other border plant that I can think of, may be truthfully painted with French blue and with cobalt respectively; but both these pigments contain a faint tinge of red.

These remarks came to mind after looking at a thriving plant of the Himalayan hound's-tongue — Cynoglossum nervosum — a species which, though perfectly hardy, is not often met with in private gardens. Of all forms of keepsake or, as the French prettily term it, *porte-bonheur*, there is none that so surely reminds one of an absent friend as does a living plant. Thus, year after year, when this hound's-tongue puts forth liberal racemes of rich blue flowers in late May, I am reminded of the old friend from whom I received it many seasons ago—the late Sir Isaac Bayley Balfour. I think that Mr. John Weathers cannot have been acquainted with this choice species, else in his excellent "Practical Guide to Garden Plants"—a fat volume crammed with useful information—he would not have dismissed the whole genus cynoglossum as "scarcely suitable for the flower garden," while admitting Lindelofia spectabilis, which is far inferior in beauty to the other.



THE SPANISH SQUILL IS NOT SO RICH IN SHADE AS OUR S. FESTALIS.

All colour being relative and our perception thereof purely subjective, the hue of every flower is powerfully affected by that of neighbouring flowers. It is well, therefore, to note in one's pocket-book such chance combinations as enhance the brilliance of blossom, or mar it, with a view to future re-arrangement. Thus last year I removed a batch of Hippeastrum (Habranthus) pratense from proximity of a bush of Buddleia globosa. Though both these plants are natives of Chile, they swore horribly at each other when in simultaneous bloom. Unluckily I replanted the hippeastrum close to a good clump of Pentstemon Scouleri, and now it is flaunting its orange scarlet flames over the rosy-lilac blossoms of the pentstemon. If I am spared to see another summer, hippeastrum and hound's-tongue shall be so stationed as mutually to add to their respective richness of colour.

Equally rich in colour to Cynoglossum nervosum and some ten days later in flowering is a hound's-tongue which we

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have labelled here C. appeninum, but I cannot find that name in the Kew Hand-list or elsewhere. It is a desirable herb, and if the old flowering stems are cut off, it repeats the display in autumn to compete with the sky-blue blossom of the biennial C. amabile. The latter is indeed a lovely thing, but it has one objectionable quality as a border plant, namely, the profusion of burrs which it produces. These are of a desperately adhesive nature, impossible to extricate from the coat of any dog that comes in contact with them

Another blue-flowering plant has earned my gratitude to Mr. E. A. Bowles, from whom I received it, not on account of the quality of its colour, which is a pale, rather washy tint, but because of its virtue as a carpet for bulbous things. This is Veronica filiformis (not to be confounded with V. filifolia), which spreads with extraordinary rapidity, never rising above 2ins. or 3ins. high, and sheets itself in a mist of grey-blue blossom. Presently a series of roscœa will push through the carpet, beginning with the broad-leaved R. Humeana, followed in succession by R. cautlioides, the purple R. capitata, and the pale sulphur-coloured kind named "August Beauty," which I take to be just a late-flowering variety of R. cautlioides.

The Spanish squill—Scilla hispanica (campanulata)—is not of so rich a blue as our native S. festalis, which in England has appropriated the name of bluebell, assigned in Scotland to the harebell; but the flesh coloured variety of this Spaniard is a charming plant. So is the white-flowered variety, and all three take as kindly to British woodland as our own species. More refined in colour than either of these squills is the graceful Pyrenean Hyacinthus amethystinus, whereof the fairy bells are of a delicate sky blue. The specific name chosen by Linnæus for this plant is singularly inappropriate for there is no suggestion of amethyst purple in the blossom. No doubt he named it with a herbarium specimen before him.

ONE OF THE FINEST OF SKY-BLUE COLOURED FLOWERS, GENTIANA FARRERI.

Of paler blue than Camassia esculenta, but much statelier in habit, C. Cusicki rears its fine spires of blossom in early June. It is far the best of the genus.

The late Mr. Reginald Farrer has added a fresh charm to late summer by discovering and introducing the sky-blue gentian that bears his name. It is as good natured as it is beautiful, easily raised from the seed which, be it noted, is borne at the top of the style instead of the usual position at the base. It thrives abundantly in gritty loam and peat, kept moderately moist, but special vigilance is required to remove seedling grasses which so closely resemble the foliage of the plant as to defy detection until the grass is above the flower.

ANOTHER FINE SKY BLUE, CYNOGLOSSUM AMABILE.

I have referred above to Major Bailey's variety of Meconopsis simplicifolia. Among all hardy flowers known to me it is without a rival in its peculiar shade of blue, at once brilliant and soft, and enhanced by the silky texture of the corolla. One may describe it as Cambridge blue, but there is a suggestion of primrose suffusing part of the petals and a touch of purple at their base, producing an effect verging on prismatic. Then the bright green style, boldly protruding from a dense circle of golden anthers suspended on blue filaments, completes a blossom of extraordinary richness and fully 3ins. across. Unluckily the plant is monocarpic, but produces plenty of good seed which should be carefully harvested.

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GARDEN FURNITURE

GARDEN FURNITURE IS ALWAYS NECESSARY FOR THE CAREFUL AND PROPER APPRECIATION OF A GARDEN, ESPECIALLY IF IT IS A LARGE ONE. HERE ARE A FEW IDEAS ON THIS IMPORTANT SUBJECT

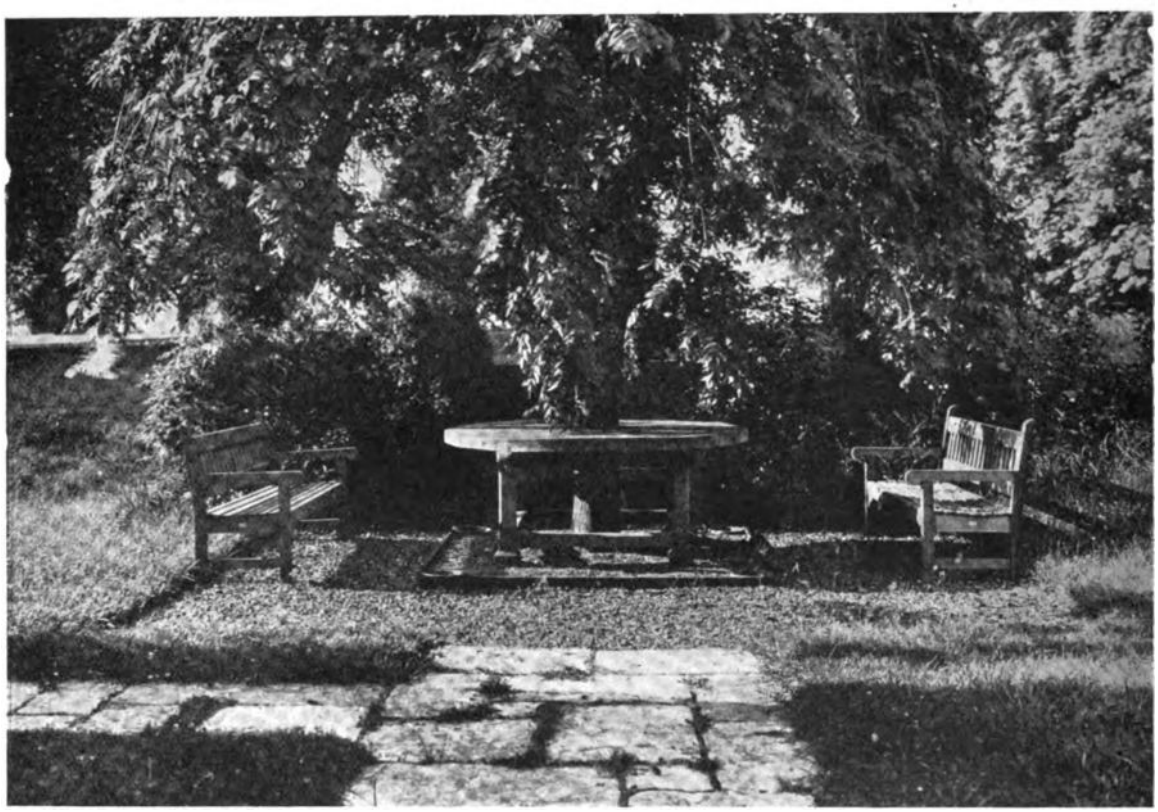
NO garden worthy of the name is complete without suitable furniture. Unless, however, this is of the right kind, it will detract from instead of adding to its charm.

Seats may be constructed in various materials, iron, wood and stone being the most common. The iron seat is generally to be avoided; it serves utility rather than beauty, and rarely, if ever, is it comfortable to sit upon. A combination of wood and iron is little better as regards appearance, but it will not easily succumb to the action of the weather.

Wooden seats are obtainable in great variety from all makers of garden furniture. Simple seats can be fashioned at home or with the help of a local carpenter, but the more elaborate types of circular work require a considerable amount of technical skill, and even those which are of quite simple character need to be put together in a competent manner if they are to be worthy of occupying a prominent position in the garden. Many people who would not countenance a home-made piece of furniture inside the house seem to think that almost anything will do in the garden. This, unquestionably, is a mistaken notion, and money is well expended on the purchase of well designed and well made seats that will not only remain sound for years, but also will be sightly and satisfactory, instead of having the casual and amateurish look of a makeshift.

The most pleasant of wooden seats are those constructed of moderate sized timbers, modelled on good structural lines, and without any effect of ostentation or showiness. The most durable material is either teak or oak, but where cost is a consideration sound deal may be used. A good example of a simple painted wooden seat, supplied by Messrs. John P. White and Sons, is shown in an accompanying illustration. If kept regularly painted and placed so that the legs are out of the damp, deal garden furniture will give a useful life of service. As a precaution against damp it is a good plan to pave the space under and around the seat; stone flags or brick being used for this purpose. This will not only keep the wood away from the damp earth, but will enable the seat to be used with greater comfort after rain. Incidentally, also, it may be noted that paving around the seat has an advantage over grass on a summer evening, inasmuch as one does not then get bitten on the legs by gnats and other insects that come out of their hiding places in the grass in the cool of the evening.

Wooden seats designed on the lines of good furniture are greatly to be preferred to those of the "rustic" variety, which often are the very reverse of comfortable, and all too frequently by their super-rusticity look anything but happy in the garden surroundings with which they are supposed expressly to harmonise.



A COMFORTABLE RESTING PLACE UNDER A CANOPY OF GREEN.

At the end of a grass or other walk a segmental or semi-circular seat, with perhaps a table standing in front of it, always looks well, and gives a point of interest. A circular seat arranged around a tree is also an effective form. Other curved shapes can be obtained in the correct size and form to suit any spot.

In a garden which has some informal or wild portion, opportunities are given for forming many a sylvan resting place. The simple bench type of seat, a board supported by tree stumps, or a seat fashioned out of an old trunk, is admirable in such a setting. Here their rustic character is perfectly in keeping with their surroundings, but such a treatment should not be introduced into a garden where formality of any form has been followed: and now that we have generally abandoned the practice of landscape gardening which was evolved and prosecuted with such vigour a hundred years ago by "Capability" Brown, and perpetuated in a minor way by the meandering paths and polygon beds of Victorian

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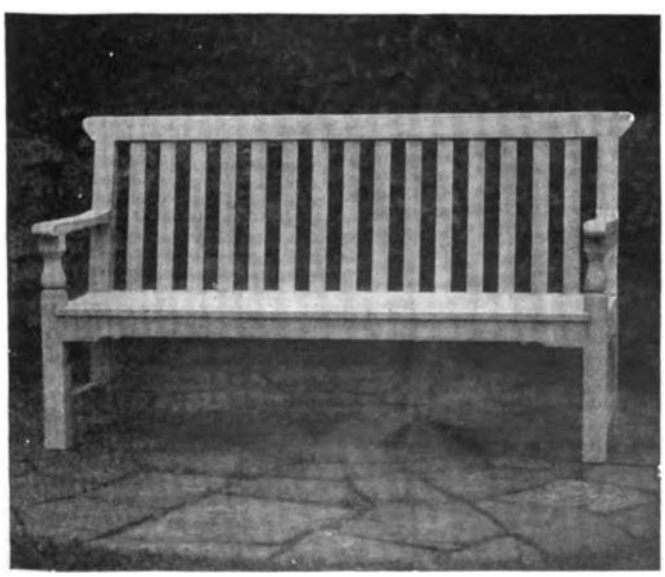
days, it may be taken that the great majority of gardens to-day are of a more or less formal character.

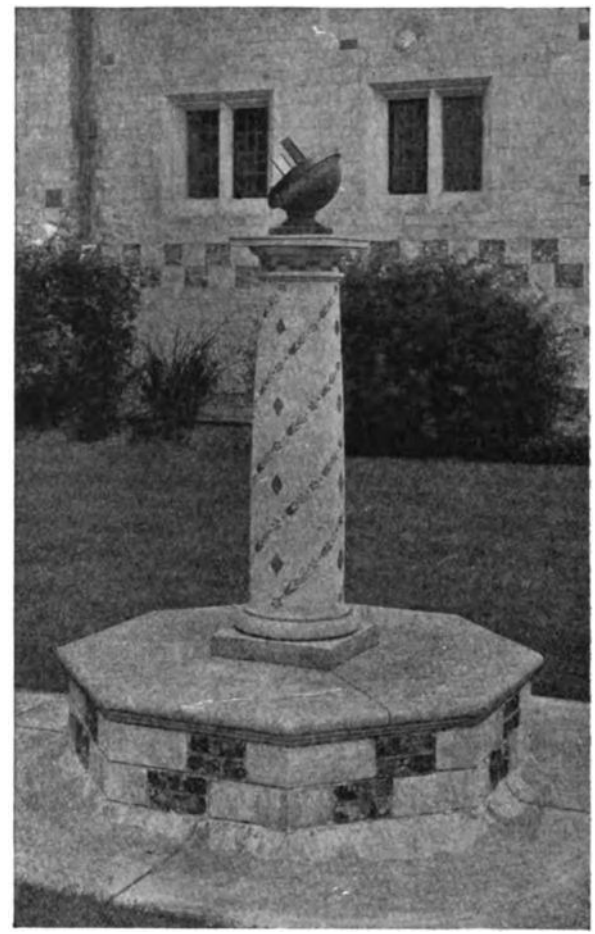
The most durable of all garden seats are those of stone, though admittedly they have not the inviting character of wood, and need some form of covering in the form of cushions or a wood top if they are to be used for sitting upon with comfort and safety. Such seats may be constructed either of rough stone (often to be found in and around the garden, or obtained from a local stonemason's yard or from some friendly builder) or they may be wrought stone benches of architectural character. These latter make very effective features in the garden, expecially when they are set against a background of yew.

For portable chairs, seats and tables in the garden, cane is coming increasingly into favour, and it is noteworthy what admirable models are being produced. We all remember the weird contortions which makers of cane furniture took such delight in. It was ill-natured stuff, and as unsatisfactory in everyday wear as it was unseemly in form. It reached its zenith a decade or so ago, in company with a riot of fatuous bamboo furniture. But these creations belong to the past, and if not forgotten are at least unfollowed. Cane furniture of this kind was a byword both in the house and the garden. Now a very different sort of cane furniture is being made by firms who are using the material in a proper way. Cane chairs, seats and tables for the garden, alike excellent in form and sound in construction, are available in great variety. They are serviceable in use, stand a vast amount of wear and tear, and in general are admirable examples of modern craftsmanship. They are designed on proper lines and show cane as it should be used. Those shown in the illustration are made by the Dryad works. One of the handiest of all chairs for carrying about the garden is the deck chair. So far its disadvantage has been that the canvas seat takes a long time to dry. Now this fault has been obviated in the case of a chair called Collier's Detachable Canvas Deck Chair. In this the canvas can be removed and rolled up in a couple of seconds.

A GOOD MODEL OF CANE GARDEN FURNITURE.



A SIMPLE PAINTED DEAL SEAT.



A MODERN SUNDIAL AT MARSH COURT.

With regard to the most suitable position in which to place seats in the garden, something more than utility and comfort need to be taken into account. Seats should be placed so that, primarily, they give an attractive view of the garden. At any spot commanding a particularly pleasant prospect there should be set a seat to invite its leisurely appreciation. A seat should never be placed on an uninteresting walk or facing some tall hedge or unalluring portion of the house, as there will be nothing in that position to induce one to use the seat. Arbours, loggias, recesses in walls and hedges are essentially the places where seats can be set to best advantage.

With regard to tables, many of the foregoing remarks about construction and design apply equally in their case, and need not therefore be repeated. Tables are apt to get very dirty if left continually in the open. Therefore they should be light, so that they may be readily carried under cover, and also they should lend themselves to being scrubbed when necessary. Wood fulfils these requirements admirably. If of oak or teak, they are best left untouched by varnish, but other wood tables should be painted in some light colour. They should be on quite simple lines and devoid of ornamentation. Sturdiness is a primary necessity, and the legs should be such that the table will stand firmly even on irregular ground.

In the garden, seats and tables are intended essentially for use, and, when choosing them, their everyday requirements and lasting qualities should be kept prominently in mind.

Another section of garden furniture—that consisting of urns, vases, sundials, and so on—is so important that it

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must be given an article to itself. There is, however, one point which should be mentioned here, and that is that antique sundials and other decorative ornaments have no monopoly of charm of design. Some modern productions show a sense of design which is quite equal to that in the best of the older pieces. A good example of a simple modern sundial is shown in the illustration on the previous page. Indeed, for a modern house and a garden designed on twentieth century lines good modern decoration is often more in keeping than old or classical design.

THE GREAT SUMMER ROSE SHOW

THE National Rose Society held its Summer Show in the grounds of the Royal Botanic Society on Friday, June 27th. The weather was glorious and the attendance very good.

Although the majority of blooms were good, we did not consider the show quite represented the standard of excellence prevailing in rose gardens throughout the country this season. There was only one gold medal new rose, but five were awarded certificates of merit. The new roses impressed us with their high average excellence but there was nothing of sensational interest.

The competition for the big nurserymen's classes for roses in boxes was fairly keen, and the blossoms of perhaps better than average size and form, but there were more stained and battered flowers than we had expected to see. In the class for seventy-two blooms, distinct varieties, Messrs. Frank Cant and Co. were placed first. Their outstanding bloom was an especially fine specimen of Capt. O. Fitzgerald. Other particularly good flowers noted were of Mrs. Hugh Dickson, Bessie Brown, Clarice Goodacre, Mabel Drew and Betty Uprichard. Messrs. B. R. Cant and Sons, Limited, were second with some splendid flowers of such as Mrs. Henry Morse, Betty Hulton and Edgar M. Burnett. Messrs. D. Prior and Son, Limited, were third.

In the class for thirty-two varieties, three blooms of each, Messrs. Frank Cant and Co. were again to the fore. Their trios of Mabel Drew, Mrs. Foley Hobbs, Mrs. Charles Lamplough and Mrs. Andrew Carnegie were among the most noteworthy. Messrs. B. R. Cant and Sons were a good second with fine blooms of Edith Cavell, Nellie Parker and Bessie Brown. In Messrs. D. Prior's third prize exhibit a beautiful trio of Lemon Pillar called forth much admiration.

In the class for forty-eight blooms, distinct, the competition was very keen indeed, but the judges placed Mr. George Prince first, Messrs. English and Son second and Messrs. J. Burrell and Co. third. Mr. Prince had fine flowers of Mrs. Courtney Page, Souv. de Georges Pernet and Mrs. Henry Morse; Messrs. English a really top-notch Red Star and good blooms of Mrs. R. W. McClure and Mrs. J. R. Allen; while Mme. Jules Gravereaux, Mrs. Charles Lamplough and Glory of Steinfurth were noteworthy in Messrs. Burrell's exhibit.

In the class for twenty-four blooms the judges again had an unenviable task. Mr. Elisha J. Hicks was placed first with outstanding flowers of Mabel Morse, and Mrs. Courtney Page; Mr. Sidney Hicks was second with Frau Karl Druschki and Lemon Pillar very fine; and Messrs. Chaplin Brothers, were third with a badly arranged box containing many really fine blooms, of which we noted especially Bessie Chaplin and Lady Alice Stanley.

Mr. John Mattock had the best thirty-six varieties of decorative roses, and he showed Isobel, Golden Emblem, Carine and Mme. Edouard Herriot. In the second prize collection of Messrs. Jeffries and Co. there was a lovely vase of Sheila Wilson.

Isobel, Sunstar, Christine, Golden Emblem and Emma Wright were prominent in the first prize eighteen varieties shown by Mr. George Prince, while Mr. G. Lilley, who was second, included a large vase of the new gold medal rose Marcia Stanhope.

The twelve vases of dwarf polyantha roses were placed in the annexe tent. Mr. George Prince was first with such sorts as Ellen Poulsen and Cecile Brunner.

During past years it has been the rule to find the best tea and noisette roses in the Amateurs' Section, but on the present occasion the Nurserymen's exhibits were distinctly the best. Mr. George Prince won the D'Ombrain Cup with a splendid collection of such delicious varieties as Golden Gate, Mrs. C. Hall, White Maman Cochet, Mrs. Myles Kennedy and Alex. Hill Gray. Mr. Henry Drew was second, and he had lovely blooms of Lady Plymouth, White Maman Cochet and Mrs. Edward Mawley.

Similarly, the classes for new roses distributed since January 1st, 1920 was a distinct improvement on former years. Mr. Elisha J. Hicks won the first prize with a highly meritorious collection. His dozen included Mabel Morse, a glorious rich yellow rose which was shown consistently well in various collections; Captain F. S. Harvey Cant, deep pink; Ed. Behrens, rich crimson; S. de G. Pernet, shell pink; Bessie Chaplin, a very shapely rose which may be described as a larger and more pointed La France; and Mrs. Hy. Bowles, vivid pink. Mabel Morse and Bessie Chaplin were also well shown by Mr. George Prince, who won the second prize with a collection which in former years would easily have been first.

The first prize basket of a new rose of similar introduction to the above was of Mrs. F. J. Hudson, a coarse-petalled pink hybrid tea of large size, shown by Mr. Elisha J. Hicks. Messrs. B. R. Cant and Sons were second.

The baskets of cut exhibition roses generally were very charming, though not so numerous as usual. Charles E. Shea, shown by Mr. G. Prince, was the best basket of any hybrid tea variety. Mrs. Foley Hobbs was the best tea rose and it appeared both in the first and second prize baskets, which were shown by Mr. Mattock and Mr. Drew.

Decorative roses in baskets made a glorious display. Messrs. Chaplin Brothers, who had the best seven baskets, showed Betty Uprichard, Admiration, Mrs. Tresham Gilbey, Lord Charlmont and Joseph Hill. Mr. J. Charfield-Parker was second. Mr. John Mattock was first with three baskets of Golden Emblem, Isobel and Mrs. Henry Drew.

The only exhibit of two baskets of roses not yet in commerce was by Messrs. Chaplin Brothers, who showed Ellen Terry, a shapely creamy white, and Windsor, a rose flushed scarlet which shows a distinct "eye" when fully open.

The groups of roses were again splendid monuments of glorious blooms and they entranced a large number of visitors throughout the day. In the large class the championship was won by Messrs. Alex. Dickson and Sons with a high quality collection. Lady Inchquin, Clara Curtis (an almost Maréchal Niel yellow variety which received a gold medal at Norwich a few years ago), Gorgeous, The Queen Alexandra Rose, Col. Oswald FitzGerald, Maud Cuming, Golden Emblem, Shot Silk and Fred. J. Harrison are the names of a few of the varieties shown in such good quality and quantity. Mr. Elisha J. Hicks, who was second, had several fascinating arches of roses where he associated such sorts as Hoosier Beauty with Romeo, and Golden Opelia with Alex. Girault.

In the smaller, but still large, group class premier honours were won by Messrs. Chaplin Brothers. At each end they had a charming arch of roses; Mrs. Henry Bowles and Golden Emblem with Paul's Scarlet Climber, which were very effective. Their central panels of Mabel Morse, Henrietta and General McArthur provided brilliant colouring. Along the front the parti-coloured Rosa Mundi attracted a deal of attention. Messrs. A. J. and C. Allen won the second prize with a fine collection of such sorts as Independence Day, Betty Uprichard, Golden Emblem, Hortulanus Buddé and Mabel Morse.

The smallest of the three large group classes were equally closely contested and here Messrs. Jarman and Co. won the first prize.

NOTEWORTHY NEW ROSES.

[The following notes on the roses in the New Rose Tent were compiled under very awkward conditions, as the Society did not this year extend its usual facilities to the horticultural Press. It is just possible, therefore, that some variety of merit may have been overlooked.]

Chastity (Climbing H.T.).—A semi-double white of moderate size; pretty in the bud state and apparently a good grower. This variety had already the certificate of merit and Cory Cup to its credit. Shown by Messrs. F. Cant and Co.

Phyllis (Climbing Polyantha).—Said to be the result of crossing Perle D'Or with Gloire de Dijon, this is an attractive pillar rose. The blossoms are rather small, of coppery salmon colouring paling to lemon, edged pink, and almost the "Glory" fragrance. Shown by Messrs. S. Bide and Son.

Royal Scarlet (Hyb. Wich.).—A bright crimson, semi-single pillar rose. Shown by Messrs. Chaplin Brothers.

Hengist (Mult. Rambler).—A really beautiful and apparently strong-growing newcomer to a very useful but rather out of fashion class. The flowers are single, dog-rose pink with a distinct yellow flush. Shown by the Rev. J. H. Pemberton.

Hereward (H.T.).—A semi-single crimson variety with conspicuous buffish stamens. A very pretty rose at its best, but apparently variable. Shown by Dr. P. Arthur Hendley.

Little Juliet (H.T.).—A very free-flowering little rose of Juliet colouring. Shown by Messrs. D. Prior and Son.

Kirsten Poulsen (Poly. Pom.).—A rather cupped single after the style of the now well known Vesuvius, but with crimson blossoms. Shown by Messrs D. Prior and Son.

J. F. Looymans (H.T.).—A fairly full-centred variety of orange buff colouring, sometimes centred pure orange, or, again, paling to lemon on the outer petals. Attractive, though variable. Shown by Messrs. D. Prior and Son, Limited.

Etna (H.T.).—Messrs. Prior and Son again showed this beautiful large semi-single in splendid form. The colour is rich crimson, suffused maroon.

Else Poulsen (Poly. Pom.).—A salmony rose semi-single or semi-double sort. Shown by Messrs. D. Prior and Son.

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Elvira Aramaya (H.T.).—A moderate-sized bedding rose of almost pillar-box red colouring. The blossoms are fairly full. Shown by Messrs. D. Prior and Son.

Hera (H.T.).—Bluish crimson and maroon, apparently constant to colour; medium to small and globular. Its outstanding attraction is its real and strong old-rose fragrance. Shown by Messrs. D. Prior and Son.

Little Joe (H.T.).—This crimson-scarlet single had already received the certificate of merit, but attracted a good deal of attention. Shown by Messrs. D. Prior and Son.

Insulinde (H.T.).—A pretty small bedding or decorative variety with stout petals and good foliage. The colour is orange-buff, paling to deep ivory. Shown by Messrs. D. Prior and Son.

Ethel Chaplin (H.T.).—A variety that appears to vary from ivory-white to primrose-yellow. The flowers are large, full, bluntly conical, with petals of moderate substance. Tea scent. The foliage is excellent. Certificate of merit. Shown by Messrs. Chaplin Brothers.

Fragrance (H.T.)—This aptly named rose received a certificate of merit in 1923. It is a crimson sort, inclined to blue. Shown by Messrs Chaplin Brothers.

Ellen Terry (H.T.).—This variety is much in the way of Ethel Chaplin, but with more distinct touches of ivory and buff. The flowers tend to be even larger and the foliage is equally as good as that of Ethel Chaplin, but smaller. Tea fragrance. Certificate of merit. Shown by Messrs. Chaplin Brothers.

J. N. Hart (H.T.).—Very large rose pink blooms, moderately fragrant. Good foliage. Shown by Messrs. Chaplin Brothers.

Agnes Glover (H.T.).—A rich bright crimson variety suffused maroon. Slightly fragrant. Shown by Messrs. Chaplin Brothers.

Everest (H.T.).—Very large lemon white sort which should prove useful on the show table. It apparently throws a few rough blooms. Tea scent. Shown by Messrs. W. Easlea and Sons.

Capt. R. Clerk (Pernet).—Almost a pure vermilion semi-single sort with conspicuous golden stamens. Shown by Messrs. S. McGredy and Son.

Doris Trayler (H.T.).—The blooms are almost apricot, paling towards the edges. Shown by Messrs. S. McGredy and Son.

Cecile (Pernet).—A good orange yellow sort with deep golden anthers. Certificate of merit. Shown by Messrs. Ben. R. Cant and Sons.

Vesuvius (H.T.).—A large deep crimson maroon variety. Shown by Messrs. S. McGredy and Son.

Mrs. Beatty (H.T.).—A good butter yellow sort with excellent foliage. Certificate of merit. Shown by Messrs. Ben. R. Cant and Sons.

Mrs. S. W. Burgess (H.T.).—The flowers are orange and buff paling towards the edges. It has a tea fragrance and good leathery foliage. Shown by Mr. S. W. Burgess.

Marcia Stanhope (H.T.).—A good fragrant large white sort, much in the way of Frau Karl Druschki. White roses are scarce and this should prove an acquisition. Gold medal. Shown by Mr. Geo. Lilley.

Peggy England (H.T.).—The blooms are deep cream suffused apricot. It has good foliage and is fragrant. Shown by Mr. Geo. Lilley.

Lucy Constable (H.T.).—A deep salmon red sort, with outer petals of flesh colour. Shown by Mr. Geo. Lilley.

Superb (H.T.).—A silvery rose sort with good large blooms and excellent foliage. Slightly fragrant. Certificate of merit. Shown by Mr. F. Evans.

Joan Howarth (H.T.).—This rose received a certificate of merit last year. It is a silvery rose sort flushed coppery orange. Sweetly scented. Shown by Messrs. Bees.

Hypatia (H.T.).—The blooms are deep apricot salmon with curious golden stamens edged brown. Shown by Messrs. Bees.

Mabel Turner (H.T.).—This variety received a certificate of merit last year. It is a silvery rose with shell-like petals. Of good form, this rose is slightly fragrant. Shown by Mr. Sandy Dickson.

Bertha Turner (H.T.).—A flesh-coloured sort slightly suffused copper. It is more after the style of La France. Shown by the Rev. J. H. Pemberton.

Richard E. West (H.T.).—This rose received a certificate of merit last year The large, loose bluntly conical flowers are pale yellow in colour. Shown by Messrs. Alex. Dickson and Sons.

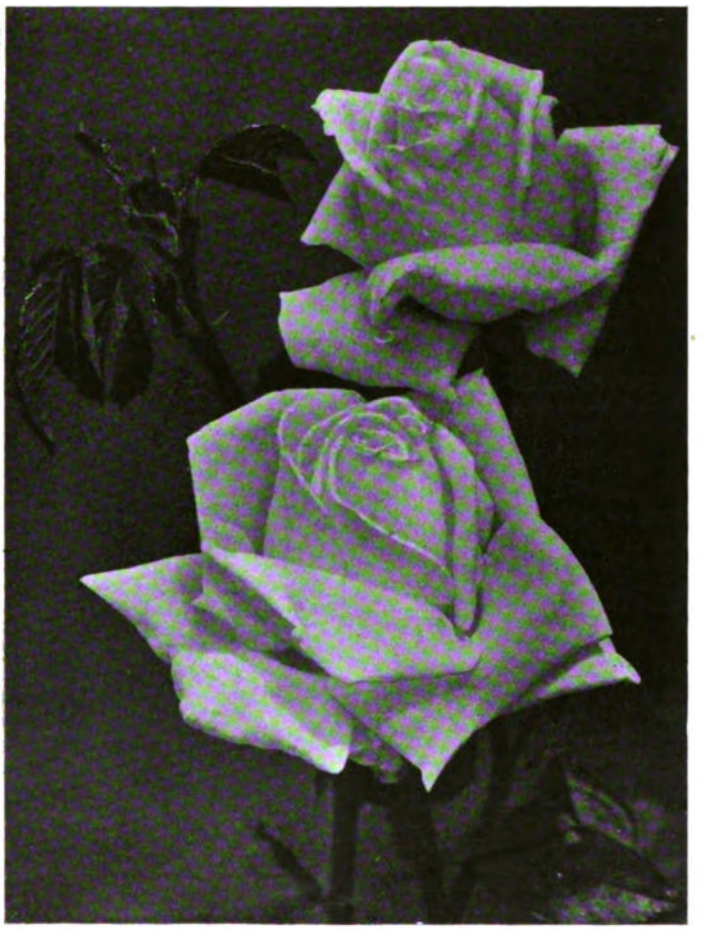
Geo. H. Mackereth (H.T.).—A very good crimson sort. It is sweetly fragrant. Shown by Messrs. Alex. Dickson and Sons.

Gwynne Carr (H.T.).—A good fragrant pale rose-coloured sort with shell petals. Shown by Messrs. Alex. Dickson and Sons.

Saltaire (H.T.).—This rose is a little more than semi-double and has velvety blush crimson flowers and the petals are gauffered. It is moderately fragrant and has golden stamens. Shown by Messrs. Alex. Dickson and Sons.

Lady Wakefield (H.T.).—An apricot-coloured rose suffused old gold. Shown by Messrs. Ben. R. Cant and Sons.

MRS. BEATTY, A GOOD BUTTER YELLOW SORT.



ELLEN TERRY, WITH DISTINCT TOUCHES OF IVORY AND BUFF.

The Amateur and Artistic Classes have unavoidably been left over till our next issue.

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NOTES FROM CONTRIBUTORS

LINNÆA BOREALIS.

IN some gardens there seems to be a good deal of difficulty in establishing this plant. We may, it is true, be aided by climatic conditions, but apart from these almost anyone should be able to satisfy this hardy little northerner provided they can afford it a shady, or half-shady, spot such as is enjoyed by native ferns and mosses. The most suitable companion you can give L. borealis is an old tree trunk, if half-decayed and moss-grown so much the better. Partly bury this in any cool, leafy place and just behind it, so that the plant can trail towards the light, set your linnæa in a well drained bed of really old leaf-soil, the blacker the better, and sand, with a few buried stones about the size of a tennis-ball. With this treatment and attention to moisture during the first season this plant should go ahead vigorously, making trailers a yard long. L. borealis canadensis is a much stronger and easier plant than the European. It is larger in all its parts, and the pair of fragrant little bells which swing on dainty upright stems at intervals along the creeping branches are a brighter rose. I have seen this form growing in full sun in British Columbia—such sun as we never get—and looking even happier than the plants which veiled the moss-crowned boulders of the densest pine forests. But they, the former, always had an abundance of moisture, water constantly trickling out of the banks which they adorned with so much elegance and charm.—N. WALES.

RANUNCULUS LIBANOTICUS.

I WAS greatly taken with the vase of this beautiful and uncommon plant which Mr. E. T. England of Exeter staged at the Midland Daffodil Show this year. In the distance it looked for all the world like a bunch of small scarlet poppies rising on thin stems from gracefully divided foliage. I have drawn both Nicholson and Bailey blank, nor can I find it in any of my flower books. Mr. England saw it at the International Exhibition in 1913 and bought some, but he has not seen it or heard of it anywhere else except in his own garden. It is a perennial which increases very freely from seed. It is quite hardy at Exeter and "stands all their frosts without turning a hair." Mr. England says it likes a sunny and well drained position and concludes his letter thus: "If it is to be planted in the North I should advise keeping some of the roots in *moist* earth or sand in the potting shed until growth starts in the spring. Rot before it is established is the only thing to be afraid of. I know I found here that it paid to keep seedlings in pans till spring, but when it seeds itself *in situ* it can take care of itself." It flowers in spring and has "the great merit of filling in the gap between daffs. and tulips." My friend knows nothing of its history. Perhaps some reader who knows this plant will tell us more about it. It more than rivals Anemone fulgens in brilliancy.—JOSEPH JACOB.

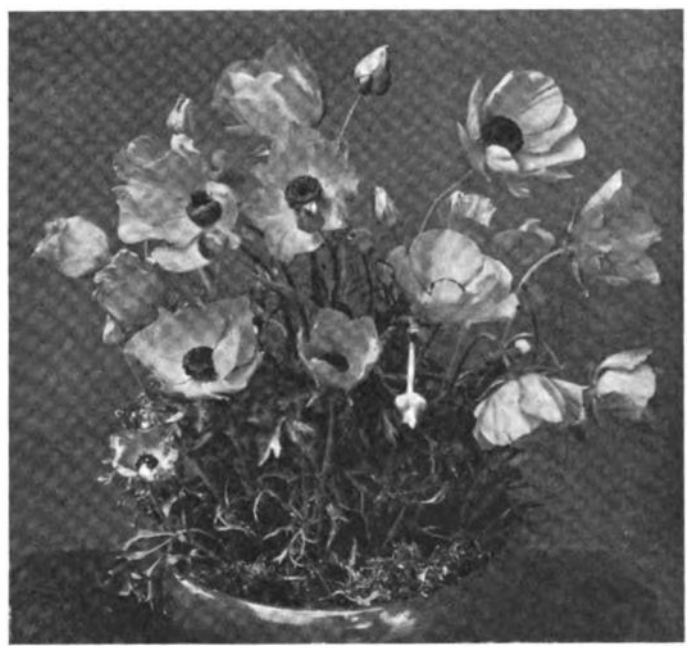
PROPAGATING NARCISSUS TRIANDRUS CALATHINUS.

HAVING frequent enquiries as to the best method of increasing this chaste and charming little daffodil, I will give the method which, after many experiments, we have adopted here, and which seems the most successful. We use large deep pans filled with sifted peat and a slight admixture of sand. The coarse stuff left from the sifting goes into the bottom of the pans. The bulbs are planted in this and the plants are wintered in a cold house, being left in the same pans for two years. From two year pans turned out to-day (June 28th) we find that many single bulblets have become three good flowering bulbs, clean and shapely.—F. HERBERT CHAPMAN, *Rye*.

CATTLEYA MOSSIÆ VAR. MRS. J. T. BUTTERWORTH.

READERS of THE GARDEN might be interested to hear of this remarkable variety of Cattleya Mossiæ, which was exhibited before the Massachusetts Horticultural Society at Boston, Mass., U.S.A., on June 7th, 1924. The writer has been growing orchids off and on for about forty years, and has always been interested in anything new in that line, especially anything of outstanding merit. This variety, Cattleya Mossiæ Mrs. J. T. Butterworth, as regards size and quality of the flower and general vigour of the plants exhibited, as far as the committee of five that examined them knows, stands in a class by itself among Mossiæs. The following is the official description rendered to the Society: "Cattleya Mossiæ Mrs. J. T. Butterworth. A deep pink form of C. Mossiæ, clear colour all through, 9½ins. from tip to tip, lip 3ins. across and deeply fimbriated, light magenta, with deep yellow veinings in the throat." Size of flower (max. 25), 24; cultural perfection (max. 10), 10; rarity (max. 15), 15; floriferousness (max. 10), 8; quality of flower (max. 25), 24; colour (max. 15), 14. Total, 95 points out of a possible 100. Mr. J. T. Butterworth, Framingham, Mass., U.S.A., was the exhibitor, and received a First-class Certificate of Superior Merit and the Mass. Horticultural Society's large gold medal. The committee were unanimous in their decision, several of them having watched with interest this variety for several years. Mr. Butterworth has now forty plants of Cattleya Mossiæ Mrs. J. T. Butterworth, which he has propagated from one plant, each of them showing as much vigour as the parent plant after it was established from the wilds.

The same gentleman also exhibited sixty plants of Miltonia vexillaria in variety, many fine forms being among them. The plants were remarkable for size and vigour, each being covered with flowers of fine size and texture. The leaves were stiff and leathery. This exhibit also received the Society's large gold medal. Mr. Butterworth during the last few years has been pushing into the front rank as an orchid enthusiast and cultivator, and no doubt his English friends will be pleased to hear of his success, as only a month ago he captured two gold medals from the American Orchid Society's great exhibition held in Boston, Mass.—GEORGE F. STEWART, *Waltham, Mass, U.S.A.*



A FINE BOWL OF RANUNCULUS LIBANOTICUS.

ROSE MARY MERRYWEATHER.

AT the Summer Show of the National Rose Society in 1922, the late Mr. Ernest Merryweather invited me to admire his firm's new yellow rose of the above name. That he had a high opinion of its merits its very name sufficiently testified, but I could not find anything about the blossoms exhibited to awaken much enthusiasm. The variety struck me as a paler and probably inferior Lady Hillingdon. Mr. Merryweather insisted, however, that I should give it a trial, and in due course three strong bushes arrived. As grown in the garden the newcomer is as unlike Lady Hillingdon as can be. The growths are strong, spiny and erect; by no means short-jointed it is true, yet the whole plant is altogether "cobbier" than Lady Hillingdon.

Though I quickly realised that "M. M." and Lady Hillingdon were "the Poles apart," I did not in 1923 form a very high opinion of the Southwell introduction. This year, however, I have had from my trees a large number of almost perfect blossoms — of good size, splendid texture, lovely form and delightful colouring. The petals are very stout and shell-like, very large, and so arranged as to form an ideal bud for the buttonhole. At this stage the colour is as rich as that of Lady Hillingdon, but without the buff tone. The expanded blooms have about two rows of petals round a fine cluster of golden stamens and vary according to weather conditions from lemon-white to primrose-yellow. Arranged in a low bowl, they are as beautiful as water lilies. The tree, evidently, is long-lived and very decorative in the garden. Even after allowing for the fact that this is quite an exceptional rose season, it seems evident that Mary Merryweather is a variety that should be largely planted.—R. V. G. W.

FORTHCOMING EVENTS.

July 14th.—United Horticultural Benefit and Provident Society's Meeting.

July 18th. — Eastbourne Horticultural Society's Meeting.

July 22nd.—Royal Horticultural Society's Fortnightly Meeting.

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CORRESPONDENCE

A CHRONICLE OF EVENTS.

SIR,—It is an Englishman's privilege to grumble, and surely an English gardener is doubly worthy of the privilege. Almost every spring he has more reasons to grumble than to rejoice. It is therefore gratifying to read our Editor's appreciation of the current season (page 428), and I am tempted to add these few lines. We have planted trees and shrubs extensively here during the past three years, and as I look around now (June 22nd) I realise that in this district at least we have enjoyed a really good spring. Rhododendron flowers have been especially fine, both in size and colour, and we were, perhaps, fortunate in that our plants have flowered more freely than appears to have been the case in many parts of the country. Two of the most pleasing were R. campylocarpum × Fortunei, which opens creamy pink, fading to cream, and R. Fortunei × Thomsoni, which has already been commented on in THE GARDEN.

Prunuses have been good, and special mention might be made of Prunus Pissardi Blireiana, a semi-double bright pink flower far in advance of the type. The new Pyrus Eleyi had a few flowers and promises to be the best of the pyrus family. Cotoneasters flowered well and are well set for their autumn display of fruit. Magnolias have been, and still are, good—amabilis, speciosa, Kobus and Soulangiana are past, but parviflora is still very beautiful and Watsoni charms all who go near it with its delicious scent. Philadelphuses in variety, and especially P. virginale—probably the best of the mock oranges—are particularly good. Crinodendron Hookeri in a corner of the house is flowering well, the red flowers being conspicuous against the white walls. Close by Veronica Hulkeana had flower-spikes 2½ft. to 3ft. long. I took a few of the smaller ones to a meeting of our local gardeners' society and made our president—a reverend gentleman of garden label fame—quite envious.

I do not think even the herbaceous plant enthusiast need grumble this season. Lupins and irises have never been so good. Alas! that the iris season should be so soon over. But we bear in our minds till next May and June some beautiful clumps of Iris King, Lord of June (a very fine sort, but rather weak in the stem), Mrs. Cowley, Alcazar, Mrs. Darwin, Gajus, King of the Blues, etc. The delphiniums are 6ft. to 7ft. high, the best spikes being from Phyllis, Blue Boy, Blue Queen, Queen Wilhelmina, Sir Douglas Haig, Mrs. Shirley, Mrs. Thompson, J. S. Brunton and Mrs. Townley Parker. But besides being a good season, the irises and delphiniums are now in their second season from planting, probably the best.

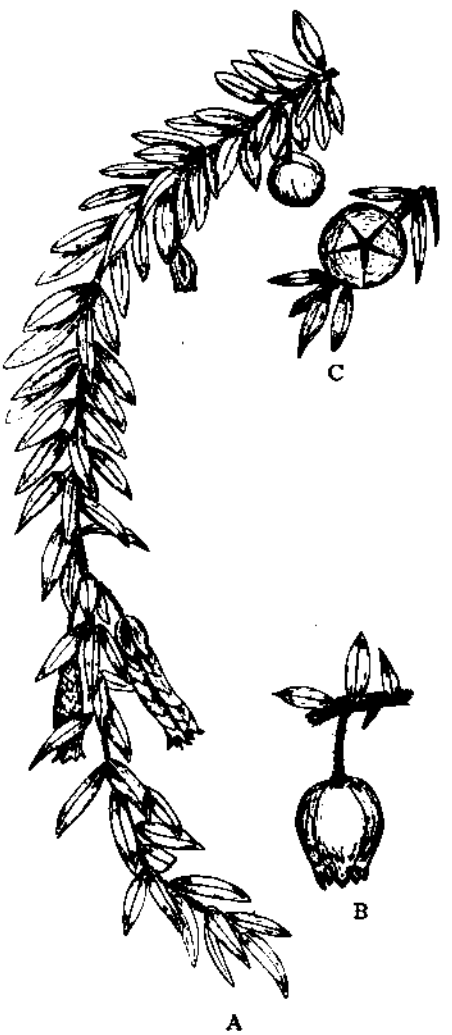
Will the rosarians grumble this season? As I write I can see down two rose borders, and the question comes to my mind, Shall I ever see them better? I doubt it. These borders of roses are for cutting only, and among the best are Ophelia (we place this first), Golden Ophelia, Irish Elegance, Irish Fireflame, Mme. Edouard Herriot (this, I think, is overrated), Mme. Mélanie Soupert, K. of K., Golden Emblem and General McArthur. As a cut rose the latter will never be displaced. One small bowl will scent the whole house.

Of our failures liliums are, I think, the worst, though this is due more to hares, rabbits and slugs than to climatic conditions. LL. regale, sulphurgale, Henryi, elegans, speciosum and Farreri are doing quite well. We have also a very fine clump of L. umbellatum grandiflorum, which at the time of writing is magnificent in the herbaceous border. I have always been grateful to Mr. Wallace that he inadvertently sent us this for L. tigrinum.

During my nineteen years in the Southampton district I think 1923 was our worst season. This, so far, is among our best. "'Tis not in mortals to command success" as the gardener knows only too well. To deserve success takes him a long way towards it. But the deciding factor is without doubt those elements over which he has no control. For the kindness of these elements I am pleased to add my thanks to those of our worthy Editor.—F. J. R., *Southampton.*

PENTAPTERYGIUM SERPENS.

SIR,—This cool greenhouse plant belongs to the Natural Order of Vacciniaceæ. It is a native of the Himalayas and a good flowering plant. Figure can be found in



the *Botanical Magazine*, Vol. CX, 1884, T. 6777, with a description by J. D. Hooker. Up to the present there does not seem to be any record of this plant fruiting in Great Britain, although hand pollination has been resorted to. At the beginning of this year during my study in botany I was put on to the pollination of flowers, Pentapterygium serpens being one of my subjects. The flower which produced the berry was first pollinated on February 2nd of this year, and the pollination repeated several times during the following week. The fruit developed and became ripe at the end of May, and was sketched on June 1st, 1924. The diagram A is three-quarters natural size, while the side view and the surface view, B and C, are about natural size.

It has been stated by J. D. Hooker in his description in the *Botanical Magazine* quoted above that the fruit is a berry ½in., broadly obovoid, five-winged. The fruit obtained in the Royal Botanic Garden, Edinburgh, however, shows no wings whatever, the calyx having swollen until the fruit is practically globular. The berry is white with the calyx teeth and the line of fusion of the sepals tinged with purple. After the fruit had been removed from the plant, in two or three days the purple colour had spread throughout the whole of the fruit. The berry is also larger than is indicated by J. D. Hooker, being five-twelfths of an inch in diameter by half an inch.—A. MARGARET MITCHELL.

THE PROPAGATION OF CHOISYA TERNATA.

SIR,—As the innocent originator of the extensive correspondence on this subject, I feel I cannot allow the remarks of Mr. A. T. Johnson in THE GARDEN of June 28th to pass without comment. In the first place, if my original article of May 3rd were to be read carefully, it would be seen that the point which I wished to raise was: "How long can cuttings of this plant keep green in a pot without roots, and if at the end of two years (as in my case) there was any chance of the formation of roots?" The question in my mind was whether to throw them away or not. I should like to thank Mr. F. P. Knight for his most helpful hints on the subject in THE GARDEN of May 17th. Since writing my article one of the cuttings has rooted and is growing freely. I cannot conceive why Mr. A. T. Johnson should consider this a controversy or that I have "gone out of my way to do things in the most difficult manner conceivable." Also, as his article is headed "The Propagation of Choisya ternata," why should he spend more than half of it describing how he propagates Romneya Coulteri?—(Dr.) H. STEWART WACHER.

AT THE CHELSEA FLOWER SHOW.

When to the Show my Julia goes
I know full well that she will cry
"Oh, what a simply *perfect* rose!
And this, and that, we ought to buy."—
Till, though I try my heart to harden,
I order pounds' worth for the garden.

LESLIE M. OYLER.

GARDEN LABELS.

SIR,—I am grateful to Mr. Holms (page 439) for his championship of the numbered labels I advocate for small alpines in private gardens, but I am afraid I cannot reciprocate when he urges their use for large shrubs. With such subjects the labels are comparatively small and inconspicuous, and the advantages of lettered labels in my opinion predominate. But even here the diseratum of inconspicuousness can be sought by using labels which are not too large or overloaded with lettering. An alphabetical book of reference will still be necessary to contain interesting and instructive details such as those which Mr. Holms collects as to his rhododendrons. May I add that I cannot tacitly accept the suggestion contained in Mr. Holms' humorous comparison of my humble self with the promoter of the Daylight Saving Bill. I do not claim to be the inventor of numbered labels for alpines. I expect many people have discovered for themselves their advantages, and I can only hope that the ventilation of the system in THE GARDEN may induce others to try it.—EDWARD S. LYTTEL.

SIMPLE GARDENING

LAYERING STRAWBERRIES.

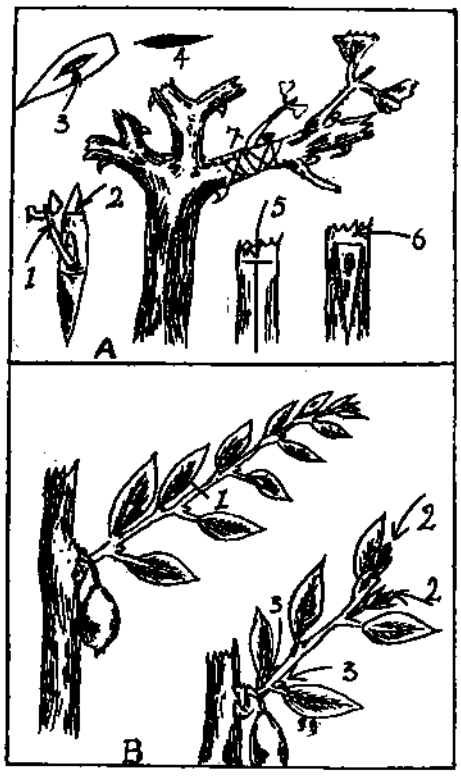
BEFORE all the fruits are gathered, it is necessary for the cultivator to make a start with the work of providing young stock for new plantations. These early-rooted runners are very valuable, and great care should be taken of every suitable specimen. I mention suitable runners because there are always unsuitable ones, and it means just as much work and expense to grow the latter as the former. The best runners are those growing from the plants that are bearing, or have borne, this year, a full crop of fruit. Also, note should be taken of the nearest plantlet on the runner to the parent plant; there may be two or even three on a single runner, but all beyond the first should be cut off. Do not wait until the runners have begun to root into the soil, but prepare the pots and compost, or the pieces of turves, in good time, and so secure all the new roots in them without a check being given. The best compost is one of fibrous loam two-thirds, and rotted manure or well sweetened horse manure one-third. Especially is this compost advisable in cases where the runners are to be re-potted for forcing. If pots (3in.) are not available, use pieces of old turves 3ins. square or so, and in every instance keep the runner firmly in position with a flat-shaped stone, as the latter conserves the moisture and hastens the growth of new roots.

SOME TROUBLESOME INSECT PESTS.

There are few weeks out of the fifty-two when the various crops in our gardens are entirely free from injurious pests, and one can rarely talk with one's neighbours and friends without learning how much worried they are about the pests. The leaf-mining maggot does a lot of harm; there are several kinds, but we will not deal separately with them here, since the same treatment will prove efficacious almost in every case. We want to learn of a few accessory means of prevention and cure. The respective flies that lay the eggs in the leaves dislike ammonia, and this can be applied by using soot in liquid or solid form; in liquid, well diluted and clear, syringed on the foliage in the evening; in solid, by sprinkling very small quantities, weekly, of old dry soot on damp foliage and on the soil around the plants. Any small white grubs found in the leaves should be crushed between finger and thumb. Green and black aphides are troublesome on roses, chrysanthemums, etc.; first apply tobacco powder, and one hour after syringe with clear water. The black aphides are got rid of best by dipping the affected shoots in tobacco water. Scald woodlice or trap them with bran or meal under dry pieces of board. Scald ants or trap them by placing two empty flower-pots one on the top of the other; they will make their nests in the top pot. Search for earwigs at night and also trap them in hollow stalks and dry moss in pots.

BUDDING ROSES.

This operation requires delicacy in handling and quickness in despatch. That is, from the taking of the bud from its stem to its insertion in the stock to



be budded, only a few seconds should elapse. It will not do to leave the bud exposed to the air for several minutes. Shoots brought from a distance the previous day should be placed in water in a cool cellar meantime. The operation is simple and quickly done when once the amateur grasps the main details, and all cultivators are proud to be able to bud their own roses.

To bud a standard rose, the best of the lateral growths should receive the buds. One bud is shown, prepared and fixed, in Fig. A; a portion of the leaf-stalk (No. 1) is left when cleanly cutting the bud from a fairly ripened shoot. The top (No. 2) is cut off; No. 3 shows the base of the new bud when the bit of hard wood (No. 4) is picked out; No. 5 s[illegible]ow to make the T cut through the bark; No. 6, the new bud inserted; No. 7, the best position, low down, on the lateral shoot of the standard briar. Use a very sharp knife, open out the bark with the ivory handle or piece of smooth-pointed oak, not the steel blade, dip each bud in water before inserting, secure with soft material.

SUMMER PRUNING OF FRUIT TREES.

In many gardens hardy fruit trees make a great deal of young growth every year and so summer pruning is resorted to. This does not obviate the necessity for winter pruning, but it lessens the amount of work then and, more important still, it conduces to the ripening of the basal buds from which our future crops of fruit come. The whole of a tree should not be pruned in one day; the work should be done gradually, spreading it over a week or ten days. In Fig. B a current year's growth should be cut off at No. 1, leaving four or five main leaves and buds. New laterals will grow as shown at Nos. 2, 2; these should be pinched out while small. The basal buds, Nos. 3, 3, should remain dormant till next year, but they would not do so if the branch were summer-pruned closer to them. This closer pruning must be left till late autumn.

POTTING CANTERBURY BELLS FOR LATE SPRING FLOWERING.

If very fine Canterbury bells are to be successfully flowered in the greenhouse or conservatory from March to May, the young plants should be grown, during their seedling and early plant stages, in an open border; from this position they should be very carefully lifted and potted into quite small pots but just large enough to contain the roots and a small quantity of compost. The latter should be of a substantial character, such as good fibrous loam with a very small quantity of leaf-soil added. The newly potted plants should be forthwith placed in a cold frame or on a bed of ashes on the north side of a wall. In a position of this kind the plants should remain till the pots are well filled with roots, then a re-potting into 6in. pots should be made, the plants being placed on a bed of ashes in a quite open quarter. A similar compost, but in a coarser condition, will be suitable. The plants will bear really good spikes of blossoms in 6in. pots, but by far the finest specimens are those finally potted into 8in. pots. Of course, these are hardy plants and would be spoiled if treated as tender greenhouse subjects. It is only necessary to keep them from full exposure to frosts and fog.

GEORGE GARNER.

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VEGETABLES DURING THE MONTH OF JULY

TO obtain early vegetables is an aim worthy of encouragement. All sorts of methods are tried by the energetic gardener to overcome difficulties, and each one has usually to deviate from rules laid down by writers on horticultural subjects, and plant and sow by his own dates and methods, which he has proved by experience best suited to the soil and locality in which he resides. Climatic conditions and locality must always be taken into account when timing vegetables, since favourable situations and seasons do make a difference. Then, again, one must not expect to have early vegetables if the proper varieties are not grown, as varieties classed under the heading "early" differ in that degree, and so one has to keep on trying until one finds the kinds which do best for that particular time and place.

KIDNEY BEANS.—To have a crop in July, seed should be sown during April and the plants grown under glass, at least till all danger from frosts has gone, as from two to three months should be allowed from the time the seed is sown until the pods are ready for picking. There is no doubt that Canadian Wonder is a splendid variety and does well either grown in the open or in pots. One year we prepared—on May 10th—several 8in. pots by crocking and filling them with good potting soil; a space of about 2ins. was left in each pot, so that a top-dressing could be applied later. Several seeds were inserted in each pot on the same date. Five or six plants are quite sufficient to grow in an 8in. pot, but it is always wise to insert rather more than that number of seeds. The pots were set in the tomato house, where a fairly warm temperature was maintained. Under these conditions the young stems were not long in pushing through the soil; then by frequent syringings and attention to watering the plants grew apace, and a month later they were supplied with stakes. On June 21st the plants were in flower, while at the end of the month we supplied them with extra nourishment. This we did by filling the space which was left in each pot at the time of seed sowing, with farmyard manure. A week later the first pulling of beans was obtained, and throughout July the plants kept us supplied with fine beans, many measuring over 6ins. in length. The plants were never removed from the tomato house, but once they were established they received abundance of air during fine weather.

CABBAGES are always appreciated, especially when the hearts are young and tender. To make certain of a supply in July, seed should be sown about the end of July or August of the previous year, as, in a year like the present, cabbages —even those classed as early varieties— have taken a very long time to mature, and throughout the present month we shall keep cutting from Flower of Spring and Little Pixie, which were raised from seed sown on July 24th and the young plants set out in September of last year. I may state, however, that our cabbages suffered much from the cold cutting winds which prevailed throughout the latter half of February. The variety Ellam's Early Dwarf—which is a quick maturing and splendid sort—if sown in a cold frame at the beginning of March and the plants set out early in May, will come in for cutting in July.

CARROTS.—Those who do not have a suitable border on which to grow early carrots need not hesitate to sow in cold frames—if these are available—so that pullings may be had throughout the month. Scarlet Model we have sown on April 16th, and the roots were ready in the middle of July. Geurande, which is a stump-rooted variety, if sown in the third week of March will be ready early in the present month. This year we had seed of Early Scarlet Horn sown on a south border by the middle of March, and the roots will come in splendidly for this month's supply. St. Valery, which is given as a French intermediate sort, was sown three days later, on the same border, and the roots are just as far advanced as Early Scarlet Horn. The cleanest and best shaped roots are obtained when holes are made with a dibber and filled with sea sand, and a pinch of seed dropped in each hole and covered with a little sand or fine soil.

CAULIFLOWERS.—One year we planted Early Snowball on April 1st—the plants were raised from autumn-sown seed and wintered in cold frames—and small heads were ready for cutting before June was out, while plants of Early London, which received throughout the same treatment—both kinds being grown side by side—were twenty days later in supplying heads for cutting. So far as varieties go, none can surpass Early Snowball for earliness in our Scottish climate, although Early London is a splendid sort and most dependable for cutting in July. Another method by which Early Snowball can be grown to supply heads for cutting early in the present month is to sow seed under glass in the early part of the year, and prick the seedlings into boxes about the end of February; these should be kept in a moderate temperature till well established, then placed in a cold frame and gradually hardened off. Afterwards set them out in the open ground at the end of April.

LETTUCES may easily be had in July from sowings made in autumn, or seed may be sown under glass in spring and the seedlings set out on well prepared ground when sufficiently grown and fit to handle. The cos varieties take longer to mature. We had the seed of Balloon Giant, a cos variety, sown on the open ground before the middle of September last year. The young plants were set out between the lines of early potatoes about the middle of March; they have grown well. This variety in a small state, throughout the winter, was very dark in colour, but several weeks after being moved the leaves became green, no doubt owing to the better weather with longer days of increased light. In the past we have sown New York cabbage lettuces early in June, and had them for use in a small state throughout the latter part of July. Tom Thumb is another fine cabbage variety.

PARSLEY.—When a good breadth is sown about the middle of March, a plentiful supply of fine tender leaves can be had now. Myatt's Garnishing is very good at present.

POTATOES.—It is said that potatoes should be three months in the ground before they are dug up for use. I should say extend this period by at least a fortnight, at any rate in the case of early varieties. Someone might say, What about Victory?—ready in two months from time of planting. That may have been the case somewhere, but I do not think so in Scotland, and certainly not in my experience. There is no doubt Epicure keeps its place as an early and reliable potato, and although scheduled as non-immune, I have never in my experience found it affected with disease. The tubers are roundish in shape with deep eyes. When tubers are exposed to the light for some time, in preparation for seed purposes, their skins turn very dark in colour—one would almost say black. We always save our own "seed" of this variety, and although the prevailing idea is that varieties deteriorate, and one is better with a change of seed, we have no cause to change our custom in connection with Epicure. Other good varieties of potatoes in use this month are Dargill, Sharpe's Express and Witch Hill.

RADISHES.—Both the turnip and long-rooted varieties will be ready for using in four or five weeks from date of seed sowing. Spinach sown early in May comes in for use now, while early varieties of turnips take from two to three months from seed sowing till ready for use. Early White Milan, seed of which was sown just after the middle of March, is ready now. Early Snowball, sown at the same time, comes in a week or two later.

Midlothian. DAVID ARMSTRONG.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Mushrooms.—At this season beds can be made in the open, choosing, if possible, a shady position. Having collected the manure it should be turned over at intervals to allow the rank steam to escape, but it should be made up into a bed while there is enough heat left in the manure to start the spawn. Make the manure firm, and insert pieces of spawn 3ins. deep and a few inches apart.

Shallots.—When the weather is favourable and the bulbs have completed their growth, they should be lifted and placed thinly in an open shed to ripen.

THE HARDY FRUIT GARDEN.

Wall Trees.—Some attention should be paid to pears and plums growing at the base of walls. Strong foreright shoots should be shortened to three or four leaves, or cut away, while other growths may be tied in wherever there is space, and room can be found for extension. Wall trees often become more or less dry at the roots, but this season we have had an ample rainfall, which rendered the use of the hose pipe unnecessary, the growth in consequence being both free and clean. However, a short period of dry weather will soon make a difference, and trees producing a crop should have their roots kept moist.

FRUITS UNDER GLASS.

Vines.—The grapes in the early vinery will either be ripe or just removed, and in either case the house should be ventilated freely. Where the rods are infested with mealy bug, the present is a good time to cleanse them. A little methylated spirit applied with a camel hair brush will destroy this pest, and every opportunity should be taken to examine the rods. Keep the roots well supplied with water, and an occasional application say once each week of liquid manure will assist the basal buds and the vines generally. Later vines should have their lateral growths pinched and the bunches should be examined for stoneless berries, at the same time removing a few berries where there is any likelihood of over crowding. A night temperature of 60° to 65° should be maintained, and under normal conditions no fire heat will be needed, but Muscats will require a temperature of 70°, and often a little artificial warmth is necessary. The borders should be kept moist, and air admitted before there is a big rise in the temperature. When the ripening stage approaches, an inch or so of top ventilation will be advisable throughout the night.

THE FLOWER GARDEN.

Border Carnations.—During the next few weeks the layering of border carnations should be taken in hand, a young healthy stock thus being kept up. It is a simple operation. Select healthy growths, and pull off a few of the lower leaves, a slight longitudinal incision or tongue is made with a sharp knife, and the shoot then pegged down, and just covered with sandy soil.

Tulips.—Bulbs that were lifted to make way for summer bedding plants have dried off, and now should be stored in boxes in a dry shed. All the soil and old loose scales should be removed, and the bulbs kept from mice. T. W. BRISCOE

(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

General Work.—The wet weather during May and the early half of June favoured weeds with ideal conditions for their growth. It is advisable that the hoe should be used every day among the various vegetable crops; not only will the stirring of the soil keep weeds in check, but the fine soil created on the surface will keep the earth below from losing its moisture too rapidly should a spell of dry hot weather set in.

Peas.—Sowings made in the first or second week of last month should be sufficiently advanced now to have the stakes or trainers placed along each side of the lines. Continue to thin turnip crops as seedlings from successional sowings advance in growth.

THE FLOWER GARDEN.

Polyanthuses.—Seedlings from an early sowing should be pricked off into boxes filled with medium fine soil, 2ins. or 3ins. apart according to size. Seed of Centranthus ruber, Hesperis matronalis and H. m. alba may yet be sown on the open border if flowering plants are required for next year.

General Work.—Bedding plants are now thoroughly established, although antirrhinums made little progress for several weeks after being set out, owing probably to so much wet weather. The principal work in this department is now of a routine nature, such as staking and training, pulling or cutting off spent blooms, clipping verges and mowing grass, raking walks and keeping down weeds, so that everything is kept trim and tidy.

Shrubs which produce their flowers from wood made the previous year—such as philadelphuses, some of the spiræas, Veronica Traversii, weigela, etc.—should be pruned so soon as they finish flowering, but only if they are in any way overgrown or are monopolising too much space.

FRUITS UNDER GLASS.

Peaches and Nectarines.—The growths on trees in late houses will require to be tied in and here and there the leaves should be pushed aside, or if very thick a few may be pinched out, if they are in any way shading the fruits, which should be well exposed to light and sunshine. DAVID ARMSTRONG

(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Campanula Vidalii is a very distinct plant, native of the Azores, and is very useful for the conservatory or cool greenhouse. It is easily raised from seed, which may be sown at this time. C. Vidalii takes two years to attain flowering size and is really at its best the third year from seed. This plant will stand outdoors during the summer, and at stages of its cultivation only requires cool greenhouse treatment.

Helichrysum humile.—This pretty South African plant has "everlasting" flowers, and was at one time very popular. However, it is not often seen at the present day, but is well worth the attention of lovers of choice plants. This plant and its several varieties may be propagated by means of cuttings any time during the summer. The cuttings should be carefully prepared, taking care not to tear the bark, and inserted in small, well drained pots, using a compost of sandy peat. Stand the pots under a bell-glass in a cool greenhouse, and wipe the glasses dry every morning.

Kalanchoe flammea, K. Dyeri and **K. kewensis** are all worth growing for greenhouse decoration. They are easily propagated at this time by means of cuttings, which can usually be obtained from the base of the plants after they have finished flowering. Being of a succulent character they should not be stood in close cases, as they root readily if the cutting pots are stood on a bench or shelf in a cool greenhouse. Good examples of K. flammea can be flowered in 48-sized pots. KK. Dyeri and kewensis, being larger-growing plants, require larger pots to do them justice. Well grown plants attain a height of 3ft. when they are useful for standing in the conservatory beds. They all grow readily in any good potting compost, and during the winter are best in a warm, dry, airy greenhouse. J. COUTTS.

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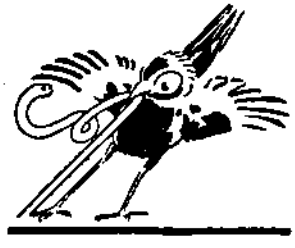

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THE GARDEN

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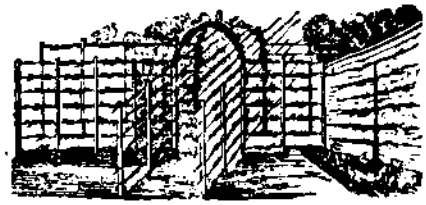

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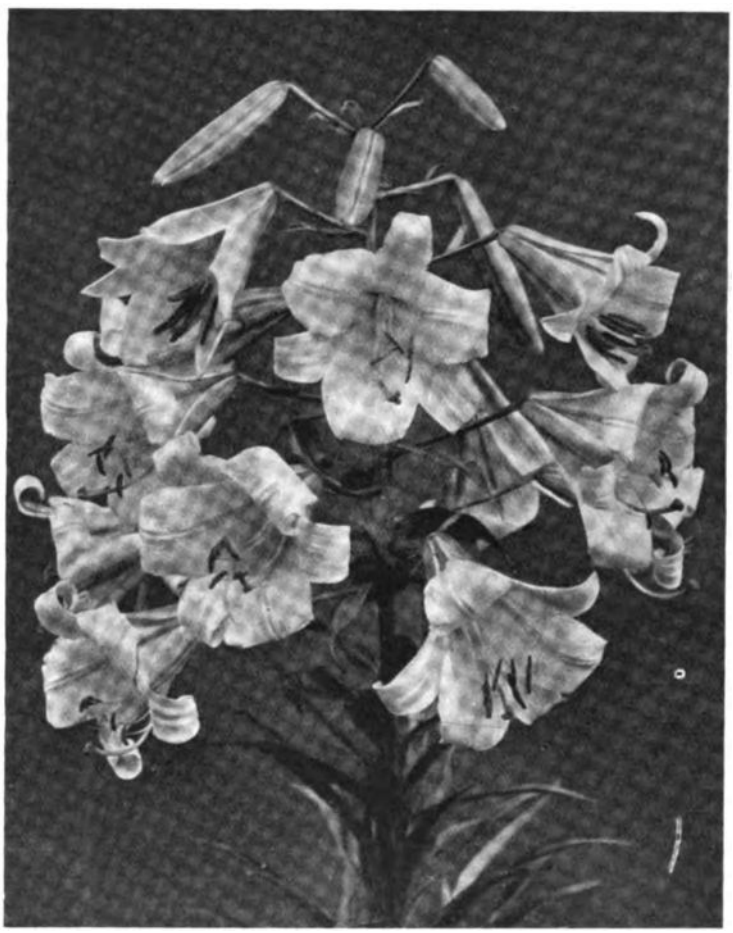
THE GARDEN

VOL. LXXXVIII.—No. 2748. JULY 19, 1924.

We would ask our readers to remember that the "Garden" is produced for the benefit of all gardeners. We are always pleased to consider articles or notes on any horticultural subject. We are also here to answer questions. Below will be found details of our Service Bureau which has been instituted to help gardeners in everything appertaining to gardening.



The wonderful lily, introduced by Reginald Farrer, Lilium centifolium. The flowers, on 7-ft. stems, are white flushed on the inside with yellow, while each petal is shaded on the exterior with deep crimson brown. It appears to thrive equally in any soil, and has a particular liking for chalk, in which it thrives to perfection. As this illustration shows it is a profuse flowerer.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

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there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers. The only Service which is not free is the examination and designing of a garden. This will be undertaken by one of our experts at a moderate fee.

Also, there is the further convenience, which the Service Department affords, of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

All communications should be addressed to the Service Department, THE GARDEN, 20, Tavistock Street, Covent Garden, London, W.C.2.

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THE GARDEN

JULY 19, 1924

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THE LATE SIR HARRY VEITCH

IT is with regret that I must chronicle the death of Sir Harry Veitch and with pride that I try to enumerate a few of the accomplishments of a career which was entirely devoted to the improvement of gardening in the British Isles. Few have been so lucky as to have seen such a great transition from the burlesque form of gardening carried on in the middle of the last century and to have known that this transition was largely owing to their own steadfast pursuit of an ideal which was in advance of their time, but which has proved itself to be the correct ideal.

I must refer those who wish for family history to notices in other papers, for what I am principally interested in is the actual work accomplished by James Veitch and Sons under the direction of the late Sir Harry Veitch, for Sir Harry Veitch for more than thirty years was the firm of James Veitch and Sons, and their fame up to the time of their giving up business was world-wide.

Probably the first speciality of the firm to gain them renown was the hybridisation of orchids. This had been started while the firm was still at Exeter, but gained its greatest fame under Sir Harry Veitch's management shortly after he took over control on his father's and brother's deaths about 1871. It was during that period that the three Johns, John Dominy, John Seden and John Heal, made their magnificent orchid hybrids for the firm. For many years the hybridisation of orchids was considered a trade secret, but in 1884 Sir Harry Veitch decided that it was his duty to share the firm's secret with others, and so he read his famous paper on "Orchid Hybridisation" before the Fellows of the Royal Horticultural Society.

This was probably the service which brought the firm greatest renown up to the beginning of the present century, but now it is realised that the introduction of numerous new plants brought them infinitely greater credit before gardeners in general. It was through the perseverance of the firm that a great line of botanical collectors introduced such a multitude of plants which are now everyday names in our gardens. These collectors began with William and Thomas Lobb from 1840–60 and ended with E. H. Wilson, who collected for them between 1899 and 1905. It also included such names as Richard Pearce, John Gould Veitch, Carl Kramer and Charles Maries.

I feel that I must give a short list of some of the famous trees and plants introduced through this firm, and this list does not include orchids, greenhouse plants or ferns: Abies concolor, A. grandis, Araucaria imbricata, Cryptomeria japonica, Cupressus pisifera, Pinus Armandi, P. Coulteri, Sequoia gigantea, Thuya dolobrata, T. gigantea, Abutilon vitifolium, Acer griseum, Actinidia chinensis, Davidia involucrata, Deutzia discolor, Dipelta floribunda, Fremontia californica, Hamamelis mollis, Lonicera tragophylla, Magnolia salicifolia, M. stellata, Populus lasiocarpa, Arundinaria nitida, Berberidopsis corallina, Berberis Darwinii, Clematis Armandi, Desfontainea spinosa, Enkianthus campanulatus, Eucryphia pinnatifolia, Hypericum Hookerianum, Jasminum primulinum, Magnolia Delavayi, Olearia Haastii, O. macrodonta, Quercus acuta, Rhododendron auriculatum, R. occidentale, R. racemosum, Viburnum rhytidophyllum, Primula pulverulenta, Thalictrum dipterocarpum, Lilium auratum and L. giganteum. It was owing to this firm that the whole of the magnificent race of tuberous-rooted begonias was evolved, by their introduction from the Andes; and the same with hippeastrums by their use in hybridisation of H. Leopoldii. In addition, under Sir Harry's auspices, a great deal of work was done in connection with the improvement of fruit and vegetables.

This list is longer than I intended, and it could be prolonged indefinitely, but it is a fitting memorial to the late Sir Harry Veitch and to the firm of James Veitch and Sons, for rather than sell the goodwill he dissolved the firm on resigning the chairmanship in 1913–14. In addition to his horticultural work he was most generous towards philanthropic objects and was exceedingly kind to his numerous friends, gardening and otherwise.

E. H. M. C.

IN OUR NEXT ISSUE WILL BE FOUND:

FLOWERS AT COVENT GARDEN, by George Monro.
BORDER CAMPANULAS, by Miss Gertrude Jekyll.
SWEET PEAS DURING FLOWERING TIME.

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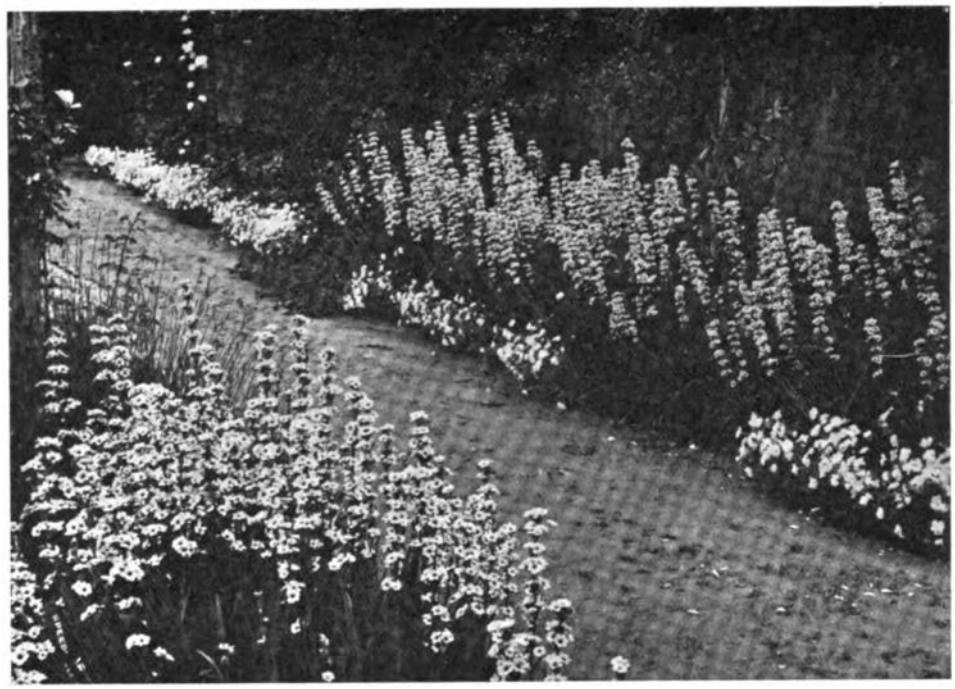
SUMMER BORDERS

BY GERTRUDE JEKYLL.

IT is a great advantage, wherever the conditions of a garden permit such an arrangement, to have special borders for the various seasons; for each one then allows of a display of some definite and complete picture of flower beauty. The border is well filled, and for some fortnight or three weeks the plants show the very best they can do. Such a border may be arranged for the second half of May and the earlier part of June. It has a main planting of the grand old double peonies of the officinalis class, with their bold, clear-cut foliage and massive heads of bloom. They are in three kinds of colour, full, deep crimson, a lighter rosy tint, and a pale pink which changes to a rather impure white. At the back of the peonies, and here and there intergrouped with them, are bushes of Olearia Gunnii and Deutzia gracilis, with the large white columbine, and, again, behind these, white Portugal broom kept to a moderate height by being cut back after flowering. The whole of this white-bloomed company has a further setting of the old herb Sweet Cicely (Myrrhis odorata) with its large fern-like foliage and showy umbelliferous bloom. Also behind the peonies and among the plants of the fern-like myrrhis are tall spires of the pure white foxglove; these also rise from yard-high masses of the common male fern, now in its freshest young frondage. Backing the whole is a double row of cobnuts. The old double peonies have a goodly space some eighteen paces long, and where they end, the peony influence is continued by a length of 4yds. of the single white Backhouse's The Bride, a garden variety of P. Whitleyi, which blooms in succession to the old officinalis. Here at the back is a long drift of the tall early white Iris florentina, and in front of the white peonies another of the shorter, deep-coloured Purple King, with an interplanting of the useful purple-leaved sage. This leads to some groups of blue flowers, a good form of Centaurea montana and a front planting of the true Pulmonaria azurea. Some of the earlier Helianthemums, in white and rosy colourings, are along the front edge.



THE BEAUTIFUL FREE-FLOWERING SISYRINCHIUM STRIATUM.

This border is followed in time of blooming by what we know as the June garden, a double border in quite another part of the garden, backed by edges of flowering shrubs in which guelder rose predominates. Here the main plants are irises and lupins, which are both in perfection in the second week of June. The right-hand border begins with a dwarf yellow iris in front and the tall pale yellow I. flavescens at the back. Then comes a group of white lupin and a generous front planting of Geranium ibericum with its masses of bright purple bloom; after this come pink China roses, harmonising charmingly with the deep red valerian (centranthus); then a bush of Olearia Gunnii, smothered in its small starry white bloom. This is followed by a group of the best form of perennial lupin, with tall spikes of flower in two shades of purple, and handsome foliage of a lighter green than that of the ordinary kinds. With this is the useful white ir- Mrs. H. Darwin and

CHRYSANTHEMUM FRUTESCENS IN THE FOREGROUND WITH CLEMATIS FLAMMULA AT THE BACK

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ASTERS AND ACONITUM JAPONICUM.

purple columbine and the fine white Oriental poppy Perry's White. These are followed by irises of mixed colouring; good kinds of what were formerly known as squalens, with varying tints of yellowish smoky or misty lilac standards and rich red purple falls. These have a groundwork of the purple-leaved sage and of the dark reddish satin-leaf (Heuchera Richardsoni), both useful plants for quiet harmonious settings to flowers of rich warm colouring. So the border goes on. The opposite side, which more directly faces the sun, gives rather more prominence to yellow colouring, for near the middle of its length is a bush of the gold-leaved privet with a bold group of one of the hybrid mulleins with rich orange and yellow flowers. Here also are large bushes of the half woody hybrid lupins, masses of strong yellow bloom. With them is a large group of the deep yellow Iris aurea, and a shorter iris, deep yellow and claret-coloured. Then again white and purple, leading to the pale rosy Iris Queen of the May and more China roses and Olearia and pink lupins. At the far end is a tall feathery mass of Spiræa Aruncus, and near it the interesting spikes of Asphodelus ramosus, all front-edged with purple cranesbills and catmint (Nepeta Mussini). The aim in these borders is to give a distinct picture of harmonious colouring every few yards, with the groups of plants composing it large enough to avoid any feeling of spottiness; and so to have the colours pass from one to another that the whole retains a pictorial quality.

The early weeks of July bring the clouds of purest blue of delphiniums and of the pale blue variety of anchusa called Opal. These are pleasantly accompanied in the late summer border by the good perennial mullein, Verbascum Chaixii, with the free-flowering Sisyrinchium striatum in front and a still lowlier bordering of the almost prostrate Œnothera missouriensis with its large, pale yellow bloom. Besides its use in the border, the sisyrinchium is a capital plant for any sunny banks in light soil, with, near it, bushes of Phlomis fruticosa, in early July smothered in its curious and showy yellow bloom, all the better shown up because it is neighboured by the handsome blue-leaved grass, Elymus arenarius. Such a combination on a sunny bank in sandy soil, with front plantings of helianthemums and a backing of the hardier cistuses, may be confidently recommended.

Now is the time of roses, and though the newer roses are lovely things, the old garden kinds should not be forgotten; the cabbage rose (Rosa centifolia) of incomparable sweetness, and its variety the moss rose; the damask roses, with the pretty striped and splashed Cottage Maid; the varieties of R. alba, which include the double white rose of cottage gardens; the pink form Maiden's Blush, and the still lovelier Celeste. Although there is now so great a number of the modern rambling and pillar roses, some of the old Ayrshires are still unbeaten—Dundee Rambler and the Garland, Ruga and Bennett's Seedling, besides the still older arbour rose Flora. With the coming of these roses the preparation for making pot-pourri is in full swing.

The subject of one of the illustrations is part of a border for early September, mainly for the display of the early Michaelmas daisies.

THE VICTORIA REGIA

ONE of the most interesting plants in Kew Gardens, the "Giant Water Lily," Victoria regia, is now in its public home; but as yet it shows none of its glory, being but a small plant. Soon, however, its wonderful foliage and flowers will command the admiration of all who see it. It is a native of Guiana, where it covers large areas of the rivers and lagoons, some collectors reporting it in patches a mile square. Its introduction to this country was full of difficulties and it was tried many times without success.

Seeds were received in 1846, and two of them germinated at Kew, but neither matured. In 1849 more seeds were sent, in water, and the resultant plants grew and flowered in 1850. The leaves were so large that they overlapped the edge of their tank and in 1852 a new house was specially constructed for the plant.

FIG. 1.—THE ADULT PLANT.

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FIG. 2. FIG. 3.

The lily is really a perennial, but at Kew it was found best to save seeds every year and treat it as an annual. When mature the leaves are wonderful structures, often over 6ft. across, with a vertical rim of about 6ins. The underside is covered by a network of strong, spiny ribs, thus forming air pockets which support the leaf. The strength of these leaves varies with the credulity of the listener, but they can certainly support a tremendous weight if it is evenly distributed.

There is a popular belief that the lily flowers once and then dies; but, actually, it flowers very frequently during the summer, each flower lasting two or three days. The flowers are white, changing to pink, having a strong scent and are about a foot across. At the end of its life the flower sinks, and matures its seeds below water. One would not connect the second illustration with such a tremendous plant, but it shows V. regia when a week old. The leaves are about 3ins. long, and the seed, which is about the size of a pea, can be seen.

The third illustration (plant aged three weeks), shows the first stage toward the circular leaf, the next few leaves are perfectly circular, but the rim does not appear until the plant is much more advanced. When it is fully developed, as in the first illustration, it is, without doubt, one of the most striking features of Kew. L. Buss.

COTTAGE AND RAILWAY STATION GARDENS

THE debt we owe to the cottage garden for its contribution to the beauty of the countryside seems scarcely to be sufficiently recognised. The gardens of the well-to-do, surrounded by hedge and fence, may please the eyes of the favoured few, while in these days of restless travel, when country roads are thick with chars-á-bancs, motors and the homely bicycle, the cottage garden lying by the highway is seen by the thousand passers-by.

When driving through country roads we all know the difference between the villages where interest in flowers is kept alive by local shows or the laudable rivalry between natural lovers of the garden and, on the other hand, the villages where the gardens are strictly utilitarian and labour is only given to the vegetable. In the former, spring brings the wallflower, white arabis and polyanthus, and summer the rose, hollyhock, white pink, pansy, London pride and a host of other flowers which, though they may be called "common," hold their own in beauty and scent in any company.

The stately Madonna lily and the old rose Gloire de Dijon seem particularly to revel in the cottage garden and to treat the poor more kindly than their more wealthy neighbours. There are few sights more beautiful than a well established Gloire de Dijon on a cottage wall in full bloom pushing up to the eaves of the thatched roof and clustering round the windows. Clematis montana and wistaria, too, often cover a cottage wall and make a lovely show for the eyes of the wayfarer.

The strictly utilitarian garden presents a very different picture. Nettles straggle through the untidy hedges, tufts of grass and weed fill the little space between road and threshold, and the choked plants and creepers, should any exist, only add to the general air of slovenly neglect. Passing through a village where conditions such as these exist, it is a relief to leave it behind and get into the open country again, for the human habitation seems to leave a stain on the landscape.

We may surely look on cottage gardeners who show their pride and love of their gardens as public benefactors, and if public service be one of the greater virtues, they deserve all the honour and encouragement we can give them. Might it not be possible to give a more tangible proof of our admiration than by taking off our hats to them, and, though we like to exercise our national privilege to the full in grumbling over the present heavy burden of taxation and high rates, those who love the countryside would not grudge a penny in the pound

AN OLD FASHIONED COTTAGE GARDEN.

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in addition were it to be applied to the beautifying of our villages. Such an entry in the accounts as "Paid to Messrs. Rose and Bush, nurserymen, for plants supplied to villagers at ——" surely would not be severely criticised even in these difficult days.

We pay as cheerfully as we can for such necessaries as policemen and drains for the peace and health of the country, why should not a small outlay be allowed for the decoration of the village and the outskirts of the town? However, this suggestion is made with great diffidence, as in every community there are always those who care not for these things and are as content to look on a corrugated iron roof or a bed of nettles as to gaze on the loveliest beauties of flower and plants. Again, those who have greenhouses and frames could give substantial help by placing their surplus seedlings and plants at the disposal of those who have not these luxuries.

Even those who know nothing of gardening and have little love for flowers must be affected by the colour and scent that greet them as they pass through a village where the gardens are tended with care and are evidently a delight to their owners. When we consider that all the work that is put by the labourer (or his wife) into the garden is overtime, that the first care must of necessity be the vegetable portion, and that the rest is given as a labour of love and pride in the appearance of his surroundings, he most surely deserves all the help we can give him.

The stationmaster is another of our public benefactors who so often refreshes us on our journeys, though I have never heard of him being publicly thanked. How many of our country station gardens are a real boon to the weary traveller, and what a difference it makes to the dull platform when it is edged with borders of flower and shrub. We can all of us recall to our mental vision stations where roses, rhododendrons, wistarias and borders of annuals have cheered us on our weary way.

I do not know whether railway companies make any grant to assist station gardens. If so, as a railway shareholder I applaud the outlay; but should it not be so, I should like, being a frequent traveller, to offer my grateful thanks to the gardener stationmaster for having so often lightened a dull journey.

In these days of educational progress surely beauty is a factor that cannot be ignored, and those who—like the cottage gardener and the stationmaster—add their quota of beauty to the countryside and thereby add to the gaiety and pleasure of the everyday life of the public, deserve our gratitude and thanks.

Though there is, no doubt, a certain virtuous pride of display, entirely honourable, attached to their labours, it is surely not too much to say that the results of their efforts is as much for the pleasure of the public as it is for their own. That the public do enjoy these results there can be no doubt, but, like many other blessings, they are too often taken as a matter of course. M. J. M. VICARS-MILES.

ROSES IN OLD RECEIPT BOOKS

THE coming of summer and the rose harvest meant to those notable housewives, our grandmothers with several greats, a vast increase of their work in the still-room. Turn to any book of receipts, printed or MS., and, you will find directions by the score—sometimes vague, but invariably picturesque—for fragrant, medicinal, or toothsome compounds of which rose petals form the pleasant basis. Predominating among the receipts are those for that rose-water which Sir Hugh Plat, in his "Jewel-house of Art and Nature," advises should be made when "there is a glut of roses in the Market whereby they are sold for 7d. or 8d. a bushel." Rose-water not only played an important part in confections, perfumes, complexion-washes and many other things, but was used by itself as a "cure" for dim sight, fevers and heart trouble. It was also considered "good against the venom of toads and green frogs." That prince of book makers, old Gervase Markham, gives in his "English Housewife," published in 1660, instructions for making a very rare and pleasant Dammask-water "by distilling four hand fulls of Dammask-roses and as many of Red," with the tender leaves of walnut trees (quantity not stated), spices and orange peel in "a quart of Malmsey and a pottle of Spring-water." In rose-water such as this, gloves and leather for jerkins were steeped until thoroughly scented; while if the water were boiled softly on the coals with a little sugar, it would render the whole house fragrant. This was known as King Edward's or the French Queen's perfume.

Perfume cakes for burning, and balls for use as pomanders were made of rose petals pounded in a mortar with civet, musk, ambergris and benzoin worked into a paste with rose-water, formed into any shape desired and dried in a slow oven, the pomander balls being pierced with a skewer while still soft to enable them to be strung. In the receipt for pomander paste given by Dr. Salmon in his "Family Dictionary," 1696, the list of ingredients includes gum-dragon; while Lord Ruthven in his "Ladies' Cabinet Open'd," of 1655—a year prolific in cookery and receipt books—tells his readers that marjoram and lavender should be pounded with the roses.

Some of the receipts for rose confectionery sound so dainty and tempting that modern sweet-makers might try them with advantage, even though the days of roses at 7d. a bushel are no more! Here is a simple one taken from "The Queen's Delight" (1655):

"Boyle your sugar to sugar again, then put in your Red Roses finely beaten and moistened with the juice of a Lemmon. Let it not boyle after the Roses are in, but pour it upon a Pye-plate and cut it into what form you please." And there is a receipt in Rabisha's "Whole Body of Cookery" (1661) which is fascinating reading:

"To Candie Rose-leaves as natural as if they grew on Trees. Take of your fairest roses, red or damask, and on a Sunshine day sprinkle them with rose-water and lay them one by one on a fair paper. Then take some double-refined sugar and put it in a fine lawn searce. When you have laid abroad all your roses in the hottest of the sun, searce sugar over them. Then turn the leaves and searce sugar on the other side and turn them often in the sun, sometimes sprinkling rose-water and sometimes sugar on them until they be enough and come to your liking and this being done you may keep them."

"Take red Rose-buds, clip all the white, bruised and withered from them. To every pound of roses take three pounds of sugar; stamp the Roses by themselves very small, putting a little Rose-water or juice of Lemmons to them as they wax dry. When you see them small enough put the[illegible] to them and beat them toge[illegible]e well mingled. Then put [illegible]alley-pots or glasses."

Among the many other preparations of roses given in Lord Ruthven's little book is included a "Syrup," made by boiling and re-boiling the flowers "in fair water," skimming carefully the while and adding sugar and lemon-juice at the final boiling. This syrup, we are told, "purgeth choler and melancholy."

The making of oil of roses, "Soveraign for any scalding with water or oyle and good for all manner of unkind heats," was a tedious process. The roses had to be infused in "sallet oyl" in an earthenware pot luted with paste which was put in a water bath and set among hot embers for a night. The oil was then strained off, fresh chopped rose petals added and the closely covered jar set out in the sun every day for three weeks. Chiefly medicinal, also, were the uses of rose vinegar, the result of steeping red roses in white wine vinegar for forty days, but it was sometimes introduced as a flavouring into sauces.

To many people, I fancy, it will come as a surprise to hear that pot-pourri is a comparatively modern introduction. Rose petals dried—to quote Dr. Salmon—"on a sunshiny day and turned as you would hay," were used to fill "sweet-pots" as well as "sweet-bags," the equivalent of the scent sachets of to-day, but the elaborate mixture of scented flowers and leaves, spices, aromatic gums and salt, more or less familiar to us, does not seem to have been evolved until the end of the eighteenth century. A pot-pourri receipt in rhyme by Miss Anna Seward is printed in "The Universal Magazine," for April, 1798. It is a lengthy "poem" in the Swan of Lichfield's best—or worst!—style. She sings of "fraxinella's spicy sighs," of "Indian spices' antiseptic glow," of "pale syringa," of "Hispania's lemons," of the mineral "which once was flying Lot's too envious wife," and very many other things, all of which were to be blended until—

"In one vase eternal Summer dwells."

R. E. HEAD.

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PEAS AND THE COOKING THEREOF

THE French have a proverb which says "Eat green peas with the rich and cherries with the poor"; which is only another way of saying that peas, to be properly served, want a lot of care and good butter and other ingredients, and must be young, selected and of the best; while cherries can be plucked and eaten off the tree. In fact, to eat peas in perfection they must be gathered the same day and shelled not more than half an hour before cooking. Peas bought ready shelled (to save trouble!) have lost all their flavour and become coarse and hard. They should be also quite young and the smaller sizes should be separated from the larger by sifting through a "riddle" or an ordinary colander. Otherwise, if all the little ones are cooked with the large ones they will be a mash before the big ones are done. A peck of young peas, if the pods are full, may be enough for three persons or even for four if the portions served are small.

Peas in the English Way.—The usual way of serving peas in this country, is as a vegetable with the roast joint. After sifting the smaller peas (which should be added at half-time,) throw a peck of peas into a gallon of *boiling* water with a tablespoonful of salt, and when half done, that is, in about a quarter of an hour, add a lump of sugar and the small peas. Strain, and toss a bit of butter in them just before serving

Peas in the Italian Way.—Take two small onions cut in two, toss them in a little oil (or fresh butter) with a small handful of chopped ham. Then add the peas with a little pepper and salt, and finish cooking them slowly, adding by degrees a little stock and a walnut of butter or a little oil. They should not be too moist. Remove the onion before serving.

Peas in the Indian Way.—Put the peas into a jar with about 2 oz. of butter, some pepper, salt and a lump of sugar and a bunch of mint. Cover the jar very tightly and place in a saucepan of boiling water. Boil till the peas are tender. Peas cooked in this way retain the full flavour better than when boiled in water.

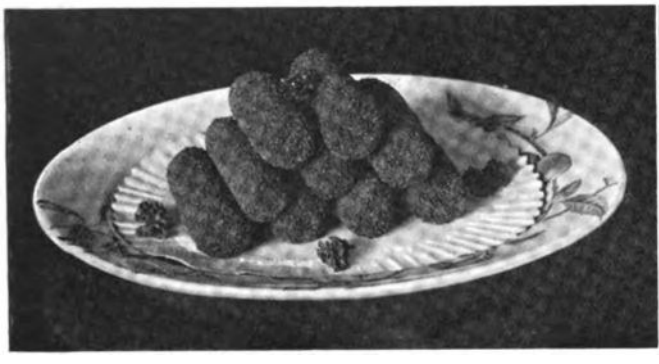
Stewed Peas and Lettuce.—Take a quart of green peas, two good-sized round lettuces cut into small pieces, and a quart of stock. Stew all together in a casserole till tender. Then add a walnut of butter rolled in flour, a spoonful of essence of ham (or two tablespoonfuls of finely chopped ham), and a little pepper and salt. When smooth and thick serve up very hot.

Green Peas with New Potatoes.—Boil some water in a casserole and put in a quart of young peas, and a dozen or more small potatoes well washed but with the skins on, a little salt and a bunch of parsley. Arrange so that the peas and potatoes become done at the same time; then, when both are sufficiently tender, drain them, peel the potatoes, mix all on a dish and pour over a good quantity of hot butter just before serving.

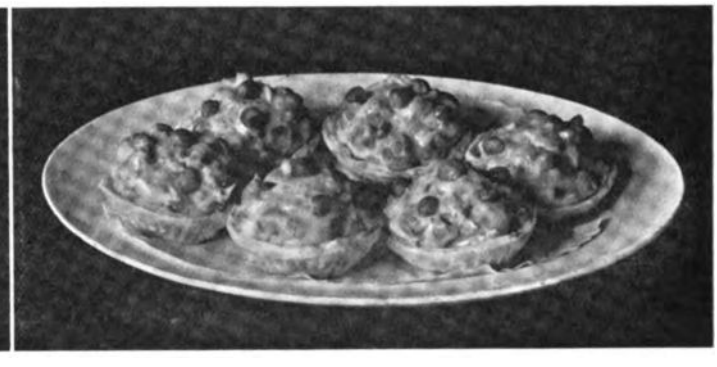
Green Pea Salad.—Chop up together a small onion or shallot, a sprig of chervil and one of tarragon, a little parsley and a very small bit of burnet if procurable. Mix with enough cold peas to make a sufficient dish and pour over the whole a dressing made in the proportion of two tablespoonfuls of oil to one dessertspoonful of vinegar and one teaspoonful of Chili vinegar. The dressing should be added some time before it is required and the salad finally turned over again just before serving.

Green Pea Soup.—A peck of peas should make a large tureen of soup. When shelling the peas put on one side the young and small ones to be boiled separately. Boil the other peas in plenty of water till they are tender, which should take about thirty minutes, and then strain them into a clean stewpan with about five pints of good stock not too highly flavoured. Cover this very tightly and stew over a slow fire for an hour at least. Then add a teacupful of very fine breadcrumbs, mix well, and pass the whole through a hair sieve into a clean stewpan. Stir well, and if too thick, add a little more hot broth. Season with pepper and salt and two lumps of sugar. Before serving put in the small peas which have been boiled separately. Some slices of cucumber, drained and fried a light brown in butter are sometimes served in green pea soup, and are a distinct improvement.

Petits Pois à la Crême.—Simmer (not boil) the shucks of the peas for an hour with a dessertspoonful of sugar, a teaspoonful of salt and two sprigs of mint. Then boil your peas in this liquor over a sharp fire till tender. Strain off the peas when done and make a fairly thick sauce with the liquor and a little butter and flour. Replace the peas in this and warm thoroughly, stirring all the time. Finish with a large spoonful of thick cream and garnish the dish with fried *croutons* cut in fancy shapes. The sauce should be of a fairly thick consistency and the whole served very hot, if possible over a spirit lamp or hot water dish.



GREEN PEA CROQUETTES.



GREEN PEA CASSOLETTES.

Green Pea Cassolettes.—Line some small, but rather deep, round patty pans with thin pastry and bake in a moderately quick oven for fifteen minutes. Toss freshly shelled peas in butter, add some finely chopped ham and sufficient Bechamel sauce to bind, a little chopped parsley, a little nutmeg and a tablespoonful of cream. Fill the cases and reheat in the oven; then garnish with a few peas already cooked.

Green Pea Croquettes.—Cook half a pint of peas, drain and rub them through a sieve. Make a binding sauce with butter, flour and milk and add the sieved peas, mint and seasoning to taste and let the mixture get cold and firm. After shaping, coat with egg and breadcrumbs and fry to a golden brown in a pan of hot fat.

Notes.—Green peas should always have a slightly sweet taste; in fact, sugar should decidedly predominate over salt. The shucks or shells of young green peas can be stewed in plenty of water, and the liquor thus produced makes a good foundation for a *maigre* soup of any kind. Mint is generally boiled with the peas, but some people do not like the flavour of it.

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THE USE OF AVENUES

BY PROFESSOR AUGUSTINE HENRY.

AVENUES, as the derivation of the word indicates, were in the Middle Ages approaches to great houses and important buildings, but later came to mean roads, drives and walks that are bordered by trees. These were little known in England till the seventeenth century, when they became a conspicuous feature in the formal style of landscape gardening which was then introduced from France. The first avenues were doubtless formed by cutting long vistas through the forests which surrounded the châteaux of the nobility, and good examples of these may be seen even in England, as witness the long glades running through masses of wood at Savernake. Usually, however, an avenue consists of parallel lines of trees in the open park leading from the great house to the main entrance. There is no reason, however, why such lines of trees should be limited to the approaches to mansions. Throughout the country there are many bare and uninteresting roads which might be made effective parts of the landscape if their edges were planted with trees.

In no country are there so many avenues of varied character to be seen as in England, and the Long Walk at Windsor, composed of English elms, has been described as one of the finest and most imposing avenues in the world. It is, however, surpassed in beauty by some of our beech avenues, of which Finch's Avenue, Watford, is a good example near London. It is formed of straight, closely planted trees, attaining 120ft. in height and closing in overhead. The grand avenue of beech at Savernake is still more wonderful, owing to its great length, the trees forming a continuous green aisle for five miles. Lime avenues are similar in character, as the branches readily meet above, but their trunks are not so beautiful as those of beech. One of the finest lime avenues in England is at Burghley Park, Stamford. The lime avenue at the back of Trinity College, Cambridge, was celebrated by Tennyson; but it is much surpassed by the avenues of lime at Longleat, which were planted in 1690.

As the great effect of an avenue lies in its stateliness, only those species of trees which are capable of attaining a great height should be used wherever the soil and situation allow of their perfect growth. Splendid avenues can be formed not only of the broad-leaved trees just mentioned,

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A FINE AVENUE OF MAGNOLIA SOULANGIANA IN ROCHESTER, NEW YORK.

elm, beech and lime, but also of Spanish chestnut, horse chestnut, London plane, sycamore, holm oak and Lombardy poplar. In the warmer parts of Britain where the soil is free from lime and the situation not exposed to the prevailing wind, the Spanish chestnut grows fast and makes magnificent avenues, as at Flitwick, where the trees planted in 1833 have attained an immense height. There are good Spanish chestnut avenues also at Cowdray Park, Thoresby, and Newhouse Park, near Mamhead in Devon. The lines of horse chestnut in Bushey Park are well known; some of the trees attain 100ft. in height. The sycamore grows well in Scotland and the north of England, and is there suitable for avenues close to the sea and in other exposed sites. The most beautiful tree for shelter in the maritime belt is the evergreen or holm oak, slow in growth. It makes a fine avenue tree at the Norfolk coast. The London plane is mainly

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used for planting in towns, but it might be employed with considerable effect as an avenue tree in southern England, where it attains an immense size. The Lombardy poplar is very formal and useless for shade, but it can be planted to advantage along roads, where the land on either side is under the plough, and farmers dread the ill-effect on wheat and other crops caused by the shade and wide-spreading roots of ordinary large trees.

Avenues of conifers are as a rule formal in their effect, and should scarcely be planted where the broad-leaved trees just mentioned do well. Conifers, however, are useful on the poorer soils and in hilly and exposed situations. In the maritime belt all round the coasts of England, Wales and Ireland the Monterey pine (Pinus insignis) grows on the poorest soil, provided it is not too wet, and attains an enormous size in forty or fifty years. This species is suitable for avenues, as the trees at that age grow close together and have become pleasingly irregular in outline. The Scots pine when old is one of the most beautiful trees on account of its brilliantly coloured bark and picturesque crown of foliage, and it attains a large size in deep sandy soil. It also thrives in frosty situations. The Corsican pine grows faster than the native species, and is suitable for forming avenues on soil containing lime or chalk. It bears wind extremely well. One of the wondrous sights of the world is the famous avenue of Cryptomeria with closely set enormous boles, which for twenty miles lines like a wall both sides of the road leading to Nikko in Japan. We may have perhaps in 100 or 150 years a similar effect with the Wellingtonia (Sequoia gigantea). There is a magnificent avenue of this species at Wellington College about 1,200yds. long, the average height of the trees being 80ft. at forty years from date of planting. On exposed and wet sites and at considerable elevations, avenues may be formed of Sitka spruce, which has already reached in Scotland and Ireland 120ft. in height at seventy years old. The common European spruce preserves for many years its unpleasing conical form, but improves in appearance when old. Two narrow avenues of this species in Oakley Park, Cirencester, produce a fine effect, as the tall stems, closely set along the edges of a woodland glade, contrast well with the background of foliage. Douglas fir will undoubtedly make, in time, magnificent avenues, as it grows fast and to an enormous size; but it must be planted in a sheltered position. The three cedars

AN AVENUE OF POPLARS IN ESSEX.

are also capable of forming splendid avenues in many parts of the country, but they are very sensitive to wind and remain stunted in exposed situations. Many kinds of silver fir and pine may also be planted in avenues, but for a long time the effect of their regular conical form is unpleasing. Thuya gigantea, a fast-growing tree, is open to the same objection.

The number of smaller trees, both broad-leaved and coniferous, that may be tried where large and stately avenues are not desired, is very great, and no list of them can be given here. Nothing need be said about modes of planting except to reiterate the warning, rarely listened to, that small trees are always preferable, and on that account three and four year old transplants of most species ought to be used.

When planting, the most important consideration is the choice of the proper species for the soil and situation. Generally speaking, an avenue looks best when all the trees in it are of one species; but in long avenues the soil is apt to change in character, causing uneven growth. The Long Walk at Windsor illustrates this point well. It was planted in 1680 throughout its entire length of nearly three miles with English elm only. The result is splendid as regards the pos-

THE FAMOUS WELLINGTONIA (SEQUOIA GIGANTEA) AVENUE AT STRATHSFIELDSAYE.

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of the avenue next the Castle, where the soil, loam about 10ft. deep, admirably suits this species. Here the trees attain an immense size, many rising to 120ft., with gigantic boles 15ft. in girth. Farther on, where the soil is clay over gravel, and beyond the double gates, where it is heavy clay, the trees are much smaller, and many have died at various times and been replaced by elms of different varieties. The result is most unsatisfactory. In such a case a different species should have been used for the poorer soil or the avenue discontinued.

Attention must be paid to the local climate, the important factor being the strength of the prevailing wind. In the greater part of Ireland and of the western side of Great Britain, trees susceptible to wind, like cedars, Douglas fir, larch and chestnut, should never be planted in avenues. Altitude, of course, is another important factor in limiting the choice of trees.

The width of the avenue and the spacing of the trees are points which must be studied at the time of planting. Short avenues should be narrow in order to preserve the necessary perspective. The correct proportion in a short avenue between width and length has been laid down as one in ten, thus in an avenue 100yds. long the width ought to be about 10yds. The trees in this will eventually close up and form an overhead canopy, a desirable feature in a short avenue. In longer avenues the proportion of width to length may be less, and the width nevertheless greater, say, 15yds. to 25yds. for avenues 400yds. to 800yds. long. If the sides of the avenue are composed, as is often the case, of two or three lines of trees, the width between these may be the same as the distance apart of the trees in the lines, and may vary from 10ft. to 30ft. or more. This depends mainly on the height which the trees are expected to attain. Trees that will eventually tower into the sky must be widely spaced. Shade-bearers, like beech, spruce and silver fir, may be kept closer than light-demanding trees, like oak, chestnut and pine.

I will now give the distances of some successful avenues. In the Long Walk at Windsor, which has two lines of elms on each side, the width of the broad walk between is 50yds., and the distance apart of the side lines and of the trees in the lines is 30ft. This allows a great height to be attained, 120ft. for the trees in the best section of the avenue, next the Castle. The distance apart corresponds to forty-eight trees per acre for elms 240 years old, and may be compared with the figure for oak grown on the best soil in a Continental forest, namely, fifty-six trees per acre for oaks attaining 120ft. at 160 years old. The Wellingtonia avenue at Wellington College consists of two single lines 25yds. apart, the trees being 50ft. apart in the lines. Allowance is here made for the great height, perhaps 150ft., which will ultimately be attained. Lime avenues are usually narrow. The fine one at Burghley Park consists of four lines, of which the two inner are 20yds. apart, each being 10yds. distant from its outer line. The trees in the lines stand at 18ft. apart.

FLOWERS in the MIDLANDS at the ROYAL SHOW

IT is not always appreciated that flowers and plants have a varying interest much influenced according to the locality in which they are seen. It is this, among other reasons, that causes the "Flower Tent" of the horticultural section of the Royal Agricultural Society of England, which moves the site of its Show to various parts of the country, always to be among the most popular items to be seen in a vast display of many acres of exhibits, mostly agricultural.

While yet exhibitors at Leicester were congratulating themselves on the beautiful and cool weather, a gale sprang up and partially wrecked one of the large tents, blowing roses and sweet peas, orchids and carnations into confused heaps. This occurred on the last day of the Show, the principal victims being Messrs. Alex. Dickson and Sons, Messrs. Stuart Low and Co. and Mr. C. Engelmann, whose groups were destroyed.

In consequence of the prize moneys offered in numerous classes by the Royal Agricultural Society, in contrast to the Royal Horticultural Society, they secure keen competition and better groups and collections than are sometimes seen in London. The sweet peas were exceptionally good, but little separating the first three entries. Messrs. Robert Bolton and Son led, with Messrs. J. Stevenson and Messrs. E. W. King and Co. second and third respectively. The first-named arranged their flowers in baskets, including a fine mass of Comrade (rosy buff) and Wembley (mauve). Poppy, always looking well, and Royal Sovereign were in the other groups. Exquisite peas in non-competitive classes were included in the groups of Messrs. Sutton and Sons, Messrs. James Carter and Co., Messrs. Andrew Ireland and Hitchcock, Messrs. Alex. Dickson and Sons, and Messrs. Toogood and Son of Southampton.

DELPHINIUMS AND HARDY FLOWERS.

No wonder that the delphinium is one of the most popular of summer flowers. The variety Mrs. Townley (immense, Cambridge blue) and Smoke of War, representing the light and dark blues, with the nearly white Moerheimii, are a good combination. These varieties were shown by Messrs. Blackmore and Langdon and Messrs. Artindale and Sons, as well as in the hardy flower groups of Messrs. Harkness and Sons and Messrs. Gibson and Co., who had massed banks of lupins, pyrethrums, etc., relieved with tall spikes of eremuri.

A fine piece of work in the shape of a model terrace garden with excavations was carried out by Messrs. Bakers. It occupied the whole length of one tent.

The best display of irises, arranged with a water garden and a fine variety of nymphæas (water lilies), was that by Messrs. Kent and Brydon.

GROUPS OF ROSES.

Among other roses which were well shown in the winning groups, were Mrs. H. Morse, brilliant carmine and rose; Souv. de Claudius Pernet, sunflower-yellow; Souv. de Georges Pernet, Indian red or cochineal old rose; Queen Alexandra, larger than ever; and America and Columbia, two roses which stood in good condition throughout the four days' Show. The above were included in the competing groups which secured awards in the following order: Messrs. A. J. and C. Allen, Messrs. Harkness and Co., Messrs. W. and J. Brown, and Mr. Thomas Robinson; groups in this class being also put up by the Burbage Nurseries, Messrs. English and Son, and Mr. C. Gregory.

Mention should be made of Lady Roundway in the non-competitive group of Messrs. B. R. Cant and Sons, a new shade of copper and apricot; and of Roselandia, the new yellow (recently illustrated in THE GARDEN), exhibited by Messrs. Stuart Low and Co., which is a great improvement on Golden Ophelia. Messrs. Daniels and Messrs. William Lowe and Son also had fine roses.

STOVE AND GREENHOUSE PLANTS.

Large groups were shown by Messrs. Cypher and W. A. Holmes. Orchids and tall crotons, ixoras and dracænas made a riot of colour displayed in an artistic style, which is the opposite of crowding plants into a bank. Calceolarias, streptocarpuses from Messrs. [illegible] and Son, with wonderful begonias from Messrs. Blackmore and Langdon, were in faultless condition.

CARNATIONS.

Nigger (crimson), Sheila Greer (yellow and fiery red), Laddie (salmon) were the principal varieties in Mr. C. Engelmann's group. Topsy (crimson, an improved British Triumph), White Pearl (sweetly perfumed) and Eileen Low (salmon) were the best three varieties in the group of Messrs. Stuart Low and Co.

Coral Glow (orange-apricot), Edward Allwood and the Dianthus Allwoodii figured in Messrs. Allwoods' display.

The Border Carnations of Mr. H. Lakeman were a beautiful clean lot, including The King (crimson) and Elaine (porcelain white).

FRUITS.

One of the most popular sections of the Show was that of fruit. Messrs. Laxton Brothers excelled themselves in a comprehensive collection of strawberries, in which the high quality Laxtonian and the new variety The Duke were prominent.

The fruit trees in pots of Messrs. G. Bunyard and Co. arrived in fine condition. Apples, pears and plums, as well as ripe Cherries Early Amber and Bigarreau Noir de Guben, were attractive; some ripe fruits of apples stored from last year were also interesting.

AWARDS.

The Royal Agricultural Society's judges made the following awards:

First-class certificate to Messrs. Blackmore and Langdon for Delphinium The Shah, immense spikes of which carried mauve and blue flowers of unusual size.

Award of merit to Messrs. Alex. Dickson and Sons for Rose Scarlet Glory, one of the brightest red hybrid tea roses for the garden yet seen; and Saltaire, an addition to the dark crimson hybrid teas.

Award of merit to Messrs. Stuart Low and Co. for Carnations Eileen Low, a deep salmon, and White Pearl, both of which have been illustrated in THE GARDEN.

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DELPHINIUM DAY AT VINCENT SQUARE

ALTHOUGH cherries should have been the main feature at the Royal Horticultural Society's Hall, Westminster, on July 8th, there was only one small exhibit. Delphiniums were shown in large quantities by many firms.

Two outstanding delphiniums on Messrs. Blackmore and Langdon's exhibit belonged to the ranunculus section. Although popular many years ago, these plants are seldom seen nowadays. Lieut. Vasseur is a distinct novelty belonging to this section. The flowers are double and blue in colour, suffused violet, the spikes stiff and the blooms beautifully spaced. This variety attracted a great deal of attention. Another sort was a seedling, a very curious flower of pale pinkish mauve. An outstanding variety on this exhibit was The Shah (see "New and Rare Plants.")

The aptly named Bluebell was very prominent on Mr. T. Carlile's exhibit. Other good sorts were Harry Smetham, gentian blue, faintly suffused rose; Lord Derby, palest violet, the outer petals blue—this variety is semi-double.

Messrs. Kelway and Son showed their new variety, Sansovino, which is a double sort of smoke purple colour with blue edges.

Mr. H. J. Jones put up a large exhibit which was excellently arranged. Two notable sorts were The Alake and the Rev. E. Lascelles.

Delphiniums and irises were shown by the Orpington Nurseries Company. Among the irises, White Queen and Royal Purple were notable, and prominent varieties of delphiniums were The Alake and Queen of Delphiniums. This firm also showed many seedlings.

Messrs. R. H. Bath, Limited, showed many delphiniums, including Sir Douglas Haig, Dusky Monarch, King of Delphiniums, and Van Veen's Triumph, a fine pale mauve sort. They also showed gladioli.

Mr. W. Wells, jun., showed delphiniums, including King of Delphiniums. He also showed numerous other hardy plants.

A large exhibit of delphiniums including The Alake, Rev. E. Lascelles, Heavenly Blue and King of Delphiniums, were shown by Messrs. Waterer, Sons and Crisp, Ltd.

Mr. Amos Perry showed delphiniums and a large batch of Coreopsis grandiflora Perry's variety.

Mr. F. G. Wood had a collection of hardy plants in which Delphinium Van Veen's Triumph and Campanula Jenkinsæ were very conspicuous.

A collection of lilies was staged by Messrs. R. W. Wallace and Co. The almost black L. Martagon Catanii and L. M. dalmaticum were very prominent.

Messrs. Barr and Sons showed delphiniums, Morina longifolia and the beautiful Phlox Snowdon, together with other hardy plants.

Exhibits of hardy plants were very numerous and were shown by the following firms: Messrs. G. Stark and Son, the Chalk Hill Nurseries, Messrs. R. Tucker and Sons, Mr. G. Reuthe, Messrs. Daniels Brothers, Limited, Messrs. Gavin Jones and Ingwersen, Messrs. M. Prichard and Sons, Messrs. Carter Page and Co., Messrs. Rich and Co., the Misses K. and E. Hopkins, Messrs. Harkness and Sons, Messrs. Reamsbottom and Co., and Mr. H. Hemsley.

The new rose Roselandia and carnations were shown by Messrs. Stuart Low and Co. White Pearl and Eileen Low were two outstanding carnations.

Roses were shown by Messrs. D. Prior and Son, Messrs. Easlea, Messrs. B. R. Cant and Sons, Messrs. William Lowe and Son, Messrs. Chaplin Brothers, Messrs. S. McGredy and Son, Messrs. Frank Cant and Co., and the Rev. J. H. Pemberton.

Mr. Douglas showed border carnations, and the following were conspicuous sorts: The Grey Douglas, Bookham Clove, Queen of Cloves and Bookham Yellow.

ROSE BEDFORD CRIMSON WHICH SECURED THE CLAY CUP

Carnations and Dianthus Allwoodii, including some new sorts, were shown by Messrs. Allwood Brothers. Mr. Engelmann also showed carnations.

An exhibit of stove and greenhouse plants was staged by Messrs. L. R. Russell and Co.

An interesting exhibit of cacti was shown by Miss S. S. Thompson.

A fine lot of strawberries was displayed by Messrs. Laxton Brothers. Their new sorts, Laxton's Latest and Omega, are excellent. Laxton's Latest is of immense size and of excellent flavour, and Omega is of fine quality. They also showed a new red currant called Laxton's Perfection. The berries are of good size and of excellent flavour. It is a very prolific variety. On one stalk exhibited there were twenty-seven berries. This currant should soon become very popular.

The only exhibit of cherries was shown by Sir Charles Nall-Cain. The fruits were of good size and colour.

A fine collection of Melon Gunnersbury Park was shown by Mrs. Leopold de Rothschild. The fruits were of exceptional size, very aromatic and showed great cultural skill. They were awarded a cultural certificate.

The Clay Challenge Cup was offered for a rose of good form and colour not in commerce, possessing the true old rose scent such as may be found in the old cabbage or Provence rose, in General McArthur, etc. The scent known as "tea rose" was not, for this competition, to be accounted as true old rose scent. Competition was fairly keen, and the cup was awarded to Messrs. Laxton Brothers for a rose named Bedford Crimson (H.T.). It is a cross between Château de Clos Vougeot and Richmond, and is a velvety crimson sort that is very pleasing in the bud state. There were some other good sorts shown, including the following:

FRAGRANCE (see "New and Rare Plants").

WM BOWYER (H.T.) of a bright velvety crimson, suffused maroon, and the fragrance is pleasing.

DUDLEY (H.T.) is a crimson maroon sort, but, unfortunately, hangs its head. It is a small flower and throws its blooms in clusters.

KITTY MEHANE is a good white slightly tinted flesh. It has an excellent fragrance.

SALTAIRE is another notable variety.

NEW AND RARE PLANTS.

ATRAPHAXIS BILLARDIERI.—This is a curious knotweed-flowered shrub. Award of merit. Shown by the Director, Royal Botanic Gardens, Kew.

BEGONIA ALBATROS.—A double-flowered white sort of the largest size and of fine camellia form. The habit of the plant is good. Award of merit.

BEGONIA LADY ANN.—A double-flowered sort of salmony-rose colouring. This variety belongs to the camellia-flowered section. The petals are large and gauffered. Award of merit. Both the above begonias were shown by Messrs. Blackmore and Langdon.

CAMPANULA ZOYSII.—This pretty little lavender-blue alpine species with curiously constricted blossoms was shown literally covered with flowers and buds. Award of merit. Shown by Messrs. R. Tucker and Sons.

CARNATION (BORDER) SULTAN.—A dull orange-apricot sort of large size, but not of very pleasing form. It is not a fragrant variety. Award of merit. Shown by Mr. J. Douglas.

COREOPSIS AURICULATA SUPERBA (lanceolata type).—A very cumbersome name for such a beautiful flower. This plant is apparently a good form of C. grandiflora, with two rows of petals which are conspicuously blotched with brownish-crimson at their base. The flowers are almost the same size as the grandiflora type. Award of merit. Shown by Messrs. Ladhams, Limited.

DELPHINIUM THE SHAH.—A stately variety of mauve and blue colouring. The spikes are very fine and the blooms well placed. Award of merit. Shown by Messrs. Blackmore and Langdon.

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LILIUM DUCHARTREI (FARRERI).—The species was originally known as L. Farreri when it received an award of merit. It is the most delicately beautiful of the Martagon section. The flowers are pure white, heavily spotted chocolate with conspicuous golden anthers. First-class certificate. Shown by Lieutenant-Colonel Messel.

ROSE FRAGRANCE.—This is an aptly named H.T. variety of crimson colouring. At its best it is a shapely and pleasing sort. It appears to vary somewhat. Award of merit. Shown by Messrs. Chaplin, Limited.

ROSE LORD LAMBOURNE.—A large-flowered variety of obviously Pernetiana parentage. The flowers are large but not at all shapely. It is a yellow sort, irregularly suffused with rose towards the edges and is not fragrant. The only thing that appealed to us was the foliage.

VUYLSTEKEARA EDNA VAR. NORMANDY (Miltonioda Harwoodii × Odontioda Charlesworthii).—This attractive trigeneric hybrid, connecting the genera cochlioda, miltonia and odontoglossum, bore a branching spike of thirty-one medium-sized flowers and buds, of reddish-scarlet colour, the comparatively large labellum lighter, and the column rose tinted. Award of merit. Shown by Messrs. Charlesworth and Co.

NEW FRUIT.

HANWAY BERRY.—Judging by the sample shown and without tasting it, it appears to be a poor form of the loganberry. Of course the habit of the plant may be good, but we have not seen it growing. It is to be sent to Wisley for trial. Shown by Mr. G. W. Colenutt.

ROSES & SWEET PEAS AT BOURNEMOUTH

AT the Summer Show held in the spacious pavilion of the Town Hall on Tuesday and Wednesday, June 24th and 25th, some excellent displays of flowers were staged, the awards being made by Mr. McKellar of the Royal Gardens, Windsor, and Mr. Cobb of the University College, Reading. For the second year in succession, Mr. Elisha J. Hicks of Hurst won the challenge cup with a magnificent collection of high-class rose blooms, staged in faultless style. Second and third positions were taken by Mr. Arthur Radmore of Bournemouth and Messrs. S. Bide and Sons. The space occupied was 15ft. by 4ft. For the second season, also, Mr. Hicks won the challenge cup for twelve blooms, distinct, and numerous other prizes. Mr. A. E. Usher (gardener to Sir Randolph Baker, Bt.) won the challenge cup for a display of sweet peas, space 12ft. by 4ft. This exhibitor also won many other prizes. A challenge cup offered for the best display of florists' floral devices on a space 20ft. by 4ft. was won by "Leonards," Bournemouth. Messrs. Stuart Low and Co. were awarded a gold medal for fine collections of orchids and carnations. Medals were also awarded to the following firms: Messrs. Baker's, Wolverhampton, for herbaceous plants; Messrs. Maurice Prichard and Son of Christchurch, for herbaceous plants; Mr. Arthur Radmore, for roses; Messrs. S. Bide and Sons, for cut herbaceous flowers, etc.; Mr. T. K. Ingram of Parkstone, Dorset, for liliums and cut herbaceous flowers. The exhibition was a success, the competitive classes being well filled.

FORTHCOMING EVENTS.

July 22.—R.H.S.'s Fortnightly Meeting.

July 23.—Morley Paxton Society's Meeting.——Hayward's Heath Horticultural Society's Exhibition (two days).

July 24.—Royal Botanic Society's Meeting.

MORE ABOUT THE SUMMER ROSE SHOW

(*Continued from page* 487.)

AMATEURS' CLASSES.

Throughout this division the roses reached a high standard of excellence, and in the decorative classes great skill and taste were displayed. The Amateur Champion Trophy was won by Mr. R. C. Turnbull, who staged thirty-six exhibition blooms, which were characterised by good typical form, large size and fresh colouring. The very best were J. G. Glassford, Lady Barham, Mabel Drew, W. H. Walsh, Captain Kilbee Stuart and A. Hartmann. Captain N. J. Thorpe was a good second in this large class, and his most prominent varieties were Edith Cavell, Lemon Pillar, Lady Barham, Gladys Holland and J. G. Glassford.

The class for twenty-four blooms was of equally high merit, and the same competitors as in the larger were successful. Mr. Turnbull included W. H. Walsh, Souv. de Claudius Pernet, St. Helena and Lady Inchquin; while Captain Thorpe had lovely blooms of Mrs. George Norwood and Mrs. R. D. McClure.

Mr. J. E. Rayer, who with a magnificent bloom of Mme. Jules Gravereaux won the silver-gilt medal and the Boyes Cup, was first with twelve distinct exhibition roses. He also included Mrs. Henry Morse, Mrs. H. R. Darlington and Mrs. F. Hobbs. Mr. F. H. Fieldgate was second. Mrs. Henry Balfour was the most successful among growers of fewer than 1,000 plants, and her very best were Molly Bligh, Mrs. Charles Russell and Nellie Parker.

The best two baskets of exhibition roses were shown by Mr. C. C. Williamson, who included the lovely tea rose W. R. Smith. Showing Mrs. C. Lamplough, Mr. E. H. Rigg was first with one basket.

The extra classes of exhibition roses induced very good competition. The chief first prize winners were Mr. H. H. Claydon, Mr. E. H. Rigg, Mr. Rogers and Mr. J. F. Owen. In the classes for amateurs who have no paid assistance Mr. W. G. Bawbridge won the Nicholson Cup, and Mr. E. W. Edwards won the Elisha Hicks Cup, both with very good specimens. Other first prize winners in this section were Mr. G. J. Ingold, Mr. R. de V. Pryor and Mr. W. J. Panckridge, who all staged really splendid blooms.

Tea roses are always well shown by amateurs at Regent's Park, and this year the Rev. F. R. Burnside won the trophy with delicately beautiful blooms of such splendid sorts as S. de Pierre Notting, W. R. Smith, Mrs. Hubert Turner and Innocenté Pirola. Captain J. Thorpe was a good second with White Maman Cochet, W. R. Smith and S. de Pierre Notting. Mr. W. E. Moore had the best nine varieties, and with very good specimens Mr. Rogers was first with six blooms.

One wonders how often Mr. H. R. Darlington has won the first prize with a representative group of roses, but he has rarely done so with a better collection than this year. His very best vases were of Mme. Edouard Herriot, Mme. Butterfly and Los Angeles of the dwarfs, and such cluster varieties as Milkmaid Gardenia and Moonlight. Mr. G. Marriott was a good second, and he included General McArthur, Old Gold and Louise Baldwin. Mrs. E. M. Wrightman was first in the smaller group class, and her prominent varieties were K. of K., Independence Day and Mrs. Henry Bowles. Dr. M. Lacroze with a novel and effective arrangement, won the Dixon Davies Cup.

Mr. Gordon Baker and Mr. F. C. Wiseman were the chief prize winners with baskets of decorative roses; while Mr. A. C. Turner, who included splendid vases of Irish Fireflame, General McArthur and Killarney won the Mattock Cup. In this section Mr. F. C. Slaughter was deservedly very successful.

There were so many good exhibits in the class for three blooms each of eight varieties that the judges awarded an additional prize. The first prize set included excellent trios of Bessie Chaplin, Lord Charlmont, Columbia and Mme. J. Zouche.

THE ARTISTIC CLASSES FOR AMATEURS.

In this section some classes were well contested. However, in many cases these dinner-table decorations were somewhat overdone. On the whole the blooms were quite good.

Mrs. Courtney Page was first for a table decoration. In this case Mme. Butterfly was employed. Miss E. Griffith was second with Golden Ophelia. This table was much too crowded.

Mrs. Courtney Page was also first in the class for a dinner-table decoration, in which the flowers had to be grown and staged by the exhibitor without assistance. The Nickerson prize (a piece of plate) goes with the first prize in this class. Mrs. Courtney Page employed roses Emma Wright and Sunstar. Mrs. Oakley Fisher was second. Her arrangement was somewhat novel. The roses—Irish Elegance, Old Gold and Irish Fireflame—were placed in cut glass vases and the vases were linked up with cut glass chains. In our opinion this exhibit was superior to that which received the first prize.

Mrs. A. D. Ruff had rather an original table decoration, but one not worthy of emulation. This exhibit was awarded first prize. Mrs. H. Barton was second, but her table was too crowded. Mrs. Courtney Page was third.

For a bowl of mixed cut roses Mrs. Courtney Page was first and Mrs. H. Barton second. Mrs. Courtney Page's basket was quite good.

For a bowl of cut blooms Miss M. E. West was first with Mme. Butterfly and Mrs. Colston Hale was second with rose Mrs. Oakley Fisher. We considered the latter bowl better than that awarded first prize.

For a vase of cut blooms Miss M. E. West was first with Mme. Butterfly. Mrs. Courtney Page was second, but the vase was missing.

In the class for lady amateurs who had never won a prize Mrs. F. Peters Wood was first with a bowl of Ophelia, and Mrs. G. M. Kessell was second.

In the open artistic classes Mr. L. R. May was first with Ophelia. The table was far too crowded. Miss M. Foden was second.

For a bowl of cut roses Miss M. Foden was first with Mme. Butterfly and Mrs. C. A. Tisdall was second with Ophelia.

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SUMMER TREATMENT OF CLIMBING PLANTS AND ROSES.

THE beauty of these, also flowering shrubs, may be enhanced or marred by the treatment they receive during the summer months. Those of rapid growth and trailing habit require much more attention than others of a bushy habit. Clematises, when grown on a large scale, require a lot of attention as regards training, especially with a view to the even disposal of the young shoots so that the latter will not form a dense mass near the top of the specimen. All flowers that have faded should be removed, cutting away the flower stems close to the harder wood. The honeysuckles require equally close attention. While the shoots are young it is not a difficult matter to disentangle them and tie them in thinly, but when they are hard and set in winter, scarcely anything can be done to them then in this direction.

Solanum jasminoides is a favourite outdoor climber in the southern counties, and much of the effectiveness of the plant is in its training. All the young flowering shoots should be allowed to depend loosely and gracefully, several feet in length, from the harder wood—the only part of the plant that should be made secure to the wall or other form of support. Many lateral shoots of the vines used as outside climbers should be cut off, as, late in the year, they are rarely ornamental and often become an eyesore through mildew.

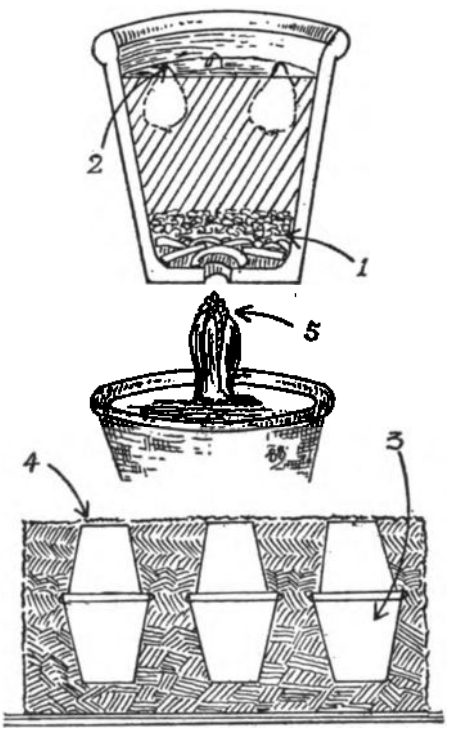
From climbing roses, spent flower trusses and also all old wood causing overcrowding should be cut. The former should be cut from flowering shrubs, including rhododendrons.

PRIMULAS AND CINERARIAS.

Of these two kinds of plants the primula will withstand most heat without harmful effects, but neither require much heat during the summer months. The cultivator who possesses a movable frame and can turn it to face due north has an advantage over the one who is obliged to grow his young plants in a permanently fixed frame facing due south. In the latter case it is found necessary to shade during a great part of the day, and the semi-darkness has the effect of weakening the growth. The plants in the frame with a north aspect, consequently, receive more light, less sun, and so grow more robustly. These are items of general management, and very important ones, too. Now we come to the consideration of daily treatment. In the case of the frame facing south, shading is a daily matter unless a permanent shade is applied. I believe in such: one made of whiting and milk—better still, buttermilk. The permanent shade should be light, sufficient for ordinary weather, then extra covering material can be put on in very hot weather. In no case should any plants be allowed to become potbound, but be re-potted always in good time, as premature flowering is then avoided. Fibrous loam and leaf-soil in equal proportions, with a 7in. potful of old mortar rubble and a 3in. potful of bone-meal to each bushel of the above combined parts, will prove a good general compost. Pot the plants fairly low down, then they will not require support; do not pot too firmly, water very carefully, and do not be afraid to admit plenty of air night and day.

POTTING EARLY BULBS.

The work of cultivating early bulbs in pots comes fresh to us every year; and every year there are new cultivators.



The Roman hyacinth and early-flowering narcissi are not difficult to grow if three or four points of some importance are attended to. These bulbs thrive in a light compost, and one of the chief ingredients should be rotted leaf-soil; to this add good mellow loam and some coarse sand. For both hyacinths and narcissi similar treatment as regards potting and after-management will do. If we take a 6in. pot we may place, at least, five bulbs of hyacinths and four of narcissi, respectively, in each one. No. 1 shows sound drainage; No. 2, the right position of the bulbs when potted; No. 3 shows the pots under ashes in a cool position outside; and No. 4, empty inverted flower pots put on to prevent the ashes interfering with the new growth and flower stems; No. 5 shows the stage when the plants should be moved from the ashes to a cold frame, there to be gradually exposed to full light and air.

VEGETABLES TO SOW NOW.

The advantages of raising vegetables from seeds sown in July had not been generally realised till the last few years brought to light the work of expert cultivators in this respect. But what the latter have done, nearly everyone who possesses a garden can do now. There are some exceptions, such as soils and situations, but readers may soon decide as to whether serious difficulties stand in the way or not. The main principles to follow are sowing the seeds where the resultant plants are to remain till fit to be used, and sowing the right kinds and varieties. Moderately thick sowing is right; the young plants must be thinned out at an early stage of growth and before they weaken those to be retained. The work of thinning should be carefully done and the retained seedlings forthwith watered if the soil is at all dry. Early-maturing varieties of the kinds selected should be sown. All kinds of soil, not previously manured this year, will require some well rotted manure—the light soils most, the heavy ones least.

RIPENING MELONS.

Melons require very careful treatment to bring them to a perfect finish, as really satisfactory fruits cannot be procured on plants lacking in health. From the seedling stage the plants should be grown in a firm bed of soil, the latter being on the heavy rather than on the light side. Up to the stage when the fruits begin to ripen—to crack around the foot-stalk, and to give off that delightful aroma—the plants will require plenty of tepid water, diluted liquid manure and a very moist atmosphere, especially at closing time. Daily syringings of the leaves will be beneficial also. A circle, about 6ins. across, around the stem of each plant will need to be kept free from direct watering; some water will drop on the soil within this circle from the plants when the latter are syringed, but will quickly dry up. The quantity of water should be lessened when the first stage of ripening is noticed in the fruit, and it will be beneficial to leave the top ventilators open a little all night. Each fruit should be supported by a net, in houses, and by inverted flower-pots in frames.

GEORGE GARNER.

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CORRESPONDENCE

WISLEY GARDENS.

SIR,—The article and the Editorial in your issue of June 28th on the Wisley Gardens were very reassuring, and all the more so because you gave value and proportion to your praise by some discerning yet kindly criticism. Two years ago some of us were somewhat alarmed at the contrast between the rapid recovery, after inevitable war neglect, shown by many private gardens and the evidences of the halting recuperation which met us at Wisley. That, you show, is now of the past or nearly so; and with so large an area of varied cultivations it is no wonder that a thorough overhauling and replanting of the rock garden has not yet been reached.

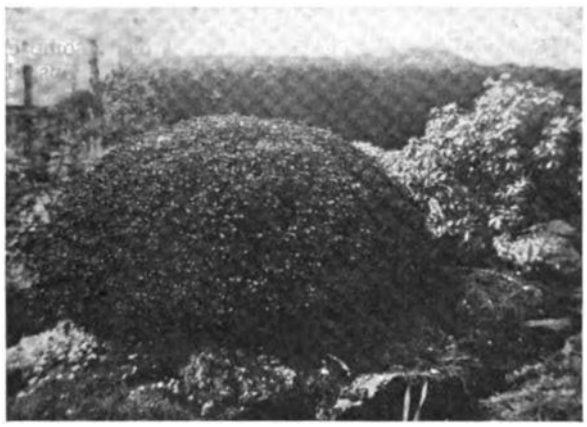
But the most valuable of your remarks are those on what the chief purposes of Wisley are, or should be. It is all-important that Wisley should aid the Fellows of the Royal Horticultural Society in the choice, grouping, cultivation and situation of plants, shrubs and trees by exhibiting all the most choice, and especially the most recently introduced varieties of leading species. It should be a well ordered and well sustained living museum where valuable notes can readily be taken. It is also important that by a due development of the propagating department it should be in a position to supply Fellows with struck or seedling examples, especially of desirable yet little-known and popularised species and varieties, the demand for which is as yet too small to induce nurserymen to stock and offer them. A well developed section on these lines would aid both amateur gardeners and nurserymen. Those of the former class who like to try a new thing, who are ready to test such introductions as promise to succeed in their soil and circumstances, would thus know where they were likely to get what they want, either by free distribution or, as I suggest, by reasonable payment. Such plants would be seen and appreciated by their visitors, who would ask their nurseryman for them and so lead to their being put on the market. As you rightly say, "Wisley should be the great distributing centre for all new importations." That eminent position it has not yet reached. But it quite well may do so, and, indeed, I see signs that it is being aimed at. I found a much better selection of rarer sorts of plants in this year's distribution list. I picked out a little batch, and not only were they sent to me, but almost every example was of adequate size and showed cultural care. I feel that Wisley is on the up grade, that its committee and director are full of purpose of their own, and are eager to receive suggestion where it is as sound in itself and appreciatively yet diffidently offered as it was in your recent issue.—H. AVRAY TIPPING.

FAILURE OF THE SCOTCH LABURNUM.

SIR,—Some of your correspondents during May or early June remarked upon the wealth of bloom produced by the laburnums, hawthorns and flowering crabs this year. I agree with that entirely, but noted one striking exception in a common, usually free-flowering tree. There are many old trees of the Scotch laburnum (Laburnum alpinum) in the grounds of the Chelsea Hospital, which are in bloom on the occasion of the great Flower Show there at the end of May in early seasons, but otherwise are only in bud at that time. This year I could see only one tree that bore half a crop or less of still unopened flowers. In order to determine whether the trees at Chelsea were exceptional or not, I kept an eye upon all the other trees known to me in different gardens, and noted only one bearing a full crop of flowers. L. alpinum is easily recognised by its larger, more shiny leaves, longer racemes and later-flowering habit than the common laburnum.—J. FRASER.

GENISTA HISPANICA.

SIR,—This, the Spanish gorse, is flaming at present (June 18th) in my rockery at Duns. It was planted a few years ago and has never been clipped, as one would think judging from the photograph which I am sending. The whole shrub is so densely covered with golden yellow blossom that not a twig or spine can be seen. It is hardy and most attractive. When the sun was shining to-day I thought I had never seen a more beautiful shrub.—(Dr.) J. MACWATT.



THE SPANISH GORSE. GENISTA HISPANICA.

A WONDERFUL PROFUSION OF SAXIFRAGA HYPNOIDES.

THE SUMMER ROSE SHOW.

SIR,—The beautiful Show of the National Rose Society at the Botanic Gardens on June 27th will long be remembered. The genial weather after heavy rains produced blooms of the highest quality, and on the whole their arrangement was successful. There were so many fine blooms and such a number of varieties that it would be difficult to differentiate them one from the other, so I simply name a few of the newer and newest varieties that appealed to my taste, and hope others may do the same, as reporters cannot quite look at the flowers from the point of the amateur who thinks even more of his garden plot than the exhibition tent. First of all, then, it seemed to me that Mabel Morse was by far the most satisfactory of the yellows, entirely superseding Golden Emblem.

Lady Roundway, a rich orange, was another rose of striking beauty this fine season. Ruth, with its lovely shadings of rose and soft orange, was also most desirable in my eyes.

Red Roses.—Hortulanus Budde seemed more brilliant and satisfying as a *red* bedding rose than ever, and the newer Saltaire, so deep in colour and so very fragrant, seems a real advance to the ideal crimson garden rose Mrs. H. Winnitt (red) also struck my fancy *very* decidedly. But it was when we came to the white roses that the giant Everest, the fragrant Marcia Stanhope, and Snowdrift with its soft shell-like petals, all made appeal to one's sense of beauty and purity that could not be resisted! Who will choose between them till we have seen them grow?

I should again wish to make my protest against the excessive use of one or two well known roses in the competition for table decorations. One might be tempted to think Irish Elegance, Fireflame and Mme. Butterfly to be the only roses in existence. The sameness year by year is extreme, and judges should strike out a line for themselves and say that such and such a flower after many prizes should be handicapped. As it is, it is simply a premium on one or two exhibitors and their roses, and deadly dull.—AN OUTSIDER.

SAXIFRAGA HYPNOIDES AS AN EDGING PLANT.

SIR,—The enclosed photograph, which will probably be of interest to your readers, shows a border of Saxifraga hypnoides growing in the garden of Mr. Van Guisen of Birkenhead.

I do not think it is generally known that Saxifraga hypnoides makes such a beautiful edging for drives, walks, etc.—WILLIAM PEMBERTON.

BLUE FLOWERS.

SIR,—I find that the plant referred to by me on page 483 as Cynoglossum appeninum is now scientifically known as Solenanthus apenninus.—HERBERT MAXWELL.

THE SHOWING OF OUT OF-SEASON VEGETABLES.

SIR,—We are now in the throes of horticultural exhibitions, and there will be staged vegetables the chief features of which will be their abnormal size. Others, like parsnips, celery and leeks will appear at the summer shows also—out of season, and worthless, at such a period, for consumption. The cook has no use for them thus early, and no self-respecting chef would presume to include them in his menu.

If we ask those responsible for compiling schedules for this season of the year why vegetables which have no real value from a culinary point of view before late autumn or winter are considered, we are told that it has always been the practice to include them among vegetables for competition. In other words, societies are fettered by

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tradition and are afraid of deviating from a customary rule, and, as a consequence, the judge is often led to give decisions for the largest vegetables, simply because the saving clause, "fit for table," has been purposely or inadvertently omitted. We have seen this exemplified more than once in the case of vegetable marrows. The worst feature, perhaps, about the showing of immature and out of season vegetables is that, in order to obtain the requisite number of roots, many have often to be lifted before a selection can be made. Anyone who has had experience in providing material in the classes for the vegetables mentioned knows very well that promising roots are frequently disturbed, all to no purpose. Is it not time that some modification should be made in the schedules among various societies? We have been witness of much waste in regard to the vegetables specified that are admitted to be of little or no service in the kitchen until cold or frosty weather has made them sweet and tender. It seems to me that the cook, and not the gardener alone, would be better able to appraise the worth of many vegetables staged at exhibitions; but so long as prizes are offered, no matter whether the show is in August or November, competitors will be forthcoming. We have seen rows of parsnips and leeks upset "to find the best," and the value of the prizes did not compensate the grower for his losses. Judges could "a tale unfold" if they were free to do so; but they have a schedule placed in their hands and are bound by conditions contained therein.

Some chrysanthemum societies are now seeing the wisdom of encouraging competition for vegetables at their November exhibitions. This is a step in the right direction. We are frequently meeting with those who, after some years of exhibiting, tell us that "the game is hardly worth the candle." So far as showing out-of-season vegetables we quite agree.—W. LINDERS LEA.

ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Sweet Peas Diseased (L. H. C., Ross-on-Wye).—The peas are affected by the mildew Erysiphe Martii. There has been nothing wrong with the mould or compost. It is possible that the sticks may have been the means of conveying something from the rubbish referred to, to the plants, but the most likely cause is drought. Apply water copiously two or three times and forthwith mulch heavily with any kind of litter or light material. To prevent undue strain on the plants cut the flowers frequently.

Plants to Flower in the Open from May to October (S. A. E.).—The following will be found suitable for the purpose in view: Achillea The Pearl, Anemone japonica, asters in variety, Campanula latifolia, Centaurea montana alba, C. m. rubra, Chrysanthemum maximum, Coreopsis grandiflora, doronicum, Gaillardia grandiflora, gypsophila, Helenium superbum, Iris germanica, I. sibirica, Lychnis chalcedonica, phloxes in variety, pyrethrums (both single and double), Scabiosa caucasica and Statice latifolia. Seeds should be sown as soon as they are ripe. Great care is needed, or there may be much disappointment. An inexperienced amateur would be wise to buy seedlings. More success may be obtained in the case of Michaelmas daisies.

Delphiniums and Lychnis Unsatisfactory (F. A. B., Glos.).—The leaves are attacked by a rust fungus, the result of cold, wet weather. All affected foliage should be collected and burned forthwith, then there may not be any such trouble with the second crop of delphinium blooms. Spraying with a solution of Bordeaux mixture would have been beneficial earlier in the season, but is of little use now.

Violas Diseased (W. M. F.).—The wireworm is not the cause of the death of the violas, but the fungus Æcidium violæ. Possibly the disease may have been conveyed to the ground in the leaf-soil so freely used. Next year select a new quarter for the violas and apply 6 oz. of lime per square yard to the soil this autumn at digging time. Practically nothing very beneficial can be done to the border and plants now, beyond applying a surface mulch of loam and wood ashes, a peck of the latter to five of the loam.

TREES AND SHRUBS.

Roses and Clematises for an Archway (J. E. H.).—Of clematises, Jackmanii would be suitable, or Lady Northcliffe or Nellie Moser. Three good roses for such a position are American Pillar, Blush Rambler and Seagull. An alternative set might consist of Alberic Barbier, Hiawatha and Sanders' White. Rosa Moyesii is a wonderful plant in flower and fruit and would be worth trying, but it does not succeed in all gardens.

Shrubs as a Screen for Garden Seat (J. E. H.).—If you could start with a good sized plant of Rhododendron yunnanense or R. Augustinii they would make a good show. Failing these, the new Dipelta floribunda is very showy, so is Viburnum plicatum.

Treatment of Daphne Cneorum (H. N., Guildford).—The behaviour of Daphne Cneorum is puzzling. In some gardens it grows and flowers profusely without any special attention. Another garden with apparently similar conditions and every attention the plants fail. Do not cut back the straggly stems, but place stones on them, with a little loam and leaf-mould between. If this is done each year the plants eventually grow on low mounds, the stones conserving moisture about them, which the daphne roots like.

Dying Back of Trees and Shrubs (H. J. B.).—Except in the case of tall trees being actually struck by lightning, we have seen no evidence to trace the dying back of branches or the collapse of entire trees to lightning or electric discharge. It may be due to one or other of a variety of causes. Failing disease, of which our correspondent says there is no evidence in his case, injury to the cells may arrest the flow of sap to a twig or branch. We feel sure the death of the small standard quince is due to the plant being grafted, and the union between the stock and scion has failed. Silver-leaf disease is very widespread among trees and shrubs and not easy to trace in the early stages. Xanthoceras sorbifolia is very subject to coral spot. The trouble may not be apparent at first, but will show later when the disease develops. It must always be borne in mind that many trees and shrubs in our gardens are the inhabitants of very different climatic conditions and soils. That all should thrive in perfect health in entirely different surroundings is impossible. Checks from various causes weaken the constitution, and failure in some cases follows.

FRUITS UNDER GLASS.

Melon Plants Not Flowering (I. N.).—Plants raised from seeds saved from sound fruits should bear both male and female flowers freely and more surely than those raised from layers or cuttings. Probably the plants have been allowed to grow luxuriantly in a too loose soil, without any stopping. The main stem should be stopped when at a length of 2ft. Side shoots will grow and, when the latter are stopped, sub-laterals, and on the latter, respectively, the fruits should appear, also plenty of male blossoms.

Nectarine Stone Splitting ("Regular Reader").—This defect is constitutional in the case of a few varieties of peaches and nectarines. With really good cultivation it may be reduced to a minimum. As the young fruits are setting and beginning their first swelling, care should be taken to avoid any check being given through chills—extremes of temperature. The chief point to observe, however, is the due liming of the soil every autumn. A light sprinkling of lime or a peck of old mortar rubble per tree being very beneficial. Also, do not overcrop.

FRUIT GARDEN.

Young Apples Falling (J. B. L., Surrey).—If our correspondent will cut open some of the affected fruits she will, no doubt, find the cause of the trouble inside. The grubs were found in the specimens sent. These are the maggots of the weevil Anthonomous pomorum. The weevil punctures the unopened flower bud and lays one egg in each hole, but attacks many buds; the grubs enter the young fruits at various points and eat their way to the centre. It is often called Tinea corticella. Once inside the fruit the latter is ruined. The only preventives we know of are spraying and the treatment generally as used against the codlin moth.

Strawberries Mildewed (J. F. Y., Suffolk).—The fruits were attacked by mildew while very small; it interfered with the normal swelling to a great extent, but its deadly effect was not observed till the fruits softened for ripening, then they began to rot. In many districts there has been similar results this year. In future, place the litter to the plants at an early stage—before the flowers open—and use a light, clean material.

Apples and Cherries Unsatisfactory (T. B., Galashiels).—The apple branches are affected by the fungus Fusicladium dentriticum. All foliage that falls should be burned forthwith, and after the leaves are all off spray with the Bordeaux mixture, also in spring before the buds open. The cherries are not diseased, but the soil lacks lime; the latter should be applied at the rate of 1 peck per tree in November, spread evenly on the surface and lightly forked in.

Gooseberry Mildew (D. L.).—The fruits sent are affected by the gooseberry mildew to a serious extent. We strongly advise you to uproot the bushes and burn them. Early in the autumn apply 8 oz. of gas lime per square yard when the soil is dug, and leave the latter in a rough state throughout the winter, cropping again next spring, but not with gooseberries. Plant young, healthy plants in another quarter of the garden.

About Cherries, Pears and Madonna Lilies (D. C.).—The cherry trees are undoubtedly suffering from over-dryness at the roots. The soil, too, may lack lime. The latter should be applied in the autumn, the water and a good surface mulch now. The pears are attacked by the fungus Fusicladium dentriticum. Spray with Bordeaux mixture when the leaves fall and in spring several weeks before the buds open. The Madonna lilies are affected by the fungus Ovularia elliptica, which spreads very quickly and soon destroys leaves and stems. We are not able to give a certain remedy, as, so far, none is known. The safest plan is to lift the bulbs, wash them, dust on flowers of sulphur and transplant quickly into another part of the garden.

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About Gooseberry Leaves and Potato Flowers (W. G. S.).—We are not able to find any disease to account for the spotted appearance of the gooseberry leaves; but if our correspondent poured liquid manure on the bushes a few weeks ago it may be the cause. Syringe the bushes well with clear water every fine evening for a week or so. The potato flower buds of some varieties do not develop, but fall off every year. Possibly they have fallen through sudden dryness of the soil and great heat combined. The fact that they have dropped will not have any effect on the tubers.

MISCELLANEOUS.

Onions Unsatisfactory (F. H., Wells, Som.).—The base of the plant has been pierced by a maggot, the larva of a grey-coloured fly. The grub cannot be killed without destroying the plant; indeed, the grubs do kill many plants, but a light sprinkling of salt on the soil and a free one of soot weekly will help to preserve the plants now free. The others should be pulled up and burned, together with old onions left in the store or shed, the covering material, dust, etc. Wood ashes containing pieces of charcoal should be scattered on the soil between the rows. The fly will lay its eggs on the charcoal portions and the larva will perish as it will not have food available.

Pond Water Muddy (H. S. B., Bucks.).—As long as our correspondent retains ducks in the pond the water will remain muddy. This would be the case even if the bottom and sides were of cement and not of clay. Ducks always stir up water and discolour it. Where there is not, actually, any mud, they leave the pond with wet feet and, returning, convey mud to the water in this way.

Names of Plants.—(F. M. D.).—Rose Mme. Alfred Carrière.——(W. R. J.).—1, Common China rose; 2, Crimson Damask rose.——(H. M.).—Limnanthes Douglasii.——(G. J.).—1, Olearia Gunnii; 2, Pernettya mucronata. —— (F. A. S.). — Bulbinella Hookeri.

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GARDENING OF THE WEEK

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Cabbage.—Early cabbages are much appreciated and to make sure that plants will be ready for autumn planting, the seed should be sown now. The following varieties will be found to give satisfaction and should come in for use from April onwards almost in the order in which the names are given. Flower of Spring, Harbinger, Little Gem, Sutton's Main Crop and Tender and True.

Cauliflower.—The variety Walcheren, if planted on ground from which early potatoes have been cleared, should come in for cutting in October. Level down and rake the ground before planting, and well water the plants in the evenings should the weather be dry. Spent crops should be cleared from the ground.

Lettuce. — Seedlings getting crowded should be thinned out and the thinnings or plantlets set out on other borders. Should dry weather prevail the transplanted seedlings should be sprayed each evening until re-established.

Parsley.—This vegetable requires a long season of growth and those who wish to have a good supply for winter should sow seed now. Borders from which early potatoes have been cleared would be a suitable place for the crop, but on no account choose poor soil for parsley. The following are tried and well known varieties: Champion Moss Curled, Methven's Green Gem and Myatt's Garnishing.

THE FLOWER GARDEN.

Carnations.—The season is fast approaching, which we might call a second spring for the gardener, as not only the layering of carnations should be taken in hand, but many cuttings also require to be inserted. Layering, although simple enough, requires to be done carefully and with judgment on the part of the operator.

Cuttings.—A few geraniums from stock plants should be inserted either in boxes or pots filled with moderately sandy soil made firm. When the cuttings are inserted they should be well watered, then set in a cold frame, very little water should be given afterwards—except when the weather is exceptionally dry—until the cuttings show signs of growth. Lavender and Nepeta Mussini cuttings should be set in sandy soil in frames, after the cuttings are thoroughly watered the frame lights should be closed, and the cuttings occasionally sprayed, and shaded at all times from bright sunshine for a few weeks.

Gladioli are handsome plants when in flower and should be securely staked now—if not already done—so that the heavy flower heads will not get broken down.

Delphiniums.—Seedlings should be set out in the open border in lines 1ft. apart and 6ins. allowed between each plant in the lines.

East Lothian Stocks.—Those who wish an early display from these choice and charming stocks should sow seed now, pricking the seedlings into boxes, or cold frames, as soon as they are fit to handle.

THE HARDY FRUIT GARDEN.

Gooseberries.—This year the bushes are bearing a good crop of berries and now the ripening stage is fast approaching nets should therefore be spread over, and where no permanent framework exists, it is quite easy to set up poles and stretch strong string from pole to pole over which the nets can be placed.

FRUITS UNDER GLASS.

Apples.—Trees in the orchard house with ripening fruits, such as Red Astrachan and Mr. Gladstone, likewise Cullin's Golden Gage and Czar Plums should be allowed plenty of air.

Vines.—In the late house grapes should now be colouring and increased ventilation should be given. Still continue to damp stagings and pathways on very bright days.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Cabbage.—From now till about the middle of August seeds may be sown with a view of producing an indispensable crop next spring. It is advisable to make two or three sowings, the principal one being made early next month. At present the variety April and Ellam's Early should be chosen, and the maincrop may consist of these kinds, with Harbinger, Wheeler's Imperial and Early Offenham. It is a good plan to sow the seeds broadcast, but for the sake of cleanliness lines 1ft. apart are best if the seeds are sown thinly. If the soil is dry, give the drills a good soaking of water a few hours prior to sowing the seeds.

Parsley.—A constant supply of parsley is needed in most gardens, and for winter use a few lines of seeds should be sown. It is most convenient if the crop is placed near a path, so that the stalks may easily be picked without getting on the soil when it is wet.

Spinach.—A good breadth of the prickly-seeded kind should be sown in lines 12ins. to 15ins. apart, and when large enough thin the seedlings to 6ins. A site ought to be chosen which will not be very wet during the winter months, and the soil should be kept free from weeds, the hoe being used occasionally whenever the ground is sufficiently dry.

THE FLOWER GARDEN.

Heucheras.—These are charming plants for both the border and rock garden, and they are readily raised from seeds which may be sown at the present time. Named varieties, however, are increased by cuttings; the growths are severed from the parent plant, placed in lines in a cold frame, and the lights kept on till the cuttings are rooted. Sandy soil is best, and a little shade will be needed for a week or ten days. When rooted the lights should be removed and the plants kept well supplied with water. The old plants may be destroyed, as young examples produce the finest flowers.

Campanulas.—This is a most beautiful race of plants, the majority of which are ideal for the rock garden. Choice and special varieties are increased by division and cuttings, but many of the species can be successfully raised from seeds. These may be sown now in pans containing light soil, and when the seedlings are large enough prick them off in pans or boxes. Give the protection of a cold frame during the winter and transplant in their flowering quarters next spring.

Budding.—The budding of roses should be carried out during the present month and, judging from the weather we have experienced, the bark will run easily and the operation will be successful. A number of other subjects, such as prunus, thorns, etc., may also be budded.

THE HARDY FRUIT GARDEN.

Summer Pruning.—This is a much debated subject that now calls for consideration, and if moderation is the rule no doubt much good is done. Trees on walls and pergolas should be dealt with first, and later trees a few weeks hence. The leading or terminal shoots are allowed to go unchecked, but the lateral growths are cut back to four or five leaves from their base.

Figs.—Trees growing at the base of walls must be examined occasionally, and if the soil is at all dry a thorough soaking of water should be afforded. Tie in any shoots that need it, and other growths should be stopped at the second leaf. Prevent overcrowding by removing a few of the shoots at their base.

Loganberries —This plant rarely fails to produce a good crop, and for this reason it should be represented in every garden. The new shoots are growing freely, and they should be tied loosely to the wires to prevent them being injured. Cut out all weaklings and only retain enough new growths to take the place of the old ones later on. Superfluous suckers of raspberries can also be removed. T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

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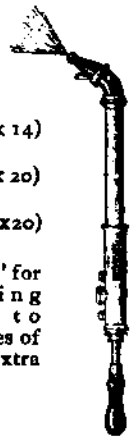

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Gloxinias, as they pass out of flower, should be stood out in cold frames and kept supplied with water until the foliage shows signs of dying down. At this stage water should be withheld, gradually drying the plants off and then storing them in a warm dry building. Plants raised from seed early in the year should be potted on as they require it, growing them under fairly cool conditions. Plants raised from seed this season should prove very useful towards the end of summer. Begonia mite should be guarded against by the use of the sulphur vaporiser.

Begonias. — Tuberous-rooted varieties raised from seed this season and planted out in cold frames should now have made quite good plants. Some of them should be lifted and placed in pots, as such plants prove very useful towards the end of summer, making a good succession to the earlier batches grown from dry tubers.

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Calceolaria violacea.—This distinct species is very useful for conservatory decoration, and young plants that have finished flowering, if potted on into 8in. pots, will make fine specimens for next year. They should be grown in a perfectly cool greenhouse, or may be stood outdoors where they can get some shade during part of the day. Young plants rooted during the spring, if placed in 6in. pots about this time, will make good plants for the stages next year. This calceolaria makes a fine specimen where it can be planted out in a cool conservatory.

Amphicome Emodi is a beautiful plant which is by no means common. It is easily propagated at this time by means of cuttings, which root readily in a cool greenhouse, standing the cutting pots under a propagating glass. This plant only requires cool greenhouse treatment at all stages of its cultivation; and good flowering specimens can be produced in 6in. pots.

Amphicome arguta, which is more or less hardy in the south, may, in the cooler parts of the country, be grown for the greenhouse. It has pretty pale pink flowers. Although it is by no means such a choice plant as the other species, it is easily propagated either by means of seed or cuttings.

Isoloma hirsutum is very useful for the greenhouse, as it can be had in flower more or less all the year round. It is increased by means of the scaly rhizomes, or even by means of cuttings, which root readily at any time in a warm propagating case. If grown on in 6in. pots in an intermediate house it makes fine plants for the stages. The individual plants remain in flower for several months. If potted on into 8in. pots, it makes specimens 3ft. high, which are very useful for standing in the beds. This plant succeeds quite well in any good potting compost.

Fabiana imbricata.—This pretty shrub, although hardy in the south and west, requires the protection of a cool house in the colder parts of the country. It makes an excellent pot plant, and forms a large specimen if it can be planted out in a cool conservatory. It is easily propagated at this time by means of cuttings inserted in pots containing sandy soil and stood under a bell-glass in a cool greenhouse or cold frame. Its successful cultivation presents no difficulty, as it grows freely in any good potting compost.

Dendromecon rigidum is a beautiful yellow poppywort from California. Although more or less hardy in the south and west, it should be much more generally cultivated in the cool conservatory, where it should be planted out in a light sunny position in a well drained bed. This plant is propagated by means of cuttings, using the short twiggy shoots for this purpose. Dibble them in pots containing sandy soil and stand them under a bell glass in a cool house. This is by no means an easy plant to propagate. J. COUTTS.

Royal Botanic Gardens, Kew.

HORTICULTURAL COLLEGE, SWANLEY

GARDEN PARTY FOR EMPIRE VISITORS.

A NUMBER of visitors from the Dominions were invited to the Horticultural College, Swanley, for Thursday afternoon, July 3rd. Those who came were received by Kathleen Viscountess Falmouth, chairman of the Governors of the College, by Dr. Barratt, the Principal, and by other Governors. Unfortunately, there was a good deal of rain during the afternoon, so that the visitors were unable to spend as much time inspecting the college grounds as would have been possible on a fine day. Just now the garden is at its best, the lawns and flower borders are particularly attractive, and the recent wet weather has tended to keep up the fresh appearance of the decorative part of the grounds.

The visitors were entertained to tea in the main assembly hall of the college, and afterwards visited the biological, chemical and botanical laboratories adjoining. The chemical laboratory was enlarged recently, and is now a good-sized, light and airy room, in which a class of about thirty students can work. Increased accommodation for study in the sciences allied to gardening has been necessary since the college started the preparation of students for the London degree of B.Sc. in Horticulture. Most of the present students are still working for the college diploma in horticulture, but some have started on the degree course.

A feature in which the visitors showed much interest was the jam factory. This has been rebuilt lately to give increased space for the making of jams, jellies, pickles, preserves, etc., and for the bottling of fruit and vegetables.

Swanley College was very glad to welcome representatives from the Dominions and Colonies, some of whom had heard of the college and were already interested in the work. The college has always something of an international character; not only have a number of students from all parts of the Empire passed through and returned to their homes with a special interest and training for work on the land, but there are usually also a number of women students from other European countries. The need for more women specially trained for the various branches of work on the land is particularly felt in many parts of the Empire. For instance, in Ontario there is splendid scope for trained educated women willing to work on the land, and these are specially desired by those who have to do with the entrance of women into the Province. The markets are good, and the land needs development in this way. Institutions for giving training to women on these lines would probably serve a useful purpose if they could be established in various parts of the Empire, as was suggested by some of the visitors at Swanley on Thursday; for instance, in New Zealand or even in India. It would be a step towards the advancement of such a scheme if students from the places concerned could come over and study the principles of the subject here, so that they would be available for the staffing of their own colleges in due course. And Swanley could help in this way. It is interesting to notice also how the making of a garden and the direction of the work to carry it on often falls to the lot of the European woman in the newer Colonies, such as Kenya. Native labour is to be had, but needs detailed direction; and here some knowledge of fundamental principles on the part of the women will add much to their chances of success and contribute to the happiness of the busy white man in the outposts of the Empire.

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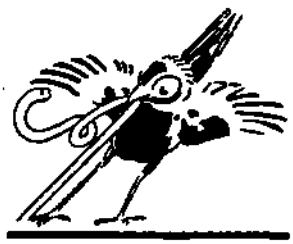

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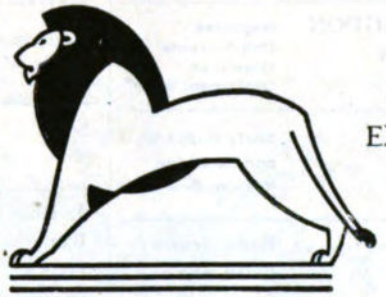

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VOL. LXXXVIII.—No. 2749. JULY 26, 1924.

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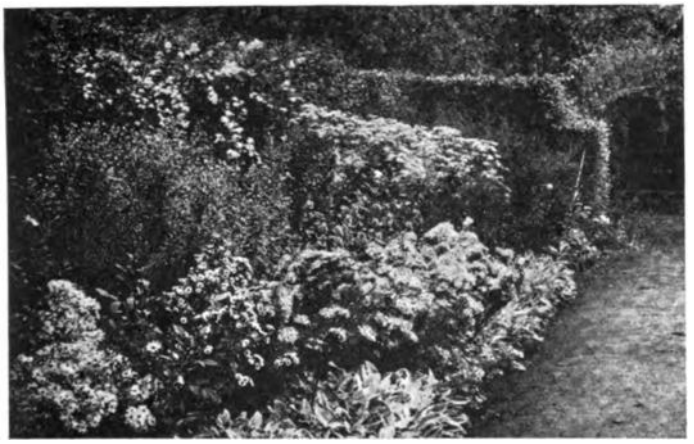

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BEAUTY

SEVERAL times I have been asked what I consider to be the most beautiful flower, and what am I to answer?

It would be as easy to answer, What is beauty? And that is a most difficult definition. In a dictionary there will be some attempt at a definition, something which expresses a combination of qualities which delights the sight or other senses; but that carries one a very little way in the understanding of beauty.

Beauty is not a matter which can be talked about in cold blood, for the very essence of beauty excites, and no two people see beauty to the same degree or with the same mental excitement. We are told in the "Arabian Nights" that the Persians see beauty in a grossness of form which is merely disgusting to European eyes. Further east a twisted line, at least in plants, satisfies the senses.

> On rocky plateau with no earth to hold
> Were trees and shrubs, gnarled and very lean.
> Roots and stems stretched to grip the stone:
> Humped and bent, they writhed like a coiling snake.

In their hardness and angularity of line the Oriental is sometimes very cruel.

What is so often forgotten is that beauty rarely depends upon the individual thing which is admired: Surroundings make or mar the beauty of a plant: weather, company, the mental and psychical state of those who look are all great factors, but I stoutly maintain that beauty is always more overwhelming when seen in silence and even more so in solitude, for the power to see beauty is the most personal of our possessions and beauty is often too sanctified to be discussed. Sometimes we are carried away by our emotion and ponderously exclaim our ideas, but it almost always falls on deaf ears. What right have we to suppose that we have such abnormal powers of expression, or that we see beauty eye to eye with the rest of mankind?

I have been rather carried away by a subject on which I feel very strongly, but it is all preliminary to stating a feeling I have that people rely too much on others for stocking and designing a garden. After all, our garden is a personal thing. If we are satisfied with it and consider it beautiful, that is surely all that is necessary: nobody else will see it with the same eyes that we do. There is no truer proverb than "Too many cooks spoil the broth," and I hate proverbs, for they are mostly true and usually fly back in one's face like a boomerang. I could cap in with another: "People who live in glass houses should not throw stones," for I am constantly called upon to give advice, and often give it gratuitously, which is wrong.

Many factors are required to make a garden beautiful; a certain amount of open space, perhaps shaded, in which to be peaceful, the suitability of plants to the lie of the ground, for ground as flat as a pancake may be beautiful if carefully planted, the appropriate use of colour, some prefer it in broad patches and some in mere suggestions; but in every case the idea of beauty is personal.

There are, however, four precepts which I am bold enough to state:

Acquire a plant if you think it beautiful and never mind what other people say; that is, if beauty is your ideal—and the corollary:

Never take a plant which you have been told is beautiful and you do not agree with that opinion.

Never place a plant in position when you are in a bad temper or unwell or cold or unhappy, for your sense of beauty is frozen. Wait till you are at peace with the world.

Always trust your own judgment in your own garden. It belongs to you. If anything goes wrong it is your own fault, and you will know better the next time.

These four precepts I believe in thoroughly to-night, for I have been reading Mr. Waley's Translations of Chinese Poems and they make me feel displeased with the world in general. No doubt to-morrow I shall feel cock-a-hoop and will fall back into my old fault of giving advice, gratuitous and otherwise.

E. H. M. C.

IN OUR NEXT ISSUE WILL BE FOUND:

HARDY BRITISH FERNS.

SILVER-LEAVED ROCK PLANTS.

REPORT OF ROYAL HORTICULTURAL SOCIETY'S SHOW.

INSECTICIDES.

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THE MARKETING OF FLOWERS

BY GEORGE MONRO.

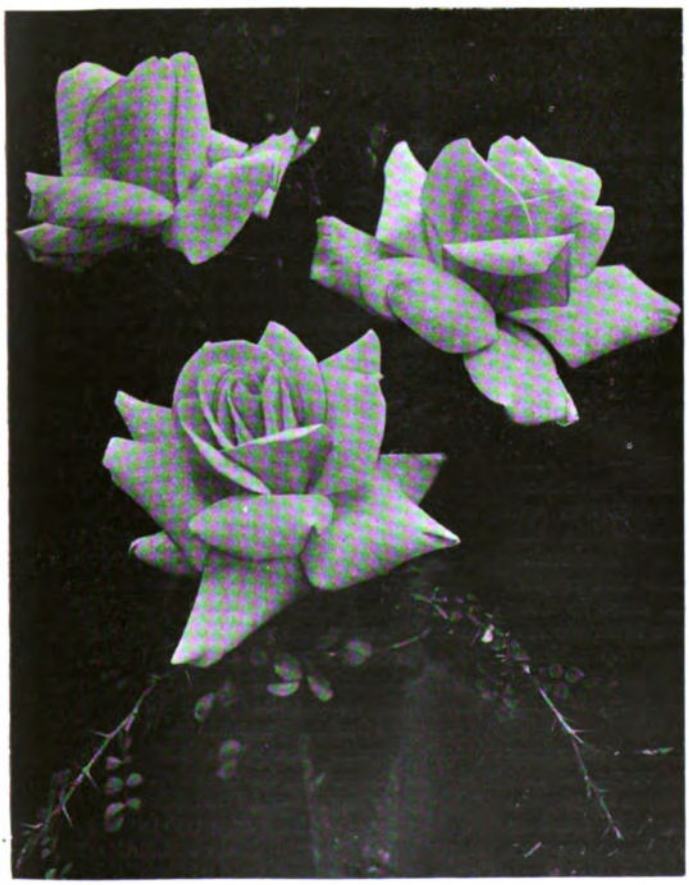
(*Continued from page* 305.)

THIS ARTICLE GIVES ONE AN IDEA OF THE ENORMOUS ADVANCE WHICH HAS BEEN MADE IN FLOWER PRODUCTION DURING THE LAST FIFTY YEARS. VARIETIES COME AND GO YEAR BY YEAR AND EACH SEEMS TO SURPASS THE OTHER IN QUALITY AND EXCELLENCE.

OF the variety of products which come into and are distributed from Covent Garden, few have shown a more rapid increase than cut flowers, the production of which in ever-increasing quantities has been brought about by the universal desire for flowers in one form or another. In my first article (in the issue of May 3rd) I dealt principally with the main sources of production, and a few points in an endeavour to account for this progress will, perhaps, be interesting.

It has, of course, been largely assisted by the improved purchasing power of the people, there being now possibly a hundred buyers able to afford a few flowers instead of—as formerly—a limited number who bought them entirely as a luxury; but this changed position would probably not have come about without the vast improvements in varieties as well as in the quality of the bloom itself. Methods of growing have also entirely changed for the better. In the early years of the forcing of roses the only heat used was the spontaneous heat from manure beds, whereas now, hot water and steam, through pipes of various sizes and in positions best suited to the variety being forced, are used. In this connection one outstanding advance has been in the forcing of carnations. Originally roots were lifted from outside, forced during the winter under heat, and the roots thrown away after they had yielded one crop. Nowadays they are expected to give continuous flowering for three years before being replaced by new plants.

Again, it is difficult to say in which species, variety or class the greater advance has taken place. In my former article I touched on the better quality, increased length of stem and improved range of colours of the present-day perpetual-flowering carnation as against those marketed up to the end of the nineteenth century; but many other flowers have made equal strides.



OPHELIA. A GREAT FAVOURITE OF THE MODERN FLORIST. ALTHOUGH CRUDE IN FORM THE OLD ROSES HAD A DIVINE FRAGRANCE.

AN ENGRAVING BY MONNOYER SHOWS THE TYPE OF ROSE POPULAR IN FRANCE ABOUT THE YEAR 1720

Primarily, without doubt, comes the rose, in which the first big step forward was the introduction of Mme. Abel Chatenay, raised in 1895 by the well known French grower Pernet-Ducher of Orleans. The next step of importance was in 1900, with the introduction of Liberty by Messrs. A. Dickson and Sons (of Hawlmark, Ireland). A steady run of improvements followed: Richmond, another red, but a little ahead of Liberty in some respects, raised in America by the E. G. Hill Co. in 1905; Ophelia, exceeded only in beauty by the better-coloured Golden Ophelia, raised by Messrs. B. R. Cant and Sons in 1917, succeeded by other long-stemmed varieties, with a range of colours almost comparable to carnations, all of which has enabled the rose to well uphold its position as the national flower, in spite of the fact that not a few of the new varieties have their origin outside this country.

Next to the rose I take the chrysanthemum. The blooms of thirty-five to forty years ago would scarcely be saleable nowadays to a street trader. The tiny Mrs. Carey and the varieties of the Dixon and Rundle type were first followed by the group comprising Elaine (white), Source d'Or (bronze), Triumph and the improved Desgrange (white, pale yellow and deep yellow), most of them marking an enormous advance. These have practically all disappeared, due to the efforts of

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some half a dozen men, who appear to pass their lives in the endeavour to raise better varieties year by year.

The Framfield group, including Heston White and Winter Cheer, have revolutionised the supply available for Christmas and the New Year, while the very many Cranford varieties have not only added six weeks at the beginning of the season, but have greatly improved the varieties and qualities available from September and October, so much so that the flowering season, which twenty years ago was from September to mid-December, now begins early in July and runs to the end of January. Another big advance has been in the method of disbudding. Thirty years ago nearly all chrysanthemums sent to market were in the form of the natural spray, a few only being rather larger through having had the side buds picked off. The improved varieties have lent themselves to the development of size as well as colour, and now we are able to market a complete range—from the natural spray right up to the enormous exhibition bloom.

Sweet peas have shared in the general advance. The old Countess of Radnor (mauve), Princess Beatrice (pink), King Edward (red) and Dorothy Eckford (white), with their 7in. or 8in. stems, and generally a maximum of two flowers on each stem, have given way to a range capable of a standard 18in. to 20in. stem bearing from four to as many as six flowers each of greatly improved beauty, a list of which fills a good many pages in the Sweet Pea Society's Annual. No visitor to the Royal Horticultural Society's annual show at Chelsea could miss the magnificent exhibits put up by such firms as Messrs. Dobbies, Dickson, Ireland and Hitchcock, Bolton and a number of others.

In the herbaceous section, again, the present types represent such an advance on their predecessors of a generation or more ago as to be almost different plants, as, for instance, pyrethrums, delphiniums and gladioli, and in addition to this great improvement in the varieties better methods of bunching and packing have been evolved, and the combined result—with the undoubted hold that flowers have on both high and low—is such an increase in bulk as would have staggered market people of thirty years ago.

The range is so extensive that I will only mention a few of the principal ones, the turnover of which is so large nowadays as to run (in each instance) into hundreds of thousands of bunches in each season. Statice (incana, white; sinuata, mauve; and latifolia, blue) probably takes first place, with wallflowers—supplies of which have been much extended of late years by consignments from Scilly, the western counties and the Evesham district—coming next. Stock runs the last fairly close in bulk, comprising such well known strains as Princess Alice and East Lothian (whites), Beauty of Nice (pink) and Queen of the Belgians (mauve). Gypsophila would take next place (home supplies of this are supplemented by early supplies from France), the best varieties of the home-produced being elegans grandiflora alba and paniculata with its double form. Afterwards, in succession, I should place nigella, Michaelmas daisies, peonies and delphiniums, all showing an almost unbelievable improvement, though I think a special comment should be accorded to the very beautiful specimens of delphinium seen on this market in the past three or four years, confirmation of which I see in my own garden in the many magnificent examples sent me annually by that keen enthusiast and raiser of new varieties, Mr. T. Bones of Cheshunt.

I cannot do better than end by copying the market buyer, who generally completes his purchases by obtaining the necessary foliages to fit in with his bloom. One could write another complete article on foliage alone, such as the various pittosporum types, ornamental grasses, the different kinds of asparagus in all its shades, coloured prunus, the many varieties of spiræa, oaks of different shades—all of these not only used as a contrast or background for flowers but in many cases so beautiful in themselves that florists use them because of their own individual charm.

SWEET PEAS DURING FLOWERING TIME

SWEET PEAS ARE AMONG THE MOST DELICATE AND GRACEFUL OF ALL SUMMER FLOWERS, AND IT IS WELL THAT THE NECESSARY PRECAUTIONS BE TAKEN DURING FLOWERING TIME, SO AS TO OBTAIN THE BEST BLOOMS TO ADORN THE GARDEN.

THOSE who have added some new varieties of sweet peas to their collection will now be examining them every morning or every day to see how they answer expectations. Enthusiasts who have grown them for some years know their flowers at sight and get a thrill of delight when a beautiful new one opens for the first time. He or she will endeavour to define the colour and fix its relationship by comparison with the old favourites, when the distinctions will be seen at a glance. Older varieties that have given good results are always grown because they can be relied upon to give satisfaction under given conditions of soil and treatment; but enthusiasts cannot rest upon their oars, or upon their previous successes, because they know that their favourite flower is always undergoing improvement, and they feel they must be in touch with the newest that is an advance in colour, vigour, number of flowers on a stalk, size, or an advance in any particular character that is an improvement upon the older types. The cult of the sweet pea is truly a progressive one.

Very enthusiastic gardeners in private establishments and others give elaborate details of the treatment required by sweet peas, extending over the greater part of the year, and this deters many who have little time or inclination for the work from undertaking the cultivation of sweet peas; but it has been proved by hundreds of gardeners and amateurs, both before and after they were made a special cult, that, apart from exhibition they could be grown under ordinary conditions of good garden cultivation, such as is given to garden peas. Deep cultivation of the soil is essential, but most old gardens have been trenched, so that deep digging may often suffice if this is done in autumn, say November, and manure given at that time. Early digging allows the soil time to settle before planting time in March or April.

PRESENT REQUIREMENTS.—If hazel stakes or netting of any kind have been used as supports, the sweet peas will mostly take care of themselves in this respect; but if bamboo or other stakes have been used the plants will require a fresh tie every week at least to keep them upright. If they have been planted widely apart the stems may be inclined to produce side branches, but all should be stopped except two or three main stems.

Manures of a stimulating character are those that contain nitrogen in one form or another, and these serve to lengthen the stem and increase the size of the leaves; but it is necessary in the case of sweet peas—or, indeed, any kind of pea—to exercise great caution in the quantity and frequency with which these are applied. This class of plant has special means of collecting its own nitrogen by means of the bacteria in the small nodules on the roots, with which most growers are familiar, and it is essential to success not to demoralise the bacteria or render them lazy by too strong doses or too many applications of certain nitrogenous manures. A dusting of old soot, containing ammonia, may be given before hoeing, or soot water may be used, both being weak and safe. The Dutch hoe should be kept going on either side of the rows once a week, though not a weed may be present. Hoeing retains moisture in the soil during dry weather, prevents it from getting sour during rainy periods, and admits air to the roots, and in all these cases stimulates the growth of the plants.

FEEDING AND WATERING.—Watering often becomes necessary during dry weather, because nothing stunts sweet peas sooner than dryness at the roots, and this should be given in unstinted quantity when necessary. Just how much feeding may be necessary will depend upon the natural fertility of the soil and what was put into it prior to planting. The soil may or may not be dry, while the plants are not making satisfactory growth and evidently require feeding. This may be given in the form of superphosphate of lime and sulphate of potash at the rate of 1 oz. to every 6ft.

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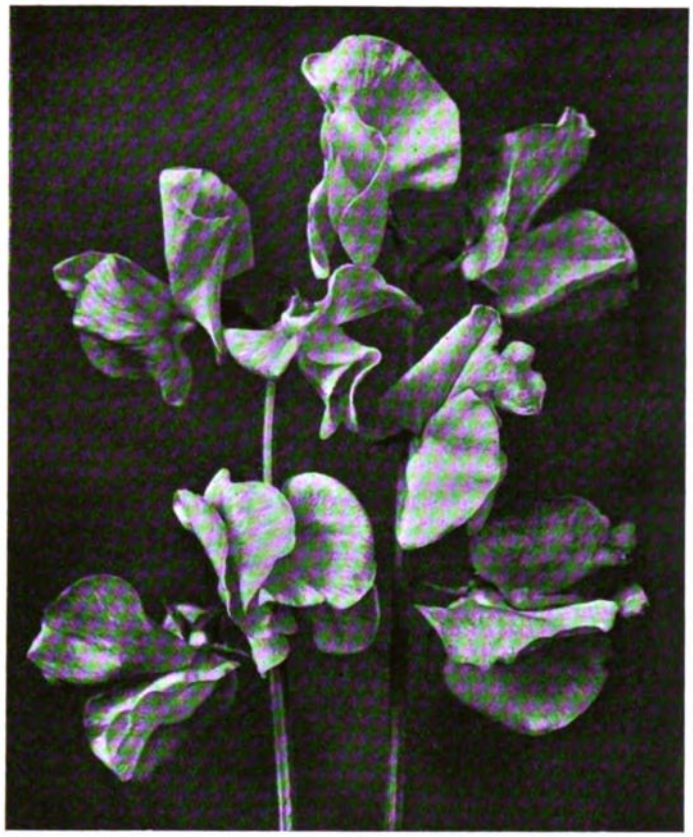
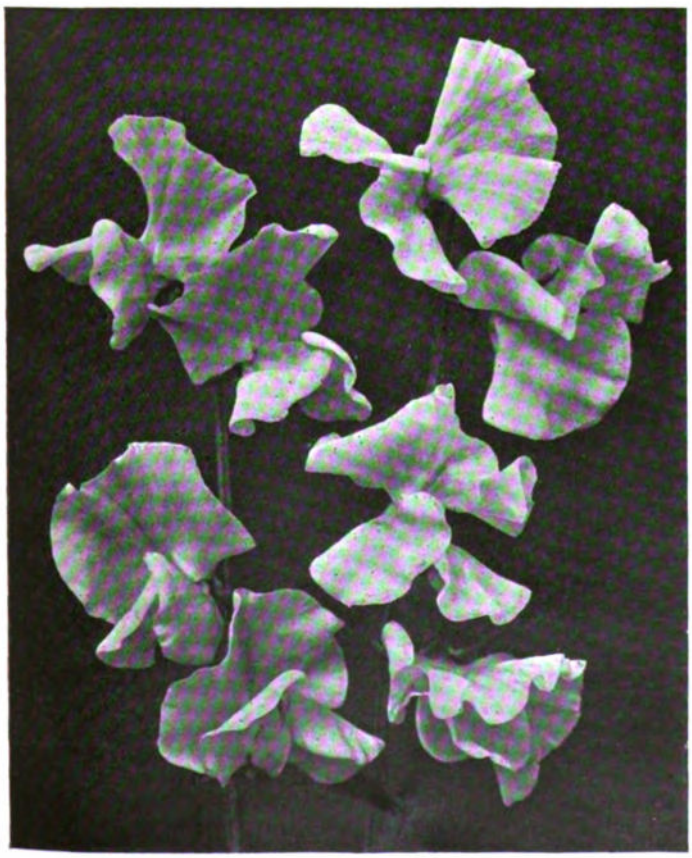
run of the row every eight or ten days, in addition to the soot already mentioned, just before hoeing the ground. They should, of course, be watered in during dry weather, and the ground hoed the following day. If general fertilisers are preferred they should be used in a similar way and in the same sparing quantity. A little and often should be practised instead of strong doses of anything at longer intervals. Well diluted manure water is also a safe general fertiliser. It is very refreshing to the plants to be sprayed with soft rain-water during the early evening of bright and warm days. Even sprinkling the ground with water between the rows during the day has a refreshing effect and prevents the flowers from assuming that tired appearance after sunset which many have observed after a warm day. Gardeners who have warm hothouses under their care, and orchid growers, know the value of this moisture in the atmosphere; and every gardener knows the value of rain as compared with artificial watering, because of the atmospheric moisture.

FIRST-CLASS NOVELTIES.—Even those who secured this year's novelties will be on the look-out for the best of those that will be put at their disposal by the beginning of next year. New varieties are fairly numerous (thanks to the raisers), but a number of them are of super-excellence, and though they may not all live up to their reputation in every garden, a due proportion of them will stand the test of time and place in most gardens. They have been well tested in their places of origin by practical growers well versed in all that pertains to sweet pea culture.

NOVELTIES FOR 1925.—Angele has soft coppery pink standards and lavender-blue wings, which makes a charming combination of colours. A charming bluish lavender is Wembley, that may supersede R. F. Felton. The orange-scarlet of Grenadier is more fiery in tone than Royal Scot and is better in substance. Flambeau is somewhat similar. The Beacon is orange and coral in combination, with erect standards, and is an advance in this class for size. An improvement on the well known Hawlmark Pink is Pink Perfection. An advance in yellows is shown by Majestic, and Mme. Sarah Grand, the latter being deep ivory and cream. The deep salmon-rose of Rose Maiden is an attractive hue. Coraline, orange-cerise, and Venus, salmon pink on a cream ground, are new and choice, which may also be said of the beautiful blue named Bluebird. Shell Pink, Empire (rich rose-pink) and Supreme (rich pink on a white ground) are shades that cannot be overlooked. Ruby is a strong grower, with ruby-carmine flowers; while Mammoth bears four large orange-coloured flowers on a spike.



ROYAL SOVEREIGN, A FINE ORANGE SCARLET.



ONE OF THE BEST MAUVES, POWERSCOURT.

NOVELTIES FOR 1923 AND 1924.—So far the pure lavender of Lord Lascelles has proved of outstanding merit and is very charming for household decoration as well as for exhibition. The rosy-mauve of Shamrock is excellent in its way and will prove useful for household work because it improves in colour after being placed in water. Powerscourt might be described as a rival to Lord Lascelles, inasmuch as it is closely similar in colour, grows strongly and flowers freely. The flowers of W. J. Unwin are of a rich salmon-pink on a cream ground, the first-named shade being the dominating factor of an attractive flower. Yellow is an elusive colour in sweet peas, but the hue of Daffodil, while yet quite young, gives hope for something better. The flowers of Mary Rose might be described as a pleasing shade of rose on a ground colour of salmon. Those who have been unable to get seeds of Royal Sovereign this year will be pleased with a rival to it in Grenadier for next year, because the two will offer greater scope for obtaining really fine flowers in the way of orange-scarlet. The flaming salmon-scarlet of Wizard will furnish a substitute, however for it is really a charming and fascinating flower, of easy culture and free flowering. The white ground Picotee named Youth has many characteristics to recommend it. The flower is large, the colour of the edge is well developed, the stems carry four to five flowers, which are freely produced, beautifully frilled and, above all, are strongly scented. Somewhat older and better known is The President Harding, which has evidently come to stay. The flowers are salmon-cerise suffused with orange, and the variety has an award of merit and a silver medal to its credit. The two last-named varieties are of American origin and may be pioneers of more to come. Many more than the above were put into commerce last year, but those mentioned will furnish a good selection of the lighter and brighter coloured flowers.

J. FRASER.

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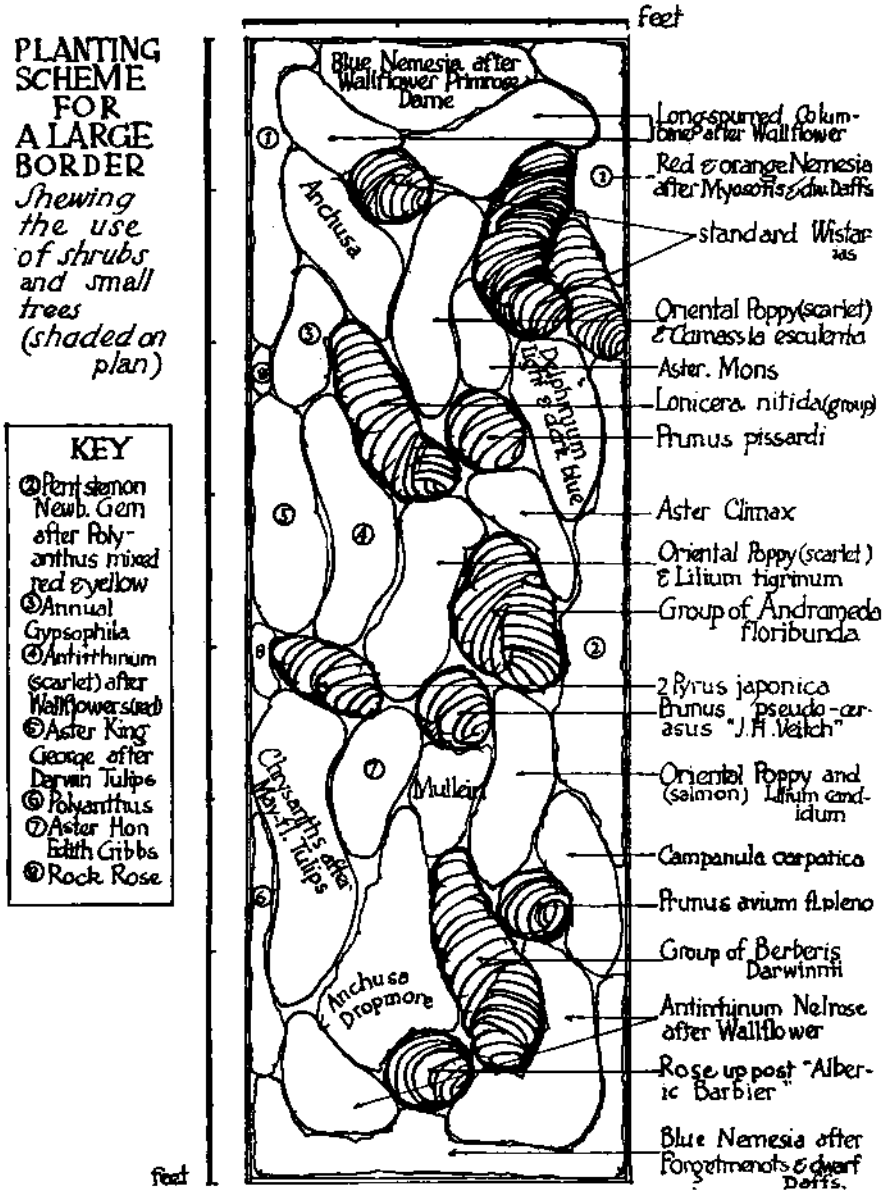
SHRUBS IN THE HERBACEOUS BORDER

IF YOUR GARDEN IS SMALL YOU HAVE NOT ALWAYS ROOM FOR A HERBACEOUS BORDER AND FOR A SEPARATE COLLECTION OF SHRUBS. THIS ARTICLE EXPLAINS HOW BOTH CAN BE COMBINED IN A BORDER.

THOUGH flowering shrubs are worthy of filling a place of their own in the garden, they have also a part to play in the herbaceous border. In a wide border of any kind they are usually an improvement, and clothed at the base with surrounding flowering plants. These should only be planted when the border is 8ft. wide or more, since the space they will ultimately take, and the soil water which their roots will drain, prevent herbaceous



A PLAN OF A SUGGESTED BORDER OF SHRUBS AND HERBACEOUS PLANTS.

in a free-standing border—that is, one without a backing of hedge or wall—they are almost an essential. They give solidarity to the thinness of herbaceous plants and bind the whole scheme together. If some evergreens are chosen, such as Berberis Darwinii, as seen in the accompanying plan, they will forbid the shivering sense of complete barrenness in winter. Our forefathers evidently knew the value of evergreen shrubs in the border; the borders at Brickwall in Sussex, for instance—a sixteenth century garden—have clipped evergreens at regular intervals, their dusky masses plants from growing round their base, and so cuts the border up into so many sections. The effect to be aimed at in this case is that of embedding the clipped shrubs in flowers.

Against some, columbines or annual larkspurs will be grown, for their delicate shape and the poise of their flowers are enhanced by the velvety backgrounds; and between others, Oriental poppies or gorgeous kniphofias, which flame even more brilliantly in such company.

But to return to naturally grown shrubs in the border: Some are unsuitable, since they are not content to act as a foil to plants of lesser stature, but demand attention themselves. Rhododendrons, for instance, are out of place among herbaceous plants, but such as Rhus Cotinus, Prunus Pissardi, Viburnum plicatum, buddleias, Spiræas prunifolia, bracteata, Thunbergii, etc., olearias, ribes, forsythias and others, are extremely useful.

In the case illustrated in the plan, where the border is wide (25ft.) and intended to act as an informal screen to this part of the garden, evergreen shrubs of fairly dense growth are the first necessity, and nothing is more appropriate here than the barberries, the tawny flowers and brilliant autumn colouring making them valuable at all times. Berberis Darwinii is used in this case, but B. stenophylla is also a fine evergreen shrub. Towards the margins of the border, also, BB. Thunbergii and Wilsonæ may be used, though these are deciduous, as well as Juniperus Sabina procumbens (evergreen), skimmia and others. Rhododendron præcox is an effective little shrub to use in the border provided the colours of surrounding spring flowers are carefully arranged with regard to it.

Another advantage of the use of shrubs is that some of the lilies may be accommodated in the half shade of their outer branches.

Where lighter touches are needed, tamarisks (where suitable to the soil), spiræas or clematises and roses on posts give height, some being planted towards the front of the border, where the heights of herbaceous plants may otherwise tend to give a flat look.

The colour, too, must be studied in connection with the planting scheme—Rhus Cotinus, for instance, is very well suited to a border which specialises in different tones of red, though it is useful in many borders not confined to a one or two colour scheme. In the plan shown it might have been used instead of Prunus Pissardi in the middle portion. Both barberries and andromedas would be also useful for their flowers, and with myosotis and pigmy daffodil margins, and groups of wallflowers and May-flowering tulips, would make a continuously gay spring picture.

In autumn, the starry flowers of the Michaelmas daisy will be more emphatically incised when seen against the darker-leaved shrubs. EVELYN N. COWELL.

FORTHCOMING EVENTS.

July 30.—Sevenoaks Horticultural Society's Exhibition.

August 2.—Blackburn Horticultural Society's Meeting.

August 4.—Heathfield and District Horticultural Society's Exhibition.—Bishop's Stortford Horticultural Society's Exhibition.—Shoreham Horticultural Society's Exhibition.

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BORDER CAMPANULAS

BY GERTRUDE JEKYLL.

FEW FLOWERS HAVE A MORE DEFINITE PLACE AND CHARMING APPEARANCE IN THE BORDER THAN BELL FLOWERS. THOSE MENTIONED BELOW ARE SUITABLE EITHER AS A BACKGROUND OR AS AN EDGING.

THESE indispensable border plants may, for convenience, be put into two classes: namely, the taller kinds, suitable for the middle and back of the border, and the shorter, that will come well at the front edge. Of the taller bell flowers some of the finest and the earliest to bloom are the varieties of C. latifolia, especially C. l. macrantha and eriocarpa. The white form of C. macrantha is one of the very finest garden plants, with its stately spikes of large white bells and its good upright habit. It is of much use, not only in the flower border but in adjoining regions in part shade of shrubs or trees. We have it in such places grouped with the glossy fronds of Danæa Laurus, the Alexandrian laurel, and a further background of hardy ferns. It forms deep, thick roots that may remain several years in place, and is easily raised from seed. A fine plant of the same class came to me by seed from Switzerland under the name C. macrocarpa, possibly nearly identical with C. l. eriocarpa, for it has the large seed-pods that would justify the specific name, with the woolly covering characteristic of eriocarpa. The large flowers of this are drooping and of a reddish purple colour, and the whole plant more lax in habit than in C. l. macrantha. The next of importance for border use is C. persicifolia, in white and purple colourings. There are also double varieties, but the pure bell shape of the typical form is so good that doubling is hardly an improvement. The best of the double kinds is the one known as coronata—never a very frequent plant; it is not strictly double, but a hose-in-hose, with an outer range of petals as in the cup-and-saucer Canterbury bells. Rambling in mountainous woodland in Switzerland, at an altitude of about 1,500ft., I came upon a white form of C. persicifolia and collected a few roots. It responded well to garden culture, and after a few years of education settled into a fine form of this good plant. As with C. latifolia, it is charming in wood and shrubbery edges as well as in the flower border. It is one of the kinds that spread widely at the root. To have it at its best it should be divided as soon as may be after the bloom is over, and planted out in a cool reserve place. There is no need to cut the old flower stems; it is better to pull them out, when they bring away with them all the exhausted part of the plant, leaving an outer fringe of young growths that may be planted singly in reserve and will form good plants by the autumn. The same method applies to C. grandis, a useful border kind about 18ins. high, so often seen in gardens as a spreading clump with but few flowering stems, badly needing the same timely renewal.

C. ALLIARIÆFOLIA ADMIRABLE FOR THE EDGE OF WOODLAND.

C. LACTIFLORA ALBA HAS A NATURAL GRACE PARTICULARLY SUITABLE FOR THE SHRUBBERY.

C. lactiflora (celtidifolia) is a grand border plant much too often overlooked; unworthily so, as it is of prime importance. It rises to a height of 5ft. or more, and is in colourings pale lavender and from that approaching white; there is a deeper coloured form of shorter growth. It is easily grown from seed, but is not at its best till the second year after sowing. It is one of the plants that need careful staking, for the spreading heads of bloom, especially under the weight of heavy rain, can hardly hold themselves up, and may easily be broken down. But established plants are full of side growth, and a clever arrangement of branching spray can be introduced, so as to give the needed support without being obtrusive.

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Of middle height, but anything up to 2ft., is the white-flowered C. alliariæfolia. It does well near the front of the border, where its quantities of drooping white bloom on side shoots, with a central taller spike, form a pyramid of flower with one higher middle spire. This is one of the bellflowers that is almost better suited to the wood edge. It is impatient of being transplanted, but comes well from self-sown seed.

The indispensable Canterbury bells are derived from a Southern European species, Campanula Medium; a rock-rooting plant in its native places. This suggests its use in our dry walls as well as in the usual places in the garden. The prettiest are the single and the calycanthema (cup-and-saucer) forms; the double, where the middle of the bell is tightly stuffed with shapelessly crumpled bloom, is much less desirable.

Of the lower-growing campanulas that are good for the front edges of the border, C. carpatica stands out as the foremost, both for good effect and for easy culture. It does well in either sun or shade. The height may be anything from 6ins. to 12ins. It comes easily by seed and varies in the shape of the flowers from the flattened forms of pelviformis to the deeper bells of turbinata. It has also been the parent of several useful garden hybrids. A campanula that is well suited to the front edge and has much merit, but is seldom seen in gardens, is C. sarmatica; it stands about 9ins. high and has greyish foliage and a quantity of pale lavender bloom. When the border has a raised edging of rough stones some of the smaller bellflowers can be used, such as the bright purple Portenschlagiana and the delicious pale lavender garganica, also the small pusilla and its varieties; but without the prominence and protection of such an edging they would be lost.

It is well to remember that nearly all the campanulas are plants of the limestone, and that therefore they will do all the better if they are given lime in some form. In making up a stretch of dry walling where it is intended to grow them, if the soil is not naturally calcareous, the joints should be prepared with old mortar rubbish or any form of lime as sold for garden use. When this is done even the tender South Italian C. fragilis and its near relatives Barrelieri and isophylla may be grown successfully, the crowns being protected by the stones from excess of winter wet and the roots revelling in the limy food. All that delightful series of tiny bellflowers, pulla, pusilla, and their garden hybrids, may also best be grown in lime in the wall.

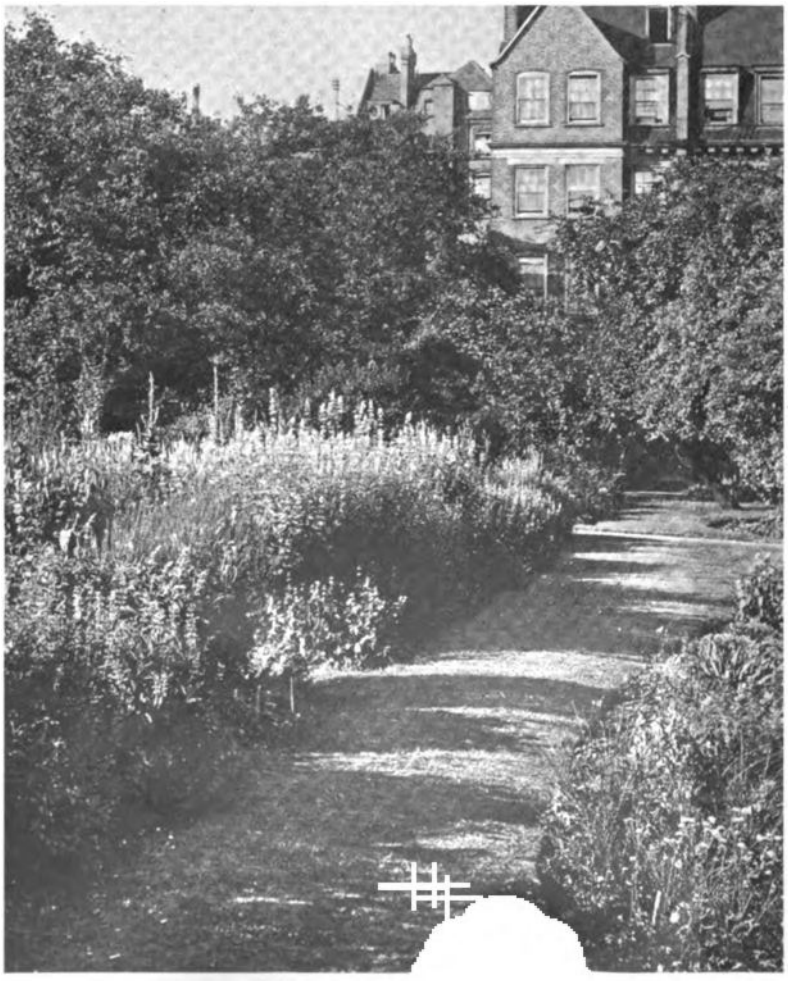
LONDON'S OLDEST BOTANIC GARDEN

AFTER TWO HUNDRED AND FIFTY-ONE YEARS THE CHELSEA PHYSIC GARDEN IS IN AS FLOURISHING A CONDITION AS IT EVER WAS, LARGELY OWING TO THE DEVOTION AND SKILL OF THE PRESENT CURATOR, MR. HALES.

IT is sufficiently surprising that a botanic garden exists within two miles of Charing Cross, but my wonder grew and my eyes opened wide at the extraordinary growth and vigour shown by those plants growing in the middle of London. It is as well, however, to point out that the Chelsea Physic Garden is not and never has been a garden for show purposes and it is not open to the public, except by ticket. It is strictly utilitarian in its purpose and is kept for the use of students and experimenters attached to the London University and colleges. All the same, as the accompanying illustrations show, it has a charm and romance about it which are probably unequalled in any other garden in the middle of a big city. It accomplishes its work in such peace and solitude that few people in London and fewer in the country know of its existence.

A great deal of its romance is caused by its famous associations, for it played its part in late seventeenth and eighteenth century botany, probably more than any other institution. It was founded in 1670 or in 1673. Mr. Hales believes in the earlier date—by the Apothecaries Company, which apparently also had a garden previous to that date, on land which belonged to Lord Cheyne. The first few "demonstrators of plants" were practising apothecaries who, although interested in the work of growing and teaching about plants to be found in the pharmacopœia, were obviously unskilled in their actual cultivation and the garden fell upon days, so bad, that the whole scheme was nearly dropped in the first few years after its inception. It was saved by the appearance on the scene of Sir Hans Sloane, who purchased the Manor of Chelsea from Lord Cheyne in 1712 and transferred the freehold to the Apothecaries Company in 1718. Among some conditions which Sir Hans Sloane made was one stipulating that the garden was to supply fifty plants a year to the Royal Society, until a total of 2,000 had been given; actually this number was exceeded, for until the time when the gift was stopped, about 1770, the garden had supplied over 2,500 plants.

From the time of Sir Hans Sloane's purchase for more than a hundred years the garden was in a flourishing state; not only were plants introduced from abroad, but herborisings were made under the



A PEACEFUL GARDEN IN LONDON

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directorship of the Demonstrator of Plants in the home counties, by means of which much of the local flora was introduced to the garden. They must have been curious entertainments, for each day ended with a dinner of the usual magnitude of the time. But it is the names of the eminent scientists or gardeners who either worked in the garden or were taught there which is a real link with the past. One of the most famous was Philip Miller, the author of the "Dictionary of Gardening," who was actually in charge of the garden for forty-eight years. Linnæus visited him there in 1736, while Sir Joseph Banks and Dr. Solander received part of their early training from him. Other famous demonstrators were William Hudson, William Curtis, the founder of the *Botanical Magazine*, Robert Fortune, John Lindley and Thomas Moore.

Towards the end of last century the garden again fell on evil days, until in 1899 it was transferred from the Apothecaries Company to the City Parochial Foundation, who now keep it up under Mr. Hales' able management for the use of the University and Colleges of London.

As I pointed out before it is strictly utilitarian in its purpose. In the glass-houses are collections of weird and interesting plants, sensitive plants, insectivorous plants, plants whose leaves are not leaves but stems, and plants whose stems are not stems but leaves; cotton is also being tested and boll weevils hatched out. Out in the open are beds devoted to the different natural orders. Here also much experimental work is being done: beds are devoted to testing leaf curl in potatoes and the value of different manures; while on the occasion of my visit a professor from overseas was busily engaged in inoculating different grasses with some bacteria for some purpose unknown and indescribable.

But apart from the scientific side there is much that is charming in the garden. There is an old catalpa on the lawn in front of the house, which has grown as if it were a hundred miles away from the smoke and dirt of London. There are masses of old English plants rarely seen in gardens, among them I noticed a magnificent collection of different mints. Was there ever a finer clump of Iris Neptune than is shown in the illustration?

And then in the middle of the garden is a fine statue of Sir Hans Sloane; on the side is to be found the following: "They being sensible know how necessary that branch of science is to the faithful discharging the duty of their profession. With grateful hearts and general consent ordered this statue to be erected in the year of our Lord 1733, that their successors and posterity may never forget their common benefactor." He now looks serenely over what must be one of the most peaceful spots in London.

E. H. M. Cox.

A FINE CLUMP OF IRIS NEPTUNE.

THE WATER POOL.

EVEN KNIPHOFIAS DO WELL IN THIS GARDEN.

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SOME RECENT DEVELOPMENTS OF THE BEARDED IRIS

BY SIR ARTHUR HORT, BT.

MOST people, when they say "irises," mean tall bearded irises, what used (absurdly enough) to be called "German irises." In this article we shall have quite enough to occupy our space if we try to cover a part only even of that limited field. I wish to try to show how, by the introduction of new wild forms and by hybridising, the standard of irises worth growing has been recently raised. Anyone who has seen the exhibits of irises of this section at Chelsea or Vincent Square in the last few years is aware that the standard has risen amazingly, and that now there is a bewildering choice of an enormous number of fine plants, raised in England, France, America and Germany. This remarkable development, which has made the iris, once a curiously neglected flower, almost a craze with up-to-date gardeners, has proceeded along various lines. Of these I can only indicate a few which happen to have come under my own observation.

Some thirty years ago English gardens could show a certain number of more or less handsome bearded irises, which, being vaguely supposed to be varieties of Iris germanica—the early purple flag so familiar alike in cottage borders and in London squares—were called "German irises." Indeed, I have heard people complain that their irises, in time, all "went back" to "the old blue"; the explanation being, no doubt, that the latter aggressive plant had increased at the expense of the others. Such "reversion," needless to say, is impossible, except in the case of seedlings, and I. germanica typica (so-called), very rarely sets seed. Now this raises the curious problem of the origin of that famous and popular plant, whose name implies that other forms of germanica are varieties of it, and which was once supposed to be also the origin of the crowd of other tall bearded forms loosely lumped together as "German irises." As a matter of fact there are many forms of I. germanica, and it is probably merely by accident that the blue-purple form, with which we are all familiar, has been made the "type." This form is not often seen in France, where, especially in the South, other forms are exceedingly common, at railway stations, on the walls of cottage gardens, and about old castles. But the remarkable thing is that no one has ever seen I. germanica (I am speaking of the West European form) where it was undoubtedly wild; or, if anyone has done so, he has kept the observation to himself. This statement is, perhaps, just a little too sweeping, since Mr. Dykes, a very careful observer, mentions in his new "Handbook of Garden Irises," that he found the form called Kochii above Lake Como, "in a position in which it seemed that it must be wild and not merely an escape from cultivation." The numerous forms may be divided into three classes, red-purples, blue-purples, and whites; the best known of the whites has long been called I. florentina, being the plant supposed to be cultivated near Florence for the orris root, used as a perfume and drug; though, as a matter of fact, when Sir Michael Foster asked someone in Florence to send him rhizomes of the economic plant, he received four or five different things (including pallida), but no florentina! Of the blue-purple forms the best known is Fontarabie (also called asiatica in the trade), which I have seen covering the limestone cliffs of the Rocamadour in the South of France. Of the red-purples some forms come near the Oriental Kharput, and a very common dwarfer plant is australis. The darkest and perhaps the handsomest is that known in England as atropurpurea or Purple King. A rampant grower, which requires frequent division to make it flower freely. (Along with these West European forms may be mentioned an even darker Eastern form called Cretan, with nearly black falls, introduced by Mr. Dykes from Crete; this is a superb variety and, being very free-flowering, will perhaps eventually supplant Purple King in our gardens). I have already mentioned Kochii, which is very near Purple King.

Now the problem is this: seeing that this plant, in a variety of forms, is exceedingly common, but only seems to occur near where man lives or has lived, where did it (or rather *they*), come from? One may guess that it was first introduced to Western Europe as an "economic" plant, that is, to produce orris root. But who first planted it centuries ago, even in remote villages of the lower Pyrenees? Whence did he bring it? Why does it present such a variety of forms? Some day the solution may be found by raising plants from seed, but there is this difficulty, that these western germanicas rarely produce any fertile seed.

(To be continued.)

WATERING

UNDOUBTEDLY the most satisfactory way of watering is by the use of the hose pipe, and if one has a hose pipe long enough to reach all parts of the garden one is in a very happy position. Local application by means of a can is a very unsatisfactory way of watering, since it is difficult to get the spray fine enough, and at the same time to be sure that the water is economically used. If, however, the hose is handled properly, and held so that the water shoots up into the air instead of directly on to the plants, a fine mist-like spray which wets every portion of the plant as well as the soil and surrounds the plant with a cool humid atmosphere for several minutes after the water has fallen, is the result. Such an atmosphere is exceedingly refreshing to flowers and vegetables during the hot months of the year, and it is as near to an actual summer shower as we poor gardeners can get. The spray from an ordinary rosed can resembles the torrential rain of a thunderstorm, and may do quite as much damage as it does good.

The importance of a really long hose cannot be too strongly insisted upon. How often does it happen that when the outlay has been made on a pipe it is found that it is 50ft. or 60ft. too short to reach the extremities of the garden! We frequently find, too, that just those very crops, such as saladings, which require gallons of water to produce juicy leafage, cannot be dealt with by the hose, however well directed the nozzle of the pipe may be. A hose is intended to save many hours of labour, but one that is too short is more trouble than it is worth. Hence all gardeners who are considering the purchase of a hose out of their employers' purses should take the trouble to measure up the ground in every direction before they state the number of feet or yards required, and be well on the right side of the length of pipe required.

In making this purchase more often than not a single nozzle is supplied. A hose pipe, however, with only one nozzle is about as useless as a teapot without a spout or a badly broken one. A variety of nozzles and one or two rose-nozzles should be taken to complete the outfit. When using a hose for watering it does not matter if the rose is rather a coarse one in the first instance, as, if the pipe is held upwards instead of downwards on to the plants, the water disseminates into the air finely in any case. If, however, a fine rose is obtained as well as a coarse one, the usefulness of the pipe will be doubled, since it can then be used for almost any variety of flowers or vegetables, including the tiniest seedlings.

A hose-reel should also be included in the outfit. Reels are often on the small side, so the purchaser should see that he gets one large enough to take the entire length of the hose pipe. One may have to be specially made for extra long lengths of piping in big gardens. When the reel is too small the pipe invariably gets round between the wheels and ties itself up into knots in a most objectionable manner. If a reel is not purchased, and the hose is dragged roughly along hard asphalt paths, it

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naturally wears rapidly into holes and begins to leak, and portions of it have to be renewed within a few months of purchasing it.

Just a word now about the use of the watering can, as there will doubtless be many gardeners who will not be able to obtain a hose pipe on account of the expense being prohibitive. The watering can should be as large as the gardener is able conveniently to carry short distances when full of water. It is difficult to recommend any particular size, as gardeners may have Herculean strength or they may not. A can to hold four gallons (a favourite size) is somewhat large for most ordinary purposes, and one certainly feels the weight of such a can after carrying it up any steep garden paths one may have. Small cans holding about a gallon or half as much again are splendid in use, and not tiring for anyone. Lady gardeners are recommended to what is known as the "lady's watering can" for odd jobs and small borders, as this is very handy and useful.

Speaking of watering cans reminds me of roses again. There is a rose that I like, but, unfortunately, I am unable to remember its exact name, and cannot find it in lists before me. It is of the mist-spray type—a rose that is put on the watering can with its holes upwards, and when the can is tipped the water shoots out in an upright direction before turning back to fall on the plants. This spray of water is often 12ins. to 18ins. across, and thus a very large area can be covered in a short time. While buying roses, however, for one's watering can, see to it that a very fine one is obtained, otherwise much damage may be done to seedlings which have been recently pricked out by a heavy weight of water falling upon them.

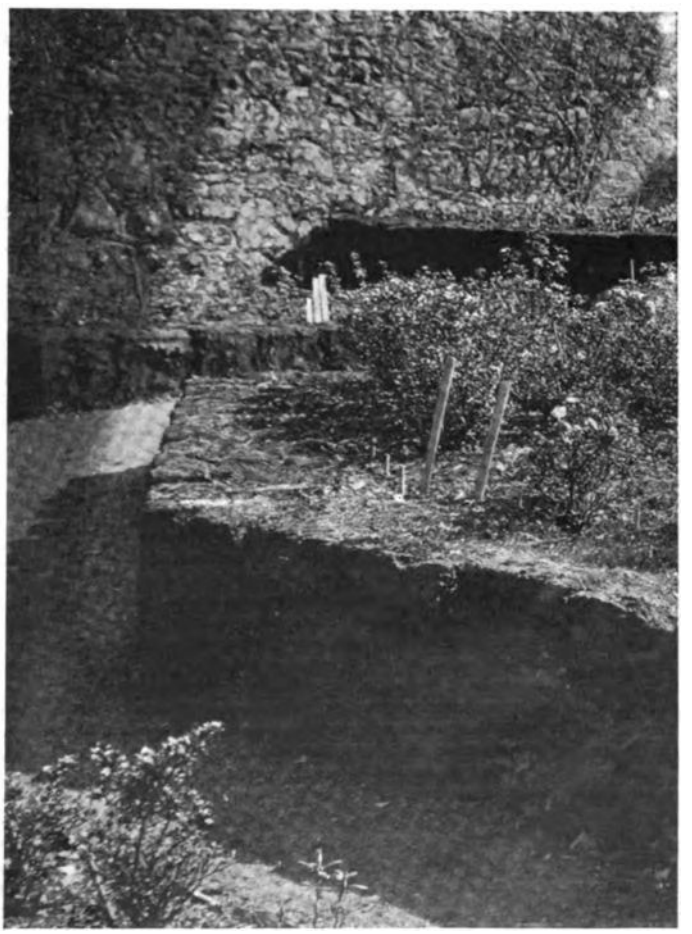
And now about the actual application of the water. It must be confessed that it is very unlikely that one will overdo it. Many gardeners, however, imagine that if they just damp the surface soil and the leafage of flowers and vegetables, they have done a good day's work, and that this watering will not need repeating for a considerable time. Watering of that sort, however, is practically useless. It freshens up the foliage, it is true, but it attracts the roots of the plants to the surface, when one wants them to be down below out of harm's way. Thus, if water is scarce, it would be well to apply it thoroughly to one set of plants and leave the others to go without, instead of supplying a little to all and running the danger of surface rooting and consequent injury. The golden rule, I consider, in watering is to be thorough. Mulches will do much to conserve the moisture if applied immediately after the water is given.

Now, as to the best time to apply water. Obviously no gardener who loves his plants would apply water during the hottest sunshine of a June, July or August day; but there is great diversity of opinion as to whether it is better to apply water in the early morning or in the evening. A theory has been launched that if it is applied in the early morning the plants are able to suck it up, and to benefit materially by having it close at hand during the hot sunshine of the day that is before them. More often, however, it has been shown, if plants are watered thoroughly in the early morning and this water falls, as it should, on their foliage as well as on the soil, that considerable leaf scorching results, owing to the sun magnifying the drops of water on the leaf surfaces. Undoubtedly, too, a great deal of water on the surface-soil rapidly evaporates, and thus is wasted so far as the plants are concerned. Personally, I always urge those who possibly can to water their plants after five or six o'clock in the afternoon, the later the better. Then and only then can one retire to rest feeling that one has done a really satisfactory day's work, in which there has been no waste either of time or of valuable water. E. T. ELLIS.

PEAT TERRACES

AT Logan, near Stranraer, Mr. Kenneth McDouall has started an innovation which should become popular in many gardens, particularly those which are in a peaty district. Unfortunately, this is a difficult subject to photograph, but a general idea of his use of peat can be seen from the accompanying illustration. The walls are made out of blocks of cut hard peat, while the insides of the terraces are filled with worked peat. These walls are easy to make, but should not be quite perpendicular. As Galloway is a wet district and as these terraces have been in use for some years, it appears that they will last a long time and are not affected by inclement weather.

These peat walls have three advantages: they are cheap to construct, they are easy to repair, and they do not hold in the rain, so that perfect drainage is effected, which is so necessary for most peat-loving plants. These particular terraces average about 18ins. in height, but there is little doubt that the walls could be made even higher. At Logan the terraces are filled with alpine rhododendrons, lilies and nomocharis. They are all completely at home, while the nomocharis, usually so difficult to cultivate, actually runs through the beds.



A TERRACE MADE WITH PEAT WALLS.

There seems to be little objection to using good strong turf for the same purpose, although we have not heard of this use being made of it in semi-permanent positions. We should be glad to hear from any of our readers who may have made the experiment and found it successful. There seems to be little reason why this class of semi-permanent terracing should not become popular. It is easy to make, at little cost, and as easy to remove; therefore, it might be useful for improving ungainly or unwieldy slopes; on the other hand it would be impossible to use it on anything which approaches the precipitous.

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CORRESPONDENCE

THE PURPOSE OF WISLEY.

SIR,—With reference to the Editorial article on the purpose of Wisley in THE GARDEN of June 28th, I think the Editor has raised a few very interesting points and some, if not all, will be the views of a good many of the Fellows of the Royal Horticultural Society. Paragraph 1.—Undoubtedly this should be carried out to the utmost. Paragraph 2.—The remarks on the trials of vegetables are, in my humble opinion, very much to the point, and reference to the Book of Arrangements will show what vegetable trials are due. These vegetable trials are only of interest to a very small portion of the Fellows, the public and the trade. Trials of flowers, on the other hand, would interest a much larger portion of the gardening public. From the trade point of view I think much more could be done in this direction of trying to obtain true nomenclature in shrubs and plants that are now in some confusion. The trials could be carried out with a view to discarding inferior sorts and settling *the* name of a plant where it has two, three and sometimes four names—all synonymous. I think the trade would benefit by seeing what to grow, and what to call it, and so avoid growing inferior sorts and getting hold of wrong names. Paragraph 3 would represent a sort of permanent trial, but new sorts should be added as soon as possible to enable people to keep up to date. Paragraph 4.—I hesitate over this so long that I pass to paragraph 5. If Wisley is to be a sort of distributing centre for new plants that cannot be bought in nurseries it would not be long before they could be bought in many nurseries, as trade Fellows of the R.H.S. would be able to obtain plants and work up stocks. This would probably be appreciated by some of the trade, as there are difficulties in getting plants, etc., from the Royal Botanic Gardens at Kew, Edinburgh, Glasnevin, etc. The R.H.S. do so much for the gardening public that one does not like to be trying to find fault, but in all humility I feel the Editor has done a great deal of good in his criticism, and I hope others will give their views in an equally well meant criticism.—G. H. DALRYMPLE.

VEGETABLE RECIPES FROM ROME.

SIR,—May a very ignorant flower lover add her praise of THE GARDEN? I feel I have learnt most of what I know from its pages, all kinds of information from roses and irises to the *taille lorette* for fruit trees. Of course, much of it is over my head and beyond any possible chance of experience here, but there is always something interesting and useful.

The new departure (cooking) is especially good: of what use are fine vegetables unless they can be well served and in sufficient variety? A vegetable may be dull in one dish and enticing in another. Is anything more washed-out than boiled vegetable marrow? However, that same marrow, cut in long slices 3ins. or 4ins. long, either very fine or thick as a little finger, rolled in a beaten egg, *lightly* dusted with flour, and fried in *hot* fat, is as highly flavoured a dish as one can want. The small green marrows (the Italian "zucchine") are best, but even winter pumpkins or Hubbard squash are not bad this way. Marrows may be cut in thin round slices, dusted with flour and *sauté* in butter, and are very good.

Eggplant may be *sauté* in butter and is a delicious garnish to boiled beef, or served as an extra vegetable. The slices should be first sprinkled with salt, and a plate a weight put on top of them for two this draws out the acid juice and lea tender and mild.

A famous Italian dish is eggplant "alla Siciliana." One takes *sauté* slices of eggplant and places them in a deep dish, alternating with thick slices of raw tomato until the dish is full. A brown sauce—made of a brown roux and either hot water or stock—is poured over, and the dish is put in the oven until the tomatoes are cooked, perhaps half an hour, perhaps more. Even the parsnip so disliked by the Editor can be served in various ways; cut in dice with a cream sauce, boiled, cut in long slices the entire width of the parsnip, and then *sauté* in hot butter, or mashed like potato cakes.

I do not know whether okra will grow in England; it makes several very fine soups, and also is cooked with chicken, rice and tomato, like a pilaff, and its distinctive flavour is very good.

Sweet corn, scraped from the cob and mixed with melted butter, a beaten egg and a little flour, and cooked as a soufflé, is delicious.

During the war, when sometimes we went for weeks without meat, we often made a large timbale of boiled rice, of which the centre was a macedoine of whatever cooked vegetables we could find—peas, carrots, celery, asparagus tips, etc. The timbale was browned outside and was a meal in itself, with or without a sauce.

In this country, with the young lamb chops a purée of marrons (chestnuts) is often served instead of potatoes, but it should always be accompanied by spinach or a green vegetable.

This is only a hasty note, as I am away from home and cook and cook-books, but it may suggest to others to try these things.—A ROMAN READER.

FRAGRANCE IN THE GARDEN.

SIR,—A popular daily paper has commented upon the fact that some of our best known flowers are losing their fragrance, and mentions roses and musk in particular. In the case of roses, it is not so much a loss of perfume in varieties known to have possessed sweetness, as it is the introduction within the last two or three decades of sorts whose charm lies solely in the beauty of their petals alone. Standing before a bed of Frau Karl Druschki with a friend last summer, he remarked on the purity of the blossoms, and added, if it only had the fragrance of Grüss an Teplitz, Hugh Dickson, or old Madame Abel Chatenay, it would have no equal among white roses. Perfume is a wonderful attribute in any flower, but in the queen of flowers it means so much. In some of the old sorts we have a splendid legacy by "the very sweetness of their breath," and modern raisers, despite criticism are fully alive to the importance of giving us varieties that are rich in perfume. It is a fact that the old garden musk, so prodigal with its small yellow flowers, and once so highly fragrant, has lost its virtue in this respect, in many places at all events. In a garden the other day I saw a large patch, utterly devoid of any scent, although the owner told me that up to ten years ago it was quite sweet. I have wondered since whether it was owing to it having been left undisturbed that had anything to do with lack of perfume! From enquiries made I have come to the conclusion that this once old garden plant has lost its chief charm. But we have many things in a garden upon which we can rely in the matter of sweet scent. The lilac has yet—

> 'A load of balm
> For every wind that stirs.'

Sprays of white jasmine at nightfall—

> "Let their delicious secret out,'

ugh they—

> 'Keep their odour to themselves all day."

this is equally true in respect of the blossoms of that simple and somewhat insignificant annual, Matthiola bicornis.

Now and again one hears complaints of sweet peas introduced within the past few years as having little scent compared with those of twenty years ago. Personally, I think we have little to grumble about in this, one of the most beautiful and prolific of our annuals. What I venture to say is lacking in most modern gardens are the shrubs and plants that contribute fragrance through their leaves as well as flowers. Some of them are regarded as out of date. Instances of lavender and rosemary and sweet briar bushes occur to us. We have had these many years and they have been left in possession of their original quarters. Many a time we have been tempted to move them, but as we press the leaves between our fingers, or go into the garden after a shower of rain and the air is scented with them, our intentions vanish! I pen these notes on a night in June near an open window. Has anyone need to tell me that within a few yards there is a border filled with pinks? Not the slightest, as the fragrance of that sweet sort, Mrs. Sinkins, pervades the house!—CLAREMONT.

GLADIOLUS BYZANTINUS.

SIR,—I am writing to ask if the attention of the experts has ever been directed towards improving the common early Gladiolus byzantinus? It seems such a pity that a plant of such strong constitution, early blooming quality and graceful long-stemmed habit should remain such a "difficult," not to say ugly, colour.

It comes at a time when cut flowers are none too plentiful. Here it usually flowers in mid-May—this year, of course, much later. It fills the gap between the tulips and the early summer flowers, and blooms from seed within the year. In my garden it has always existed, never *cultivated*, our efforts being chiefly directed to reducing its exuberance. It comes up everywhere on its own. This year a group appeared among the bearded irises and it chose Mme. Paquitte as its neighbour with charming results as to colour harmony. Away from strong yellows, reds and blues, it is by no means to be despised. I placed some in a tall vase with sprays of pale salmon clarkia; the effect was quite delightful. But, of course, it remains, as I said, a difficult colour, and it seems to me that it should be easy to improve it, while retaining the early-flowering habit and strong growth, so superior to Colvillei. Here the latter never does well out of doors, though all the other sorts of gladioli flourish exceedingly.—SYLVIA M. PRENDERGAST, *Isle of Wight*.

ABOUT FIGS.

SIR,—I take THE GARDEN in regularly and send it on to my sister in San Deigo, California. A few weeks ago I read in one of the articles that figs do not grow from seed in England. I have two seedling trees about six years old. They came up through a hole in the side of a frame (we had at that time been having figs sent from Worthing). The young fig trees have had no fruit on, the leaves are unusually large and are brownish red before they unfold. The trees are about 5ft. high, perhaps more. I am most interested in all flowers that have a scent, and have gardened since I could walk. This house dates from the twelfth century, but the only garden thing that looks old (except two clipped yews) is a bush rose that grows out from under the house. It is an intense pink and semi-double. I have an air plant which I brought from Argentina, but it is not flowering this year.—ALICE M. ROBINSON, *near Chichester*.

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NOTES FROM CONTRIBUTORS

JUNE FLOWERS.

ON looking over the garden during June, when multitudes of flowers are to be seen on every hand, one is led by some outstanding feature, such as colour, wealth or magnificence of bloom, to memorise and, if need be, add such to perhaps an already long list of garden favourites. With the Editor's permission I would like to name a few. Though not by any means new, some are not too frequently met with. Commencing with the alpine garden, Achillea conjungta is one of the best white flowers in the garden, flowering throughout June. Æthionema stylosum is, to my mind, the best of the genus we have, but, unfortunately, not so hardy as some of the others, though it has come through, without injury, the winter of 1923–24, when we had but nineteen days out of five months without frost. However, it is well worth a little trouble in keeping a stock in hand, for A. stylosum has flowers of beautiful soft pink and these are produced in great profusion; the whole plant flops about in a delightful manner. Saxifraga Dr. Ramsey is a favourite that yearly adds more praise to its credit, owing to its free-flowering character, largeness and great beauty of its flowers and silvery foliage. Calceolaria John Innes is a giant beside the well known C. polyrrhiza; the flowers are yellow with mahogany spots and are fully 1½ins. long and 1in. wide. Like all the above-mentioned plants, it enjoys a warm, well drained spot. Mimulus Whitecroft Scarlet is a beautiful little plant about 3ins. or 4ins. high, suitable for a half-shady position.

In the shrub borders Meconopsis latifolia is by far the finest of its class. It has flowers of a beautiful pale azure with golden anthers. Here, by accident, it was planted through a drift of Tulip Noire and it seemed a desirable contrast. Near by a group of Lilium rubellum, a Japanese species with rose-pink flowers, goes on increasing yearly. Along a south wall old favourites such as Abutilon vitifolium album and Ceanothus floribundus would, if it were possible, endear themselves afresh, so dense has been the ceanothus and magnificent the abutilon. Here, too, the strong-scented Lilium monadelphum Szovitzianum has reached nearly 5ft. in height.

Veronica Hulkeana, though killed outright on this wall, flowered splendidly in another part of the garden. In a garden principally devoted to irises the pretty Ixiolirion Pallasii has been much admired. This plant seems to like its light soil and warm spot.—J. T. H., *Dupplin Castle Gardens.*

THE LIZARD ORCHIS (O. HIRCINA).

THE photograph was taken in dull weather on June 28th near the coast of the Bristol Channel, where last summer a remarkable colony of this orchis, so rare in England, was discovered. But a careful examination of its environment a month ago soon confirmed one's supposition that it is a relic of cultivation—probably introduced years ago from seed from the Continent, where it is so plentiful and widely spread. Nevertheless, it was a very interesting find by the lady who made it, and a noteworthy occurrence when we remember the difficulty usually experienced in cultivating our native orchids. On June 8th I counted no less than eighty-four plants, including some without spikes and a few damaged ones; but the site is so exposed to the view of passers-by, and the plant so peculiar when later in flower, that it was not surprising to find the number appreciably diminished by June 28th, though even then many of the spikes were not yet in blossom.

O. hircina is remarkable for its very long linear and twisted central lobe, and it is

A RARE BRITISH ORCHID, O. HIRCINA.

the largest European orchid. Often 2ft. to 3ft. high, it is closely followed in height by the strange parasitical limodorum, and the handsome Orchis longibracteata, which opens its flowers in February on the Mediterranean coasts, together with an epipactis or two, often tie for a poor third in the race.—H. S. THOMPSON.

PEARS ON A COTTAGE WALL.

THE accompanying illustration shows a Beurre Clairgeau pear tree. As the name indicates, it is a most delicious variety,

A HEAVY CROP OF PEAR CLAIRGEAU.

which positively melts in the mouth like butter.

It grows on the sunny front wall of a little cottage in a West Country village. The fruit this year is so plentiful that in order to keep it from weighing down and breaking the boughs of the tree from the wall, an old fishing net is requisitioned, which both supports and protects the fruit until it is ripe for gathering.—L. E. K.

TULIP BOUTON D'OR.

BOUTON D'OR is a fine old May-flowering tulip, but it is one which varies very much in size according to the ground in which it is grown. No one who is unprepared to see this difference would recognise the mammoth flowers which Messrs. Dobbie and Co. have staged at Chelsea in past years as being the same variety as the much smaller ones which have come from rather a poor soil. The black anthers, or rather pollen grains, are an unfailing mark. I write this note not only to call attention to an old favourite, but to make known a bedding combination which has been suggested to me by the Hobson's choice of suitable flowers for our Communion table last Whitsuntide. The best one could do was a mixture of Bouton d'Or, which, being in a sheltered place, had escaped the worst effects of the deluge of the previous week, with a ground of the orange Erysimum Perofskianum or Caucasian wallflower, set off with the fresh young shoots of Alstrœmeria aurantiaca. —JOSEPH JACOB.

THE HYBRIDISATION OF THE ROSE.

ROSE hybridising has a charm all its own, which is never lost when once it has been felt. You can grow and propagate roses which you alone have produced, and behind all there lurks the secret ambition to produce one which all shall acclaim.

The method of procedure is simple. Choose any good rose—thin varieties should be chosen at first, such as K. of K., Mermaid, Irish Fireflame, etc., until sufficient skill in manipulation has been obtained. Take a young bud, just showing signs of opening, pull back the covering green sepals and gradually peel off the petals one by one. Then, with a pair of small scissors with sharp-pointed blades, carefully remove every stamen. If any remain they will pollinate the pistil and nullify the cross, as the pollen belonging to a rose appears to be stronger than that of another variety. If any pollen can be perceived with the aid of a small lens, the flower must be cut off and another prepared. After this operation has been successfully performed, a small piece of grease-proof paper should be wrapped over the flower and left for one or two days for the pistil to mature.

When the pistil is mature, take some pollen from an open bloom of some other rose by means of a camel-hair brush inserted into the centre of the bloom and moved gently around. Then if there is a distinct dusting of pollen on the brush, remove the wax paper and stroke the pistil with it. Cover the hip again and leave for a week or so.

When ripe, the hips should be stored in damp sand until January, when the seeds should be separated and sown in sandy soil. Place outside till March and then remove to a gentle bottom heat.

The same brush should not be used for different varieties of pollen without sterilising. The choice of varieties for crossing is a complex subject, but some attempt should be made to combine opposites to form the ideal—by crossing, say, a very full rose with a thin scented variety.—F. R. TUBBS.

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WASPS AND THE FRUIT CROPS.

SUDDENLY, when the first mild spell of weather came in the spring, queen wasps appeared to be very numerous. Judging from this fact one may reasonably expect a plague of wasps during the late summer and early autumn months. The queen wasps for next year will be hatched during the last six weeks of the nesting season this year, and the majority of these nests will be found near to water—chiefly running streams. Of course, we should net choice fruits and also place nets over the ventilators of vineries where good bunches are ripening; I do not believe in the method of placing nets on individual bunches. I have found it answer well to saturate flannel rags in petrol and suspend a few pieces from the wires in the vinery. The wasps leave the structure. Renewal is necessary twice a week owing to evaporation. Trace wasps from the garden to their nests, mark the latter with white paper tied to sticks. At sunset insert into each entrance hole a small roll of cotton about the size of one's finger, after saturating it in turpentine. Place a spadeful of earth on the hole, trample it firmly, and all the wasps will die.

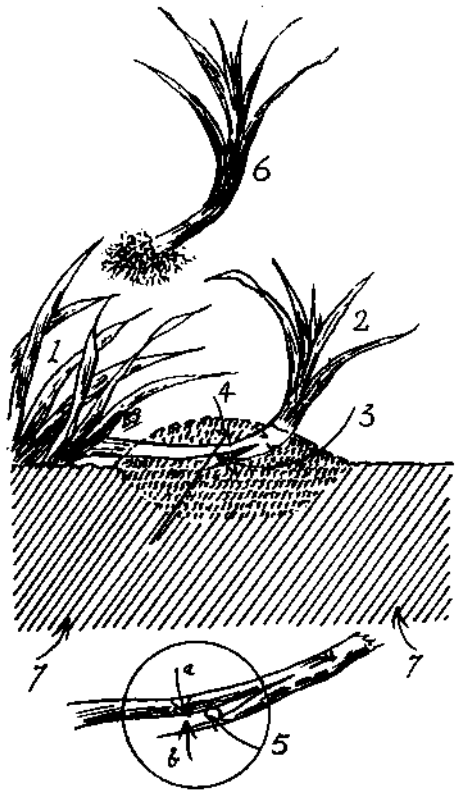
ANTIRRHINUMS FOR SPRING FLOWERING.

The popularity of snapdragons increases every year and, I may add, their general usefulness, too. If seeds are sown in the open border—a nursery bed, of course — and the resultant seedlings duly transplanted into their permanent quarters, an early display of blossom will result in the garden. But we are rarely satisfied to wait for such displays, we like to have flowers just a few weeks earlier and so make provision accordingly. For this purpose, seeds of the variety Nelrose should be sown thinly in a box towards the end of July. Although antirrhinums will grow well in a poor soil in the garden, they are nearly failures so grown in pots and boxes unless well fed. I recommend a moderately rich, fine soil for raising the seedlings in and a similar one for the first transplanting of them. This planting should be done at 2ins. apart, either in boxes or in a well prepared bed.

Boxes about 1ft. long and 9ins. wide and 7ins. deep are ideal for containing fifteen plants. Nine inch flowerpots will contain nine plants. The boxes and pots should be drained with lumpy turf, rotted manure and half-decayed tree leaves. The general compost should be a rich one, fibrous loam one-third, rotted manure one-third, leaf-soil and old mortar rubble one-third. The compost should be of medium firmness when the seedlings are planted and both pots and boxes kept on a bed of ashes in the open air until the end of October, then in a cool frame, being transferred from the latter to the greenhouse at the end of December.

LAYERING BORDER CARNATIONS.

To be quite successful in carrying out this operation, the cultivator should provide a sufficient quantity of gritty compost to allow, at least, a 6in. potful of it to each shoot to be layered. A very sharp knife is also essential and the careful clearing away of all dead "grass" around the base of the old parent plant. Now, we may begin the actual work of layering; the accompanying sketches show how it



should be done. No. 1 the parent plant, No. 2 the side shoot or branch to be layered, No. 3 shows how the cleaned stem is neatly slit in an upright direction and a tiny pebble placed in to keep the lip open. No. 4 shows how to insert the peg, which is to retain the stem in one position. No. 5 shows the circle within which the prepared compost is placed and new roots formed, mainly from the insides of the lip and stem *a* and *b*. No. 6 shows the rooted layer severed from the old plant, and Nos. 7, 7, the ordinary border soil. The new compost should be kept well watered in dry weather.

VIOLAS AND PANSIES FOR SPRING FLOWERING

The cultivator will not find much difficulty in securing a display of flowers from these plants during the greater part of the year if he decides to sow seeds twice a year—in July and in early spring. I am leaving out of this note any reference to the raising of violas from cuttings. From good strains of seeds I have had a great measure of success as regards form and trueness to variety; a few rogues are sometimes found and thrown out. Autumn planting is to be recommended, especially in Southern England, as then the plants do not suffer checks as those do that are planted in spring. In Scotland we know that both violas and pansies are safe in the care of the enthusiasts residing there. In northern counties of England mid-July will not be too soon to sow seeds, whereas, in southern counties the end of the month or first fortnight in August will be soon enough. The seeds should be sown thinly in very shallow drills and in a naturally cool border, but not one situated under trees or in the shadow of high buildings. These tiny drills should be flat at the bottom and the seed covered with some finely-sifted soil. In a very short time the seedlings will appear and care should be taken to protect them from slugs. In the case of choice varieties it may be advisable to winter the young plants in cool frames whether permanent or temporary. In the meantime the cultivator should prepare the soil in the flowering quarters by deeply digging it and putting in a liberal supply of well rotted manure. About one month prior to the final planting scatter one peck of soot on the surface at the rate of this quantity to 10 sq. yds.

CELERY AND THE CELERY FLY.

This plant is spoiled if it is coddled in its early stages of growth—by being subjected to too much bottom heat or even a high temperature in the structure. Then there are those plants—numerous enough this year—that are, as regards soils and manures, well treated, but being spoiled by the leaf maggot. The mischief occurred in spring when the fly deposited its eggs in the leaves, the harvest of resultant grubs coming in June and early July. Hand picking and crushing only could be done. Now, the fly is busy again depositing eggs, the grubs will come in late August and September. Prevent the fly depositing eggs by sprinkling wood ashes and old soot on the leaves and freely on the soil twice a week. Quassia water syringed on the leaves will also answer. The present is a good time at which to begin feeding celery judiciously.

GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Early Potatoes.—These may be lifted and stored in a dark, cool shed; then the ground will be available for other crops. Collect the haulms and lightly fork over the ground, then it will be ready for lettuces, radishes, spinach, turnips, globe beet, carrots and early dwarf peas.

Herbs.—These should be gathered as they come into flower and dried in an airy shed. A fine day should be chosen.

Dwarf Beans.—Early frosts often destroy the crop of dwarf and runner beans, so to make sure of a late supply in the autumn, vacant frames may be used. Sow the seeds 1ft. apart, and later on a mulch of half-decayed manure may be given. Keep the plants well supplied with water, and bear in mind that the lights will not be needed until the nights become cold and when there is a possibility of frosts.

FRUITS UNDER GLASS.

Peaches and Nectarines.—When the fruits have been gathered from the early trees, it will be advisable to cut out as much of the old wood as possible, at the same time tying the new growths so that they will receive the full benefit of the sun. If insect pests are present, the trees ought to be sprayed with an insecticide, or the house vaporised, the former for red spider and the latter for aphides. The ventilators may be open to their fullest extent both day and night, and while the foliage is healthy the trees may be syringed with clean water late in the afternoon when the weather is fine. Trees that are weak, either from age or over-cropping, should have their roots lightly mulched with decayed manure; the roots will also benefit by occasional applications of liquid manure. Young trees that show a tendency to grossness will not require any stimulants. In the later houses the fruits are swelling, and a much better flavour is secured if plenty of air is afforded during warm weather. See that the border does not become dry, and syringing the trees both morning and afternoon should be continued as long as possible, but the latter spraying should be done sufficiently early for the fruits to dry before sunset. See that the trees are kept free from insect pests.

Strawberries.—Runners layered in pots should be removed from the parent plant directly they are well rooted, and the pots then plunged in ashes until the time arrives for placing the plants in their fruiting pots.

THE FLOWER GARDEN.

Cuttings.—At this season it is a good plan to make up a hot-bed for propagating purposes, and when the rank heat has escaped and the temperature is on the wane, it will be ready for use. A layer of sandy soil may be placed inside the frame, or pots may be employed for the cuttings. Forsythias, escallonias, helianthemums, etc., may be propagated now and during the next few weeks.

Pruning.—This year the philadelphuses have been exceptionally fine, and now that they have passed the flowering stage the old growths should be cut out, also the weakest of the new shoots if they are overcrowded. The deutzias may be afforded similar treatment. Shrubs take a lot of nourishment out of the soil, so wherever possible a mulch of decayed manure should be given.

Dahlias are now making headway, and it will be necessary periodically to tie the growths to the stakes and thin the shoots where they are numerous. It pays to do this, because the remaining stems will be stronger and the flowers of better quality. Where the soil is poor, mulch the roots with manure.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Beetroot.—This year early sown seed has done very poorly and therefore a later sowing had to be made; this has done better, and so the work of thinning is consequently much later. If there is still a scarcity of crop, the thinnings, if carefully taken up and transplanted, will grow quite well. The plantlets should be well watered after they are set out, and sprayed or watered for a few evenings in succession if the weather is dry.

Borecole—or as Scotch folk call it greens or curly kale—is a useful winter vegetable, growing splendidly in nearly any kind of soil or situation. Where plants are still to set out, they need not be spaced quite so far apart, for, as a rule, they do not grow so large as those planted two or three months earlier.

Broccoli.—Where blanks have occurred, these should be filled without further delay. Even where planting has been retarded owing to one cause or another, good breadths may still be got in with every chance of success. We have planted that fine late variety Methven's June on August 1st and had good heads for cutting by the middle of May of the following year.

Cabbages.—The Winningstadt and Savoy types should also be set out, so that good supplies of vegetables will be available throughout the winter and early spring months. These late set out plants do not produce extra large heads, but they stand the winter better, and so prolong the supply.

Tomatoes.—The main crop and other plants bearing heavily will benefit from a top dressing of decayed farmyard manure, or fresh potting mixture. Continue to pinch out all unnecessary growths, so that the plants are kept within bounds, and the tomatoes obtain nourishment.

THE FLOWER GARDEN.

Herbaceous Borders. — When hardy plant borders are infested with perennial weeds, constant forking and weeding is really the only way to keep the ground clean. However, it is often the case that gout or bishop's weed and couch grass, etc., are interwoven with the roots of many plants. The only cure is to mark such plants now and dig them up in the autumn, or when the borders are bare, and if they cannot be properly cleaned have them thrown away.

Myosotis.—Seedlings should be sufficiently advanced to be set out now 3ins. or 4ins. distant from each other in lines 1ft. apart. If, however, the seed was sown thinly, and only a bed or two required from which to obtain cut flowers, the plantlets need not be moved, as they will flower quite well under such treatment. Young wallflower plants from late sowings should also be set out in lines 1ft. apart, allowing at least 6ins. between each plant in the lines.

THE HARDY FRUIT GARDEN.

Pruning.—It is now a good time to go over the wall and other fruit trees and cut back to half their length the current season's growth. This will allow sun and air to reach the fruits and so hasten the ripening and colouring. Shoots required for extension or to fill in should not be cut back.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.)
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Nierembergia frutescens is a very beautiful and graceful plant for the greenhouse, and may be raised either from seed or cuttings. If seed is sown at this time, good plants for flowering next summer will result. The plants should be pinched several times to preserve a bushy habit. They grow quite well in any good potting compost, and only require at all times perfectly cool greenhouse treatment. In the South at least they are more or less hardy. Cuttings root readily under a bell-glass in a cool greenhouse, and this method of propagation is useful for increasing any good forms, for in a batch of seedlings white-flowered varieties sometimes appear, as well as deeper-coloured forms. N. filicaulis and N. gracilis are two other species that are well worth growing.

Hydrangeas. — Continue to propagate according to requirements, inserting the cuttings singly in small pots and standing them in a close propagating case. Plants that have finished doing duty in the conservatory should have their flowering shoots shortened back, and when starting into fresh growth have a shift into larger pots. After repotting it is an advantage if the plants can be kept fairly close in a house for a week or so, and then stand them outdoors in a sunny position where the wood will have a good chance to get well ripened.

Primula malacoides.—Seed of this useful primula should now be sown in a cool greenhouse. This primula is very pretty and popular for decorative work, and it will grow and flower freely in quite small pots. It is also very effective when several plants are grown together in shallow pans. Primula malacoides is nearly hardy and only requires cool greenhouse treatment. It grows freely in any good potting compost, and its successful cultivation presents no difficulty, although during the winter damping off should be guarded against. Take care to keep water out of the closely packed rosette of leaves.

Primula Forbesii is very useful, especially for small unheated greenhouses. If seed is sown at this time the resultant plants will succeed under the same treatment as that indicated for P. malacoides. This primula may be grown singly in a 60-sized pot, or three or four plants placed in a 48-sized pot.

P. Cockburniana and P. Veitchii.—Although both these primulas do quite well outdoors in the South, they are well worth growing for the cool greenhouse. A stock of plants is easily raised from seed sown at this time.

P. japonica and PP. pulverulenta, Beesiana and Bulleyana, of which there are now many beautiful varieties and hybrids, are all worth growing for the cool greenhouse. As they are all strong-growing plants, the best results are obtained by lifting strong, well grown plants from the open and placing them in suitable-sized pots during the autumn.

P. Forrestii, only hardy in the West, is an interesting and distinct plant which should be grown for the unheated greenhouse. It is easily raised from seed sown at this time, and can be grown in cold frames. As it is a native of limestone cliffs in China, lime in the potting compost is essential. For this purpose old mortar rubble may take the place of sand in the potting compost. This primula in its native state is a long-lived perennial, and under cultivation is at its best the second and third year from seed sowing.

J. COUTTS.
Royal Botanic Gardens, Kew.

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ANSWERS TO CORRESPONDENTS

THE FLOWER GARDEN.

Sweet Pea Plants Failing (E. J.)—The plants are affected by a fungus called Black Rot. It begins its destructive work while the plants are much smaller, but the final stage is rapid, the plants suddenly dying owing to the whole of the stems being surrounded by the fungus. The soil is deficient in lime. Very little can be done at this stage to prevent other plants dying; the lime should be applied in the autumn, in sour soils, at the rate of 6oz. per square yard.

Stocks Dying (Mrs. B. S. R.).—A fungus called Pythium de Baryanum is the cause of the plants dying off at the soil level. Really, the mischief begins at an early stage of the plants' growth. The necessary transplanting from one kind of soil to another will, frequently, delay, if not cure, the disease. But where the soil in the flowering quarters is also impregnated with the fungus the plants will die suddenly, as our correspondent's have done. Liming in the autumn is the remedy and, in addition, some old mortar rubble should be mixed with the soil in the spring prior to planting, to render the ground sweet.

Plants for Growing in a Moist Soil (C. P.).—We suggest that our correspondent plants irises of the June and July flowering species in some of the beds. The following are suitable and beautiful varieties: Monnieri, Monspur, sibirica, s. Snow Queen, s. orientalis and spuria, W. A. Tait. In other beds, or judiciously mixed with the irises and other plants, grow spiræas, trolliuses, primulas for early flowering, geums, Saxifraga peltata, Lobelia cardinalis and a few funkias. These will afford more satisfaction than roses and shrubs in a water-logged soil.

THE ROSE GARDEN.

Rose-leaf Black Spot (W. J.).—The treatment which our correspondent has given — spraying with potassium sulphide, ½oz. to 1 gallon of soft water—is the correct one. The operations should be carried out very thoroughly. Procure the rock sulphide, purchased from a bottle and retained in another till actually used, as exposure causes loss of strength in a few hours even. A solution of this kind will not block any ordinary syringe. We do not know of any other more efficacious fungicide for the purpose.

Planting a Rose Garden (B. F., West Surrey).—We recommend the following plan, and we feel sure that our correspondent will be pleased with the result. The five long beds should be planted in pairs; the two outside, shortest beds each filled with Pride of Waltham (flesh, shaded rose), Mme. Eugene Verdier (flesh-rose), Mrs. John Laing (rich pink), Ulrich Brunner (carmine-rose) and Captain Hayward (carmine-crimson), the last colour being in the beds next to the two central ones in our correspondent's plan. Hybrid teas for the two last named: Althea, Admiral Dewey, Avoca, Beatrice, Bessie Brown, Betty, Clara Watson, Countess of Gosford, Dora, Dr. Campbell Hall, Duchess of Albany, Earl of Warwick, Edward Mawley, Etoile de France, Freda, George Reimers, Gipsy, Grace Molyneux, Gustave Regis, His Majesty, J. B. Clark, Killarney, Lady Barham, Lady Battersea, Lady Pirrie, La Tosca, Mabel Drew, Mme. Mélanie Soupert, Margaret, Melody, Mrs. Aaron Ward, Mrs. Arthur Munt, Mrs. E. G. Hill, Mrs. Peter Blair, Mrs. Walter Easlea, Othello, Peggy, Pharisäer, Prince de Bulgarie, Richmond, Shandon, Walter Speed and William Shean. These may be duplicated several times or added to in variety. Standards for those two long beds: Antoine Revoire, Betty, Captain Christy, Claudius, Caroline Testout, Countess of Derby, Dorothy Page Roberts, Duchess of Wellington, Duchess of Westminster, Earl of Warwick, Edu. Meyer, Ethel Malcolm, Florence Pemberton, Freda, George C. Waud, General McArthur, Grace Darling, Gustave Regis, Harry Kirk, James Coey, Lady Pirrie, Mme. A. Chatenay, Leslie Holland, Mme. Ravary, Marquise de Salisbury, Joseph Hill, Mrs. Alfred Tate, Mrs. David McKee, Pharisäer and Viscountess Folkestone. The ten large round beds, No. 1, should all be filled with the variety Hugh Dickson. The general effect of this arrangement would be striking and pleasing too.

Rose Buds Eaten by Maggots (H. J.).—The rose buds have been eaten by the maggots of the rose tortrix, Tortrix Bergmanniana. These maggots do a lot of harm in a very short time. Where there are few of them, hand-picking is best, but where numerous, syringe the bushes forcibly with weak quassia solution and immediately scatter dry lime on the caterpillars or maggots on the soil under the bushes; further, to destroy all fallen, vigorously rake the soil to and fro with a sharp-toothed iron rake.

THE ROCK GARDEN.

About Gentians (E. D. B.).—Gentians acaulis requires good loamy soil in an open situation. G. verna likes more grit, in a half shady place, with plenty of moisture when growing. Neither of them flower well in the vicinity of large towns for long.

How to Rid a Rock Garden of Ants (E. E. C.).—Of course drastic remedies, such as pouring boiling water on the soil where the ants have their nests, cannot be applied. Sanitas powder may be used with good results. Sprinkle it freely on the parts and mix it with the soil with the aid of a garden fork or hand trowel. The ants will leave the rockery or go deeper, beyond the roots of the plants.

TREES AND SHRUBS.

Beech Hedge not Satisfactory (E. S.).—The best treatment at present would be to give the hedge a mulch of old decayed manure, watering also about once a fortnight when the weather is dry. It is doubtful whether any of those plants not showing signs of growth will start now. Write to the nurseryman from whom they were purchased explaining the failure. He will, no doubt, replace them at a reduced rate in view of the care given to the plants.

Tree for Shade on Lawn, etc. (G. G., Cobham).—The double white gean, Prunus Avium flore pleno would be a better tree for the purpose than either of the Japanese cherries. It is fairly vigorous in growth. The best type of tree for shade would be a standard with a 6ft. stem. As a flowering tree it makes a most beautiful lawn specimen. Jasminum officinale is the white jasmine. It is very effective on an arch in the open, planted to clothe a porch or against a west wall. Climbing roses for a west wall: William Allen Richardson, Climbing Liberty, Climbing Mrs. W. J. Grant. East wall: Gloire de Dijon or Bouquet d'Or, Madame Jules Gravereaux, Longworth Rambler. South wall: Maréchal Niel, Climbing Niphetos, Bell Lyonnaise.

THE GREENHOUSE.

Narcissus Jonquilla from Seed (E. S., Hythe).—If our correspondent has the seed of N. Jonquilla it should be sown at once in pans and wintered in a cold frame. Here it should remain until 1926, when if it has done well it will have produced little bulbs. These may then be planted in a bed outside. Flowers will appear in about 1928 or 1929.

Statice profusa (E. W., Oakham).—This is a cross between S. puberula and S. Halfordii, a greenhouse evergreen plant, propagated by seeds or cuttings. It is easy to grow the young plants in a cold pit or frame. Throughout their growth these plants thrive best in a sandy, fibrous loam. At the final potting a small proportion of fibrous peat may be added to the compost.

FRUIT GARDEN.

Cherry and Gooseberry Leaves Damaged ("Howdenlea").—Judging from the appearance of the leaves of the cherry they have been bitten by a small bee that bites the leaves of roses and many other kinds of plants. These bees do not eat the leaves, but build their nests with the bits. The damage, except to roses, is rarely serious. The gooseberry leaves are eaten by the grubs of the sawfly. The eggs are laid early in the season and the resultant grubs soon eat up the leaves of whole bushes. Sprinkle soot and lime, or even fine grit and soot on the bushes to prevent the second brood in July. Spraying with Abol is a good remedy.

MISCELLANEOUS.

Paint for Labels (E. S.).—Our correspondent does not say whether the labels are made of wood, zinc or other metals. Gum shellac three parts, india-rubber half a part, should be dissolved separately in vessels in ether free from alcohol. When in a dissolved state mix the two and keep in a bottle tightly corked till required for use. Great care should be taken with this operation. A mere smearing of written labels will be sufficient to prevent obliteration of the writing for many years in all weathers. Pencil writing on wooden labels may be kept clear and preserved by simply painting over with an oil varnish.

Names of Plants.—A. H., Winchester.—1, Œnothera fruticosa; 2, Buphthalmum salicifolium; 3, Geranium sanguineum; 4, G. Endressi; 5, Campanula Portenschlagiana.——C. E. P., Dawlish.—Roses: 1, Shower of Gold; 2, Mme. Lambard; 3, Souv. de C. Pernet; 4, Cannot identify as rose had fallen to pieces; 5, Anna Olivier; 6, Hoosier Beauty; 7, Mildred Grant; 8, Miss Willmott; 9, Killarney.——J. C. S. R.—Iris Hector.——Mrs. H., Horsham.—Philadelphus coronarius.——N. L., Northants, Roses: 1, Evening Star; 2, Fisher Holmes; 3, Mme. M. Soupert.—K. R.—Robinia hispida inermis.——J. B. B.——1, Centaurea dealbata; 2, Oxalis corymbosa; 3, Potentilla argyrophylla var.; 4, Ceanothus dentatus.——R. F. C.—Olearia macrodonta.——C. P.—1, Antennaria dioica tomentosa; 2, Alchemilla alpina; 3, Ajuga reptans variegata; 4, Gypsophila repens; 5, Sedum spathulifolium; 6, S. spurium; 7, S. album; 8, S. acre; 9, Hieracium aurantiacum; 10, Sedum rupestre; 11, Thymus Serpyllum var. lanuginosus; 12, Campanula Portenschlagiana.——W. B.—Ferula communis.——J. T. B.—Roses—1, Dr. Van Fleet; 2, Climbing Paul Lede; 3, Lady Waterlow; 4, Bessie Brown; 5, Edgar M. Burnett.——S. S., Oxon.—1, Crambe cordifolia; 2, Tradescantia virginiana; 3, Funkia Sieboldiana; 4, Centranthus ruber var albus; 5, Aspidium angulare; 6, Scolopendrium vulgare; 7, Alyssum argenteum; 8, Stachys lanata.——E. G. S., Glos.—Lysimachia punctata.——M. R. C.—*a*, Abutilon vitifolium; *b*, Pernettya mucronata——N. W.—1, Ulmus campestris variegata, (variegated elm); 2, The rose had fallen to pieces on arrival, please send better specimen.——R. M. A.—Lychnis Viscaria flore pleno.——(J. P., Hants.)—Phlomis fruticosa.

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BOOK REVIEW

THE author of this interesting little book "Outlines of Fungi and Plant Diseases," by F. T. Bennet, B.Sc. (Lond.). Macmillan, 7s. 6d.), is to be congratulated on his presentation of such a large and somewhat complicated study in such a limited space.

The book is divided into two parts, Part I dealing with a general chapter on the fungi—their structure, systematic position and classification. Then follows a short chapter on each of the sub-groups—Phycomycetes, Ascomycetes and Basidiomycetes—with a short description of lichens bringing the part to a close. Part II deals with plant diseases, first from a general aspect, with a brief reference to resistance and immunity to disease. Each of the sub-groups are then taken up in detail and various types of these groups discussed. Quite a careful general review of each of the groups is given which serves to correlate the various distinctions found between types. The merits and demerits of a type system have been discussed *ad nauseam*, but one has to admit that, provided the student has the idea of relationship between what appear superficially isolated types, there is at present no system to surpass it. In this booklet the relationship between types is pointed out, and the student cannot but realise that such types are connected and one can gather that there is some co-ordinating force at work. Such ideas are exceedingly useful to cultivate in the mind of the student. Useful appendices on fungicides and soil sterilisation, fungi injurious to livestock, a *résumé* of the Destructive Insects and Pests Act, are most necessary acquisitions. The book is completed with quite a handy index. It is also remarkably free from errors in spelling, and such carefulness is to be admired.

Unfortunately, the numerous diagrams which are to be found throughout the book are scarcely up to the standard of the text. Several are somewhat inaccurate and many are not at all clear to the student to whom the subject is entirely new. One must, however, keep in mind the low price, and should be glad to have so many diagrams in such a limited space. Again, the subject of references to literature to the various chapters bears notice. The book is primarily for the use of students of agriculture and horticulture, and as such the references given are not at all suitable. For use of pure science students of the subject they admittedly are, as many are more cytological—*e.g.*, Gwynne-Vaughan (1922)—rather than dealing with a general account of the subject under discussion. It is unfortunate, also, that there is no mention whatever of the Bureau of Plant Industry papers or other American reports which contain much of the latest work on the subject of plant disease. A concrete example will serve to illustrate the point—there is no reference to any of the later papers by Mr. F. T. Brooks on Stereum purpureum, nor to those by Butler on leaf mosaic. Why always refer to De Bary and other old works on the subject? Such books, even although they are standard works, are not easily procurable for the majority of students and naturally cannot be consulted. Again, in many cases, a knowledge of German or French is required when referring to such works.

These small faults detract but little from the use and value of such a book to general practitioners of horticulture and students of agriculture. It is a volume which contains much that is useful and essential to him who wishes to understand the rudiments of mycology and plant disease, and the information is presented in a style almost without exception simple and lucid, although of necessity a few technical terms creep in. The book is excellently printed throughout, for which due credit should be given to the publishers.

G. C. T.

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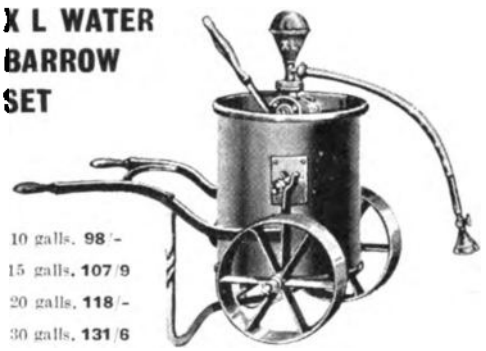

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SOCIETIES

THE NATIONAL SWEET PEA SOCIETY'S SHOW

THE above named Society held its annual show at the Royal Horticultural Society's Hall on Thursday and Friday, July 10th and 11th. The exhibits were numerous and the quality of the blooms excellent.

Messrs. R. Bolton and Sons had a very tastefully arranged exhibit on which Wembley, Empire, Mammoth and Powerscourt were outstanding sorts.

Royal Sovereign, Hebe, Mrs. Tom Jones and Daffodil were prominent sorts shown by Messrs. Dobbie and Co.

Messrs. E. W. King and Co. had a well arranged exhibit. Outstanding sorts here were Tom Sykes, Pimpernel and Constance Hinton.

On Messrs. S. Bide and Son's stand Royalty, King Mauve, Warrior and Charming were conspicuous.

Diana, Charming, Wild Rose and Grandeur were well shown on Mr. J. Stevenson's exhibit.

Messrs. Sutton and Sons had two exhibits on which the following sorts were conspicuous: The President Harding, Burpees, Giant White, Powerscourt, Geo. Shawyer, Mrs. Tom Jones and Tangerine.

Ravenswing, Lord Lascelles, Tangerine Improved, Hawlmark Pink Improved and R. F. Felton were outstanding sorts on Messrs. Ireland and Hitchcock's stand.

The competitive classes were well contested, especially so in the section for novices. The entries in table decorative classes, however, were few.

On Friday morning a trip was made by char-à-bancs to Syon House, Brentford, where the sweet pea trials were held.

In spite of the present spell of drought the blooms were exceptionally good. Unfortunately the majority of blooms were under number. After inspecting the trials the party proceeded to the Imperial Restaurant, Kew Green, Kew, where lunch was served. After lunch the party was shown round the Royal Botanic Gardens by Mr. A. C. Bartlett and Mr. Gerald Hillier.

WOLVERHAMPTON SHOW.

THE Wolverhampton Floral Fête of 1924 will surely be registered as one of the finest provincial shows ever held. Increased numbers of exhibits, totalling 644 entries, most tastefully arranged over an area of 40,000 square feet of ground in West Park, covered by 65,000ft. of canvas, should certainly defy the rumours in the district of the possibilities of discontinuance owing to lack of support, and it would be a great pity, after such a magnificent Show, were this ever to take place. It was decidedly a rose show, for the wealth of the queen of flowers was lavishly displayed on this occasion and, in the opinion of the judges, equalled and possibly surpassed the June Show in Regent's Park of the National Society. Not only were there literally banks of roses, but the colours, shapes and arrangement were of the highest perfection. Delphiniums, too, were in great evidence, and made a splendid show; while sweet peas, a credit to both amateur and professional growers, were a close third in the floral classes. Vegetables were strongly supported, and a credit to the Exhibition; but mention must be made of the fact that fruit entries were below the average, and it should be a recommendation to the Committee of the Fête to include in their schedule classes with the incentive necessary to attract first-class fruit exhibits, which can easily prove one of the most attractive and fascinating sections of a good show.

One feature of the exhibits that deserves special mention was the really high-grade of the table decoration and allied entries, as these often form one of the weakest sections at provincial shows of various classes.

Individual entries cannot be dealt with throughout, but a number call for special note. Mr. J. Cypher (Cheltenham), well known for his magnificent floral groups and exhibits, on this occasion probably excelled any that he has staged previously. It was the winning effort for the principal competitive class, and was magnificently conceived and carried out with first-class miscellaneous plants (particularly fine were the orchids), bedded with fine taste in a groundwork of suitable subjects. G. H. Kendrick (Edgbaston) and W. A. Holmes (Chesterfield), the second and third prize-winners, also exhibited splendid groups, either of which would have easily proved leading groups of sterling merit had their competitors been absent. Close to these was a group of magnificent begonias, staged by Messrs. Blackmore and Langdon, which made a wonderful splash of colour. Competitive vegetables, well staged and of fine quality, were set up by Mr. F. Streeter (gardener to Major Pam), a rising young exhibitor of first-class vegetables. Trade exhibits of non-competitive order were most attractive. Bakers of Codsall, with a design forming an entrance to a formal water garden, with terrace, provided a most interesting piece of work; Ellison's of West Bromwich sent a fine group of greenhouse plants; John E. Knight and Sons of Wolverhampton staged an excellent vegetable group; and Webbs of Stourbridge combined the utility of vegetables with the beauty of flowers, with splendid taste; and there were many more such exhibits, deserving of the mention which only space forbids.

THE EDITOR'S TABLE

WE have received from Mr. T. Smith of Newry some flowers of some of the hybrid escallonias, of which not enough use is made of them commensurate with their hardiness and freedom of growth and flowering. Donard Seedling is a pretty apple blossom colour and very free. Edinburgh or Edinensis, with flowers of a similar colour to Dorothy Dennison rose, is remarkably effective at a distance. It also has the useful habit of producing a crop of flowers in the autumn. Gracilis alba, pure white, is a very pretty shrub when in flower. Langleyensis is one of the finest hardy flowering shrubs of recent additions. Its long, arching branches wreathed with bright red flowers, give a brilliant effect. It is best in the twilight, when the colour becomes blood red. Philliptana, one of the parents of all the above, still ranks among the best of white summer-flowering shrubs. There was also a flowering spray of Trollius pumilus yunnanense. T. Ledebouri or sinensis was stated to be the latest of the globe flowers, but it is over before the above is in full bloom. Its large single rich golden yellow flowers are very handsome and remain a long time in good condition. Its height is about 18ins.

TRADE NOTES

MESSRS. SUTTON'S SUCCESS IN BRAZIL.

British horticulturists will learn with pleasure that at the Brazilian Centenary Exhibition, held at Rio de Janiero, the International Jury awarded to Messrs. Sutton and Sons of Reading a medal and certificate for the seeds supplied for sowing in the Gardens of the British Pavilion, where the floral display was the admiration of all visitors.

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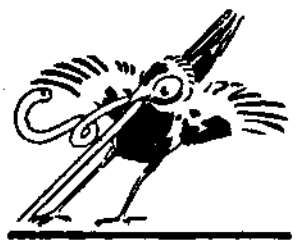

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AUGUST 2, 1924

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GARDENING BOOKS

PRESUMABLY, if one is interested in gardening, one attaches a certain amount of importance to gardening literature, but with the immense output of works on this most important subject and with only a limited pocket it is sometimes difficult to make a choice. Therefore, with some diffidence, I am going to give a short list under subjects of some of the volumes which I find most useful, not only as works of reference, but also, in the majority of cases, as books which make interesting reading.

THE HISTORY OF GARDENING.

"A History of Botany in the United Kingdom from the Earliest Times to the end of the 19th Century," by J. Reynolds Green (J. M. Dent and Sons, Limited). Infinitely the best book on the subject; exceedingly interesting to read and without fault.

"A History of Gardening in England," by the Hon. Mrs. Evelyn Cecil (John Murray). Classifies gardens and fixes the date to which they belong; is full of garden lore and out of the way information.

"The Old English Herbals," by Eleanour Sinclair Rohde (Longmans, Green and Co.). Gives concise and useful information about the earliest of English garden books, many of which are of extreme rarity and all of which are difficult to read and dull if taken in large doses.

GENERAL GARDENING BOOKS.

"The Illustrated Dictionary of Gardening, A Practical and Scientific Encyclopædia of Horticulture for Gardeners and Botanists," edited by George Nicholson; five volumes (L. Upcott Gill). Although out of print and rather out of date, this is still a standard work on horticulture, and is a necessity for all who go in for gardening on a large scale.

"Johnson's Gardening Dictionary" (Routledge). A little out of date, but still a most useful book.

"A Manual of Cultivated Plants. A flora for the identification of the most common or significant species of plants grown in the Continental United States and Canada for food, ornament, utility, and general interest, both in the open and under glass," by L. H. Bailey (Macmillan and Co., Limited). Although many plants grown in this country are not found in this book, yet it is of great use to all who are serious gardeners.

"Gardening for Beginners," by E. T. Cook (*Country Life* Library). The most comprehensive work for the beginner or the amateur who is only able to give a limited portion of his time to his garden.

"A Glossary of Botanic Terms with their Derivation and Accent," by Benjamin Daydon Jackson. (Duckworth and Co.). Explains the numerous Latin and Greek terms used in the science of gardening and is invaluable.

THE HERBACEOUS GARDEN.

"The Herbaceous Garden," by Alice Martineau (Williams and Norgate). Gives useful information about this form of gardening with selected lists of plants.

"Colour Schemes for the Flower Garden," by Gertrude Jekyll (*Country Life* Library). The standard work on the subject.

"Annuals and Biennials: Their Uses in the Garden," by Gertrude Jekyll (*Country Life* Library). Full of information.

ROCK GARDEN.

The late Reginald Farrer was so unexcelled in this branch of gardening that I confine my list to three of his books.

"The English Rock Garden," two volumes (T. C. and E. C. Jack, Limited). The most comprehensive book on the subject.

"Alpines and Bog Plants" (Edward Arnold). A smaller work than "The English Rock Garden" and considerably earlier in date, but of great assistance to all alpine gardeners.

"My Rock Garden" (Edward Arnold). Giving his experiences of growing rock plants in his own rock garden in Yorkshire.

TREES AND SHRUBS.

"Trees and Shrubs Hardy in the British Isles," by W. J. Bean, two volumes (John Murray). The most comprehensive book on the subject and an absolute necessity.

"Gardening for the Twentieth Century," by Charles Eley (John Murray). Although the title is deceptive, this book deals entirely with trees and shrubs and the author's experiences in growing them.

"The Cultivated Evergreens," by L. H. Bailey (Macmillan and Co., Limited). Although written for the United States, this book is of great value to foresters and gardeners in this country.

"Shrubs for Amateurs," by W. J. Bean (*Country Life* Library). This volume is not yet published, but Mr. Bean has permitted me to read the proofs. I am sure that this book will be of great value to all who wish to make selections of the best flowering shrubs for their garden

E. H. M. C.

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SILVER-LEAVED ROCK PLANTS

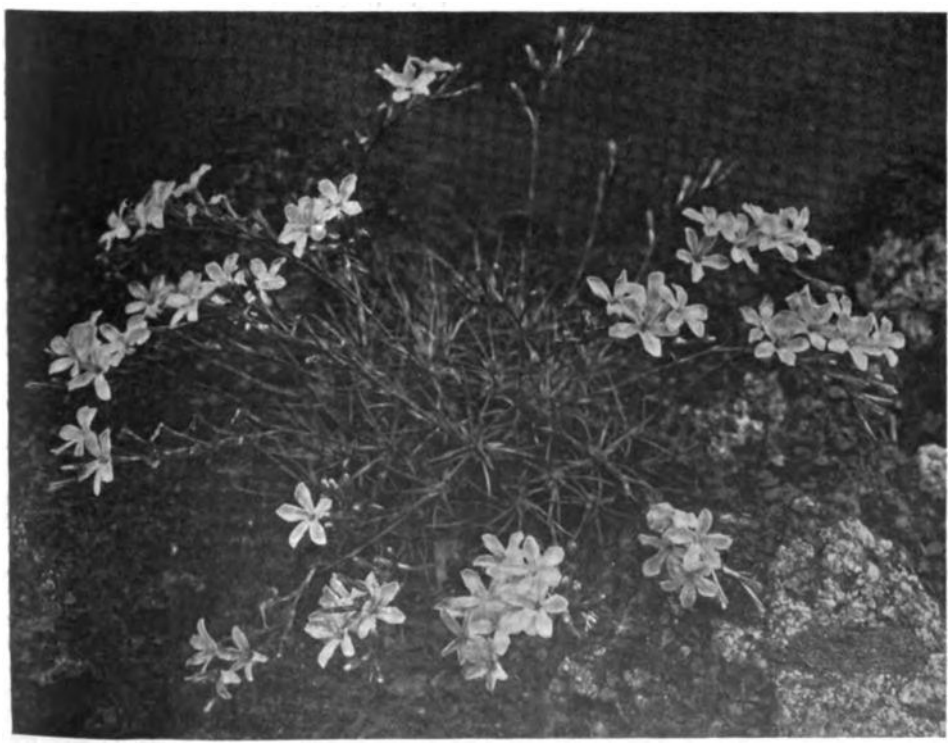
THIS ARTICLE TELLS OF A FEW ROCK PLANTS FOR DECORATION EITHER IN OR OUT OF FLOWER.

SILVER or grey-leaved plants are usually quite attractive when only the foliage is taken into consideration; some, in addition, have fine showy flowers, while others only possess very uninteresting and insignificant blossoms. In the dull dreary months of winter the rock garden can always be made brighter if several silver-foliaged plants are admitted, provided that they are planted here and there among the green masses that usually predominate. And again, silver foliage can be employed very largely in colour-scheme ideas; what could be more pleasing than to see the dazzling scarlet blossoms of Dianthus Atkinsoni peering through a mass of lacy, silvery wands of Artemisia frigida, or to see, in early spring, odd flowers of the golden yellow Crocus susianus poking their way through a dense silver carpet of Raoulia australis. But in this article I only intend to suggest a few items that have handsome grey or silver foliage and which are decorative either in or out of flower.

ARTEMISIA FRIGIDA, already referred to, is an almost indispensable plant for graceful silvery effects. Its finely cut foliage presents a dainty appearance of glistening silver some 6ins. or so high, while in summer the flower spikes reach up to 18ins. high; but, although the flowers are dull and uninteresting, the spikes are well furnished with leaves, and so help to make up for the deficiency of its flowers. It will thrive in almost any good ordinary soil and in a warm sunny aspect. It should not be planted too near any small choice alpines, as it is of rather a robust habit. Another artistic wormwood is A. canescens, which, again, requires ample space, with grey foliage, much more finely cut and divided than A. frigida, and bearing flowers equally inconspicuous. Nevertheless, it is a handsome plant, which has the peculiar beauty, when grown in a mass in autumn, of changing the leaves on the lower part of the stems to a shade of colour which gives the appearance of a purplish mist. Usually it is about a foot high and perfectly hardy, and responds well to an ordinary well drained compost in full sun, either on the rock garden or border.

POTENTILLA NITIDA.—Here we have one of the choicest and daintiest of its race, a perfect cliff dweller and a limestone lover. It is prostrate in habit, and makes either a carpet or a curtain (according to position) of shining silver leaves, which in summer is studded with numerous large rosy pink blossoms only an inch high. In cultivation, however, it has the reputation of being a shy bloomer, which is perfectly correct if it is allowed to wax fat in some spacious pocket of rich soil; but should it be placed on a sunny ledge or in a deep crevice where the soil is poor and gritty, then the chances of flowering it well are greatly increased. There is also a white version of this, namely, P. n. alba, requiring exactly the same treatment, and, although a first-rate alpine, worthy of admission into any rock garden, cannot equal the beauty of the pink type.

RAOULIA AUSTRALIS, A NEAT MINUTE CARPETER FOR A WARM, LIGHT, GRITTY SOIL.



A PRICKLY THRIFT WITH SILVER FOLIAGE, ACANTHOLIMON VENUSTUM.

SAXIFRAGA COCHLEARIS MINOR.—From the large family of saxifrages one is able to select a good assortment of choice grey-leaved varieties, but I am picking out one or two that I believe may prove suitable as silver-foliaged plants. In S. c. minor we have an extremely good alpine, very easy of culture, and one which enjoys a happy, sound constitution. It is a typical crevice plant for a sunny aspect, preferably in a good limy mixture. It forms firm dense hummocks of neat silvery small rosettes, from which, in June, it throws out numerous 6in. flower spikes, dark red in colour, which bear abundant dainty white flowers. By the way, this is the plant that so very often has been grown as the rarer S. valdensis, which it in many ways resembles. It is, however, absolutely distinct, being a much faster grower, having larger rosettes and an entirely different inflorescence.

SAXIFRAGA LONGIFOLIA.—The queen of saxifrages and a great favourite,

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hailing from the limestone cliffs of the Pyrenees. The one and only drawback to the plant is that it dies after flowering. It would be wise to provide it with a good fat soil to encourage growth instead of flower; grown as such it may be kept for several years without flowering, and the large silver rosette of long narrow strap-shaped leaves is almost as handsome as the flower spike, looking beautiful at any time of the year. A well grown specimen may have a rosette as large as a tea-plate, and is capable of producing a 2ft. or 3ft. flower spike composed of scores of white flowers, most graceful in appearance, particularly so when it is planted on its side, which is advisable when possible. It loves a crevice position in sun; here its rosette will lie flat to the rocks on either side of it.

CERASTIUM ALPINUM LANATUM.—This plant has been well and truly named the "chinchilla plant," on account of the silvery woolly hairs that almost envelop it when the growing season has come to an end. During the making of growth it looks almost green, but throughout the winter it appears to be a mass of silver fur. The flowers are large and white and are freely produced, with practically no trouble whatever; all that is needed for successful culture is a warm sunny position in any ordinary, well drained soil. Its height is about 3ins.

ANTHEMIS HAUSSKNECHTII.—The foliage of this item is particularly noteworthy, being of such an intense grey as to appear almost white. The leaves are bluntly cut and are up to 6ins. in length; while the rich golden flowers, of a large daisy type, are borne singly on 12in. naked stems. It requires abundant space, as it is a vigorous grower, making large, handsome tufts. For the border, it is also a good plant, especially where good foliage effect is desired. It will thrive in any ordinary soil.

DIANTHUS CÆSIUS.—Here we have the "Cheddar pink," a fine British native (which, I am sorry to learn, is getting scarce in its native haunts), and also one of the fifty best rock plants. It is a good doer both for the rock garden and the wall garden, and is extremely partial to lime in any gardening form. The foliage, which is a pure grey, is formed into a dense cushion an inch or so high, and the flowers are of a lovely clear warm pink, deliciously fragrant, profusely borne in June on 4in. to 6in. stems.

WAHLENBERGIA PUMILIO is a charming little alpine that will flourish in limestone scree or in a tight crevice in full sun. The plant makes a tuft of shining silver grass-like leaves 2ins. high. From these appear, in June, numerous dainty cups of an amethyst shade. It may be propagated by seed or cuttings, but it is an excellent perennial.

ACANTHOLIMON VENUSTUM.—A rather rare member of the prickly thrift tribe, also one of the handsomest, that builds itself into a hummock of grey spiny foliage. It looks particularly well when established in a narrow crevice, and likes a hot sunny position in a gritty limestone mixture. The 6in. flower spikes bear from six to twelve bright pink blossoms, arranged alternately along the spike.

PENTSTEMON RUPICOLA (syn. P. Davidsoni).—A perfectly prostrate woody pentstemon with grey-green, fleshy, oval leaves and flowers of a luminous port-wine colour. It is a fine plant, suitable for filling a tight crevice where it can grow over a rock face to which it will keep close and flat. It is not rampant in its growth, but is steady and genuine in merit. A light gritty compost (preferably limy), together with all the sunshine available, should be most satisfactory.

ERODIUM CHRYSANTHUM.—This is somewhat rare in cultivation, but it is, nevertheless, a very fine species, having most beautiful silvery fern-like foliage arranged in a generous tuft. The leaves are large, covered with silky silver hairs and, generally speaking, have the appearance and touch of velvet. Its flowers, of a pale sulphur colour, just ascend above the foliage, about 6ins. in height. It requires a deep gritty and well drained compost in a sunny aspect, otherwise it is of easy culture and a fine hardy perennial.

RAOULIA AUSTRALIS.—A neat, minute carpeter for a warm, light, gritty soil, with foliage of glistening silver and flowers hardly worthy of note, being small, creamy and unattractive. It is quite an easy doer, and used as a carpeter has very few rivals for brilliancy of foliage effect. To work a little sand occasionally into the carpet it forms, greatly assists in warding off the brown patches that sometimes occur and mar its beauty.

F. BARKER.

WAHLENBERGIA PUMILIO, A DAINTY SCREE PLANT.

A SILVER-LEAVED SAXIFRAGE, S. COCHLEARIS MINOR.

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A MAGNIFICENT SHRUB

WHEN Mr. Wilson, on his way back from his southern travels, two years ago, paid a visit to the Verrières Arboretum near Paris, we were surprised to see him making a dash in the direction of a specimen Schizophragma integrifolia, covered with its curious and showy bracts. This, he said, was a great surprise to him, for he had not seen one of that species in flower since he collected the seeds in China.

It is no exaggeration to say that S. integrifolia is a most striking shrub. For any one who has seen it in flower, it is certainly a sight not easily forgotten. The large bracts, creamy as they develop, become white with age and measure as much as 3ins. in length and 2ins. in width. They are borne on the shrub in June and July and last for quite a long time. The wind helps in making them conspicuous. The foliage which is very large, deep green, and most ornamental is a fine setting for the bracts. As is the case in all schizophragmas, the pygmy white flowers in the centre of the raceme are inconspicuous. It is surprising that such a beautiful shrub has not spread more rapidly since its introduction into Europe, fifteen years or so ago. The reason is probably that few people have seen it in flower and realised its beauty. The writer knows of a big Continental firm which put it on the market some years ago, but had to withdraw it from its catalogue owing to an annual sale of ten or twelve specimens only. Another reason is perhaps that it is a comparatively slow grower; but, from that point of view, it is certainly not inferior to Hydrangea petiolaris or S. hydrangioides, two saxifrageous climbers that are planted rather freely in gardens and which are, of course, infinitely inferior as regards showiness. There is no doubt that when the plant becomes better known, it will soon become popular.

WITH LARGE LEAVES AND WHITE BRACTS, SCHIZOPHRAGMA INTEGRIFOLIA.

The propagation of S. integrifolia is easy. As no fertile seeds are produced, as a rule, under our climate, it is done mostly through layering, an operation that is simply and quickly done. Although all positions will probably suit the plant, at Verrières it seems to relish particularly a north-eastern aspect. The wall on which it has been trained is about 8ft. high and is now quite covered. So far, the shrub is rather a shy flowerer, but one can see by the illustration here given that this year nothing more effective could have been wished for. It is quite possible that a more southerly position would suit the plant better as regards flowering, although, as regards foliage and general growth, schizophragma always prefers a shady or half shady situation.

C. L.

SOME RECENT DEVELOPMENTS OF THE BEARDED IRIS

BY SIR ARTHUR HORT, BT.

(*Continued from page* 518.)

I *HAVE* raised seedlings (there are three of them), from the "typical" form, but the result in each case was a *dwarf* plant, and only one of the three has the characteristic inflorescence of germanica. These results, so far as they go, make it probable that I. germanica is a hybrid, which also accounts for its comparative infertility; and so the problem is pushed a stage farther back. What, we must now ask, were the parents, and whence came their wild originals? We cannot, like the ancient botanist, who classified plants as "wild" and "cultivated," and thought that distinction was original, suppose that the ancestors of our plants were, so to speak, created "cultivated." Mr. Dykes, who has himself raised dwarfs from seed of an Eastern germanica called Kharput, opines that one parent was I. aphylla, a dwarf with a branching stem; but this plant is not a native of France. Aphylla loses its leaves entirely in winter, thus, as germanica does not do so, the other parent should be a species which is more or less evergreen and, as Mr. Dykes remarks, "there seems to be no known species which would give the necessary character when crossed with aphylla." So that we must leave the question, with the hope that some may be induced to bring the solution nearer by experiments in seeding.

If the discussion of such a problem seems a bit tedious, I would suggest in self-defence that the study of the geographical distribution of the originals of our garden plants may add a new interest to gardening.

To turn now from the germanica group proper to the miscellaneous crowd formerly called "German irises," Sir Michael Foster, the pioneer to whom all lovers of this fascinating genus owe an inestimable debt, proved the origin of many of these so-called "Germans" by actually raising by hybridisation plants indistinguishable from them. For example, he raised Queen of May by crossing pallida with the plant then known as Sambucina. The whole crowd, he said, had come ultimately from four wild stocks, pallida, variegata, squalens and Sambucina. Since his time Mr. Dykes has reduced the four originals to two, showing squalens and Sambucina to be hybrids derived from the other two. (I would hazard a guess that the dwarfish aphylla should be added to the attenuated list.) Strange as it may appear, then, all the garden forms known before Foster's time (he died in 1907), were due to various crossings of these two (or possibly three) parents and their children. The proper home of pallida seems to be Southern Tyrol; it varies a good deal in stature; I remember Foster showing me a bed planted with some thirty collected forms, to exhibit what he called "the degeneration of pallida, from a plant with stems over 3ft. high down to a dwarf of a few inches." But it is easily distinguished by two characters which mark it off from germanica and other species, the flowers are all set close to the stem, which only branches very slightly, and the spathe-valves enclosing the bud are entirely scarious (not green), so that an unpractised observer might think that his buds had died without

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opening. (Mention may be made here of I. Cengialti, though it was not known at the time of which I am speaking; it was first introduced by Foster from a scrap of rhizome sent him by a lady friend in a letter from somewhere near the Monte Cengialto in South Tyrol; a larger consignment had been intercepted by the Customs officials. This plant, which occurs in a great variety of shades of violet in the mountains round the Lago di Guida and also on the Adriatic coast, differs only from pallida in having green (not glaucous) leaves and spathe-valves, not completely scarious. I have raised countless pretty and very floriferous seedlings from plants I collected near Riva. It crosses freely with pallida with charming results.)

We come back to the first parent of the older garden forms—I. variegata belongs, says our authority, to the neighbourhood of Vienna, Hungary and the Northern Balkan States. The wild plant is in most of its forms a rather inconspicuous little yellow dwarf; it takes its name from the falls, which are variegated with chestnut or purple; in some forms the fall is edged with a line of bright yellow, which reappears in some of the most striking hybrid variegatas, such as Iris King and Maori King. I have raised, from bee-fertilised seed of the wild plant, a series bearing this character; by the way, one of the batch had pale lilac flowers, showing no trace of the coloration of the seed parent. To variegata are doubtless ultimately due all the yellow, browny or bronze shades in our garden forms.

Aphylla (if it should be added to the list), is a very variable dwarf, with branching stems; it belongs (I quote Mr. Dykes again), to Southern Germany, Bohemia, Hungary and the Caucasus; he adds that the various forms have received nearly thirty specific names, as hungarica, benacensis, biflora, nudicaulis, furcata; we may be grateful to him for simplifying the nomenclature. The colour of the flowers is generally some shade of purple, with a blue or bluish beard. Many of the forms are very desirable garden plants, and this species eludes our mischievous winters by dying down completely.

The "German host," then, of a generation or so back owed its origin to these two (or three) species. Many of these old garden forms survive, and, though certainly some have not the right to do so, which belongs to the fittest, and might well make room for their juniors, some are still of permanent value. I, at least, should be sorry to be without such old favourites as Gracchus, Jacquiniana, Mrs. Neubronner, Maori King, Madame Chéreau and Bridesmaid.

Since Foster's time, and largely as a result of his work, new varieties have appeared by hundreds. The alarming check list issued by the American Iris Society enumerates about 2,500! Many of these new introductions, as well as many of their predecessors, are no doubt superfluous; yet there is an astonishing number which mark a great advance in the old limited range. This advance is largely due to Foster in two ways; first, because he introduced many notable wild forms; and second, because he bred from these and showed us how to breed. Under the first head may be mentioned fine germanica forms from the Near East, as Amas, Siwar, Kharput and Trojana from Armenia and Anatolia, and fine giant Eastern pallidas, as mesopotamica oriental variety, Ricardi and cypriana.

Thus he gave us good new plants and also new blood for fresh creations, though he did not live to carry on his hybridising in this class further than one generation. (It should be said that he was working also at other groups, and in particular devoted himself much in his last years to hybridising in the oncocyclus and regelia groups.).

(To be continued.)

MIDSUMMER AT VINCENT SQUARE

HERBACEOUS and hardy plants were much in evidence at the Royal Horticultural Society's Show on July 22nd. Roses were to the forefront, but showed signs of our trying climatic conditions. On the whole then the standard of previous shows was maintained and in some branches took a step forward, which is to be much appreciated.

One could not but single out, at one end of the hall, the massed array of scented-leaved geraniums shown by the Hon. Vicary Gibbs and raised by Mr. Edwin Beckett. Aldenham has long been famed for its collection of these beautiful pot plants and the high degree of excellence which has been reached in their cultivation and propagation. There were many varieties on show and these were mostly to be admired for the sake of their foliage, with all its varying tints of green.

The familiar zinnias formed the exhibit of Messrs. Dobbie, Edinburgh, and with their several well marked colours, such as white, yellow, orange, magenta, violet and purple, provided a picturesque little army with their giant dahlia-flowered heads nodding on the long, stout and somewhat coarse stems. They are essentially coarse plants, but if the five kinds as shown are massed heavily in a border, then the effect is striking at a distance.

Words of admiration could not fail to find expression when one halted for a moment at Messrs. Kelways' stall, there to be confronted with a truly magnificent and well arranged collection of gladioli. Many old varieties and favourites were to be seen, such as "Marie Studholme," and these maintain their old-fashioned charm even against all new comers, such as their novelty, Gladiolus Langprim Pinkie, which has just originated and has been raised from seed by Messrs. Kelways. It is a cross between primulinus and Gandavensis.

Many plants of Trachelium cœruleum, massed together and fringed with coleus in pots, formed the exhibit of Messrs. Carter. The result might have been more effective had the blue been relieved by a dash of a more vivid colour. The young plants were exceptionally floriferous and should stimulate growers of this sub-shrub into activity. This species is fairly hardy in England and should provide a useful addition to the garden.

Roses were exhibited to advantage by many firms and many old, together with fairly new varieties were massed together with good effect. To mention one or two, perhaps Mr. Pemberton's table took the eye most of all. Here a new hybrid musk, Penelope, is worth a minute. In colour it is a good blush white with yellow centre and shapely petals. The sweet scent of The Adjutant, a two year old variety, could be distinctly felt, with its long oval corolla, rose carmine in colour contrasting well with the yellow and crimson of the many other varieties. Messrs. Easlea's had a tastefully decorated display with such varieties as Los Angelos, Mrs. Henry Bowles and Clarice Goodacre, a good white, standing out. Ophelia, Golden Emblem (yellow tinged with orange), Lady Dixon Hartland (pink), Sovereign and Sunstar (yellow), were to be seen on Messrs. B. R. Cant and Son's stand, while on Messrs. Chaplin Bros. section, Innocence, a pure white with velvety petals of a rather quaint appearance, took our fancy. Other varieties here were Admiration (pink), Souvenir de Claudius Pernet (yellow), Madame Butterfly. Frank Cant and Co. and D. Prior and Son had also small well arranged exhibits, showing numerous up-to-date kinds, the latter firm have some fine forms of polyantha roses, such as Elsie Poulsen.

Herbaceous and hardy plants formed the main bulk of the Show and these were ably displayed by many firms. Phloxes, with their vivid tints, were in evidence in an exhibit by Messrs. John Waterer. This exhibit was somewhat crowded, but a few varieties are worthy of mention, such as General van Heutsz (rose-salmon flushed with blue at base of petals), Antonin Mercie (bluey-purple with white centre). Chrysanthemum max. Phyllis Smith looked reliable. Messrs. B. Ladhams had a general collection of herbaceous plants with Lavatera Olbia rosea predominant. Mr. H. J. Jones showed a bed of herbaceous phloxes interspersed with Thalictrum dipterocarpum. Messrs. H. Hemsley produced the result of six year's work on Sidalceas, showing the many coloured strains which have been obtained by breeding. Mr. W. Wells, Junr., M. Prichard and Sons, Fred. G. Wood and the Chalk Hill Nurseries collections contained hardy and herbaceous plants, such as lupins, phloxes, Aconitum bicolor, delphiniums, while the last-named firm also had a fine collection of poppies.

In Messrs. Amos Perry's collection of hardy plants Chrysanthemum Icecap was outstanding among the many yellows of coreopsis.

Mr. C. H. Herbert showed Dianthus Herbertii, including such sorts as Fire King, Mrs. Giffard Woolley, Bridesmaid and Gertrude.

A special word of commendation is due to Isaac House and Sons for their show of new hardy perennial scabiosas. These were of good quality and showed a grading in colour from Isaac House (a deep blue), Constancy (of a medium depth of blue) to Edith (pale blue).

Mr. Thomas Carlile, Mr. G. Reuthe and Messrs. Tucker had hardy herbaceous and rock plants exhibited to advantage, while Messrs. L. R. Russell, Limited, showed clematises and greenhouse plants.

Carnations were once more in the able hands of Messrs. Allwood Bros., C. Engelmann, Lowe and Gibson and John R. Crowhurst—the latter showing healthy cut blooms which were all grown out of doors.

The fruit exhibits of Messrs. Geo. Bunyard, cherries, currants and gooseberries; Chivers and Sons, Limited, currants, raspberries and gooseberries; Laxton Bros., currants and gooseberries were up to the usual standard of excellence of these firms.

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NEW AND RARE PLANTS.

ZINNIA DOBBIE'S GIANT DAHLIA-FLOWERED.—A good strain of this showy annual was on view. The flowers varied somewhat in colour, from pale pink to yellow and scarlet and crimson, and were of immense size. This strain should soon become popular. Award of merit. Shown by Messrs. Dobbie and Co., of Edinburgh.

PLAGIANTHUS LYALLII *var.* GLABRATA.—This is a shrub of the family Malvaceæ, which is hardy in favoured parts of this country. The large white five-petalled flowers lend an air of distinction to the plant, hanging as they do in axillary leafy panicles. The foliage is light green in colour, the leaves ovate and serrate in outline. It is decidedly graceful in habit and deserves to be recognised for its own worth. Award of merit. Shown by Messrs. R. Veitch and Son, Exeter.

LAGERSTRŒMIA INDICA.—This is a glabrous smooth and brown-barked shrub, with rather small ovoid sessile leaves. The flowers, borne in an open panicle are bright rosy pink in colour, but in some cases show a tinge of purple or white. The bloom in summer is profuse, as the specimen exhibited showed to advantage. It well repays the cultivator who spends time over it. It can be propagated easily from seed or cuttings. Award of merit. Shown by The Director, University Botanic Gardens, Cambridge.

BORDER CARNATION SIR CHARLES SEELEY.—Fine shapely blooms of good quality and colour. It is of a scarlet tint, with a good depth of colour. The petals have a rich velvety appearance and they do not show splitting. The blooms are gracefully poised on slender, wiry stems, setting them off to advantage when placed in a vase. Award of merit. Shown by Mr. E. C. Goble.

HEMEROCALLIS HYBRIDA LADY HESKETH.—A very fine form indeed of this genus so much prized in open planting. The specimens exhibited were tall and graceful, with tall scapes sometimes branching so that the inflorescence becomes semi-paniculate. The flowers are large and lily-like and a good sulphur yellow in colour. The perianth might be described as bell-shaped with an expanding cylindrical tube. The stamens are delicately set on slender filaments. Leaves are basal, long and linear. It shows an improvement in shape on one of its parents, viz. H. citrine. The parentage is H. Thunbergii × H. citrine. Award of merit. Shown by Messrs. A. Perry, Enfield.

ORCHIDS

MILTONIA CONSTANCE *var.* REGINA (vexillaria × Isabel Sander).—A great improvement on the well known M. vexillaria, the colour being deep rose, and with ray-like markings around the crest at the base of the labellum. Award of merit. Shown by Mr. H. T. Pitt.

MILTONIA PHALÆNOPSIS.—A finely grown plant with sixteen flowers was shown. It is a native of Colombia. Cultural commendation to Mr. Thurgood, gardener to Mr. H. T. Pitt.

PROMENÆA XANTHINA.—An excellent plant was shown with over seventy flowers of citron-yellow colour. This species is also known in gardens as P. citrina, and by some authorities the genus promenæa is regarded as a section of the genus zygopetalum. This orchid is generally given a place in the intermediate house, but Mr. E. R. Ashton's specimen has been cultivated in the cool house, along with the odontoglossums, and this treatment is evidently beneficial to successful results. Cultural Commendation to Mr. Kent, gardener to Mr. E. R. Ashton.

FLORISTS' CARNATIONS AT VINCENT SQUARE.

THE National Carnation and Picotee Society, which seeks in a measure to perpetuate the old florists' carnation, held its Annual Show at Vincent Square, Westminster, on July 22nd last. But, with flowers, as in manners and dress, fashion changes and the old order giveth place to the new. No longer does the carnation fancier show his blooms, mathematically placed at regular intervals on show boards, with a paper collar around the neck. Until quite recently the Society had a few classes at the beginning of the schedule for bizarres and flakes shown in this manner, but now the remaining four classes are relegated to a minor position and prizes won in them "do not count points for cups or medals." But there were no exhibits in these classes, so it would seem that the day of the real florists' carnation is practically over.

It may be interesting to point out that the self-coloured carnation now so popular was once "accounted a great defect." Then there were three classes of carnation—the flake, the bizarre and the picotee, but long since we have come to consider the picotee to be "like the pink, a distinct species," and while preserving "the right spelling, give it an English pronunciation."

But to our present day floral taste these "defective" self coloured carnations made a very effective display and it was pleasant to note, as was the case at the recent Sweet Pea Show, that fragrance is more frequent in the flowers than of recent years.

For the first time, probably, over a very long period, the name of Mr. James Douglas did not appear on the exhibitors' cards in the open division where the chief prize winners were Messrs. Lowe and Gibson, who staged exceedingly good blooms. Their prize-winning carnations were Yvonne Thomas, Bookham Rose and Dora Blick, among the selfs; Jenny Murray and St. C. Amos, and of the fancies other than yellow or buff-green, Mrs. E. Charrington.

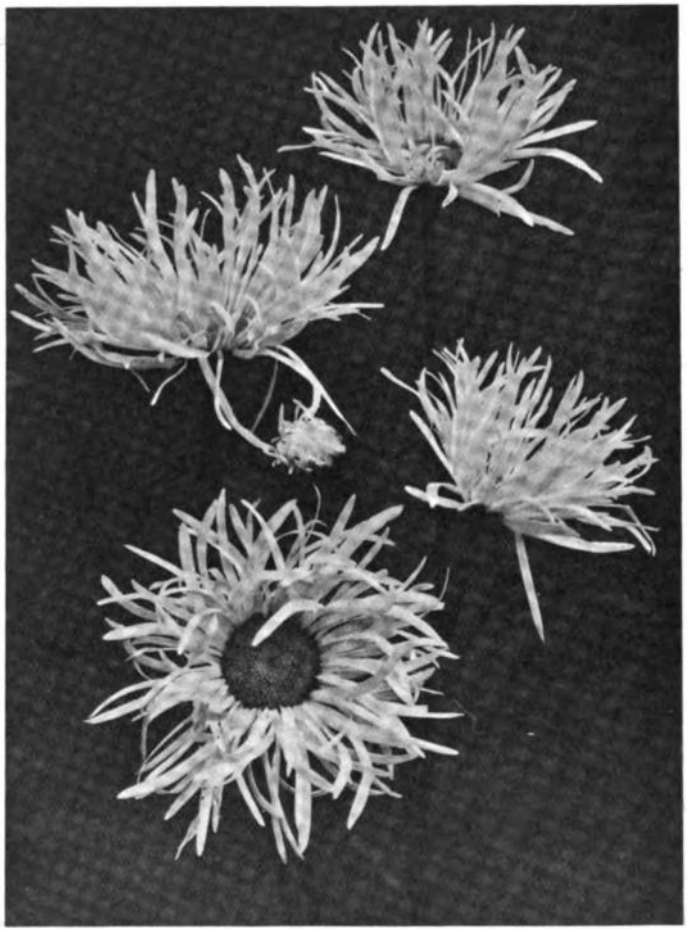
Mr. R. Morton, Woodside Park, won the first prize in the class for yellow or buff ground fancies with very good vases of Kelso, Highland Mary and Lieutenant Shackleton.

In the principal amateurs' division Miss Shiffner, Lewes, won nearly all the prizes and so holds the Martin Smith Memorial Cup for the year. Miss Shiffner had lovely vases of Viceroy, Kelso, Rose Clove and Mrs. A. Brotherston. The last named a heavily flaked crimson was the premier clove-scented bloom in the Show. Mr. E. Charrington had the three best vases of fancies, other than yellow ground, and Mrs. E. Charrington, the premier fancy. In the colour classes Miss Shiffner was the only first prize winner and her varieties were Purity (white), Border Yellow, Elizabeth Shiffner (terra cotta), Jean Douglas (scarlet), Mrs. G. Marshall (maroon), Bookham Rose and The Grey Douglas.

The Edmund Charrington Cup was won by Mr. E. H. Painter, Brentford, who in Eclipse had the premier light-edged yellow ground picotee. Mr. H. A. Knapton, Orpington, had the best picotees and yellow ground fancies, while Mr. S. Williams, Chipstead, was first with selfs and white ground fancies.

The Cartwright Challenge Cup, in the small growers' division, was won by Mr. F. H. Seymour, Finchley, who had praiseworthy blooms.

In the seedling classes Mr. G. D. Murray had two very beautiful varieties. Joan Wardale, an intense crimson maroon self, and Myrtle Pettigrew, a very uncommon fancy which may be described as greyish-heliotrope, lightly flaked with scarlet. Both varieties were of large size, perfect form and deliciously fragrant.



CHRYSANTHEMUM "ICE CAP."

AMONG THE ARTICLES IN OUR NEXT ISSUE WILL BE:

SCENTED-LEAVED PELARGONIUMS BY EDWIN BECKETT.

SOME NEW AND NOTEWORTHY SHRUBS.

ASSOCIATION OF ROCK PLANTS.

FRUIT BOTTLING AT HOME.

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HARDY BRITISH FERNS

THE FERN HAS A CHARM AND GRACEFULNESS ALL ITS OWN AND IS EXCELLENT FOR DECORATIVE PURPOSES, ESPECIALLY IN THE ROCKERY, WHERE IT LENDS A CERTAIN DISTINCTION TO THE SURROUNDINGS.

THE enquiries for plants to grow in certain places, such as dark, shady, wet or dry positions, are so numerous that I fear it may seem presumptuous on my part to take up so much space with "Hardy British Ferns." However, it must be admitted there are many and numerous nooks and corners by the side of houses and mansions, a porch or terrace, or under trees on a lawn, which are more or less shut out from direct sunlight, and where many flowering plants fail to bloom, or even give a small return for the labour and time allotted to them. These hardy British ferns, with such luxuriant greenery and freshness, take their place in situations where such plants as peonies, delphiniums, Michaelmas daisies, beardless irises, phloxes, etc., fail to grow. Yet, the hardy fernery need not be flowerless, as such spring flowering plants as daffodils, wood hyacinths (Scilla nutans), hardy cyclamen, the Lenten roses (Helleborus orientalis), also the American Dog-tooth violets (Erythronium) and wood anemones (Anemone nemorosa), if judiciously planted, will produce quite a display of flowers during the spring months.

A BEAUTIFUL CRESTED VARIETY OF THE HART'S TONGUE FERN, SCOLOPENDRIUM VULGARE GOLDEN QUEEN.

At the recent Chelsea exhibition many must have noticed the cool and restful appearance of the foundation bank of British ferns in the group of Iris barbata shown by Mr. Perry. The ferns imparted a peculiarly fascinating and graceful ground-line base to the iris that must have appealed to all who saw them. This, by the way, illustrates their usefulness as exhibition plants, but it is not altogether as exhibition plants that I attribute their especial merits.

In tropical countries ferns are much more in evidence for garden decoration than is general in our British gardens. In these tropical gardens one frequently meets tree ferns and other graceful and beautiful species. Associated with palms, such as lantana, cocos, kentias, etc., planted in graceful irregular groups, they give the surroundings a most charming effect; but they are quickly disfigured in our changeable climate, and if planted as summer sub-tropical bedding, must necessarily be protected from cold winds and frosts.

There are endless varieties of hardy ferns that may be planted with impunity in our gardens, and which are equally effective and as graceful as many of the tropical varieties, and the great advantage in planting British ferns is that they are hardy, and withstand our coldest winters. I do not pretend to give a botanical description of the genera, but only a short list of the outstanding and most decorative varieties.

In the soft prickly shield fern (Polystichum angulare), there is quite a host of varieties, varying in height from dwarf congested forms of a few inches, to tall, erect, spreading fronds with the most characteristic differences, and particularly suitable for planting in shady nooks and ravines, or wooded banks and slopes. P. angulare divisilobum plumosum densum erectum, is fully described by the name, viz., erect, dense and feathered divided lobes, of a delicate soft green.

P. a. d. p. d. Perry No. 1 is the most beautiful and most graceful, and nearest approach to vegetable mosaic tracery, the broad handsome fronds are pale green, with gold-coloured sheen at the edges of the pinnules, which overlap each other in the most graceful manner possible.

P. a. d. p. d. robustum Perry has a strong, vigorous, robust habit, which renders it one of the most graceful and beautiful of all polystichums, with its massive fronds 3ft. and more in length, the base of which is frequently 10ins. to 12ins. wide, with neat and finely divided pinnæ, and elegantly plumose.

P. a. d. p. d. superbum is one of the most distinct, and closely resembles in its construction the "Todea superba" or a plumose form of nephrolepis, in the density of its fronds. The young fronds are a delicate pale green, gradually turning a darker green with age, remaining in this condition until quite late in the season. There is quite a number of the "divisilobum" type and all are well adapted for pot culture. In the dwarf congested forms, with pinnæ and pinnules closely set and overlapping, are P. a. congestum minus, and the variety cristatum, with prettily crested fronds, also P. angulare parvissimum, a dwarf with very closely set pinnules, giving the plant, which is not more than a few inches high, a very neat appearance. The varieties of polystichum are so numerous that it would require too great a space to describe even a fair selection, but the above are all outstanding varieties and may be recommended as only a few of the best.

The lastreas are another large and interesting genus and include many distinct and very beautiful also decorative forms, highly adapted for various situations; some diminutive and admirably suited for the chinks of rockeries, while many develop into the most beautiful specimens imaginable, growing several feet tall when established. The general compost should consist of good fibrous loam, leaf-mould or peat, and sufficient coarse sand to admit of a free percolation of moisture.

L. dilatata (the broad Buckler fern), is a very robust species and under favourable conditions quickly develops into a handsome specimen. The outstanding varieties are: L. d. crispata, with bold massive branched heads, a tall grower;

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L. d. crispata cristata, beautifully crested; L. d. grandiceps, a very graceful and decorative fern, with heavy tasselled crests.

L. Filix-mas (the soft male fern) is a vigorous-growing plant, with good habit, very accommodating as regards soil and situation, and frequently found luxuriating in town and London gardens, producing its fronds in stout tufts from a central crown. The broad and lance-shaped fronds are of a refreshingly verdant green during the summer. A few of the most outstanding are: L. F.-m. Bollandæ, L. F.-m. crispa Barnesii, L. F.-m. cristata Barnesii, L. F.-m. c. Martindale, L. F.-m. foliosa, with gracefully recurving fronds, and L. F.-m. grandiceps, prettily crested and with heavily tasselled heads.

L. pseudo-mas (the hard male ferns), are most decorative on account of their stately, robust habit and duration, producing as they do large fronds of a distinct leathery character until well into the second season, each year's fronds replacing the previous year's growth, quickly forming magnificent specimens when planted in a shady, moist position in a light alluvial soil. Some of the best are: L. p.-m. angustata cristata, long, strap-shaped fronds, prettily and evenly crested, very effective and distinct. L. p.-m. crispa cristata, L. p.-m. c. c. angustata, L. p.-m. cristata, very heavily crested, a most handsome fern; L. p.-m. splendens, a very tall, handsome fern; L. p.-m. ramo-cristata, exceedingly ornamental, forming a compact bush and prettily crested.

Osmunda regalis (the royal fern), is the most dignified and stately of our indigenous ferns, and cannot be overlooked. It well merits its regal honours. It is found in the boggy and marshy woods by the Devonshire lakes and Killarney streams and also in various parts of England luxuriating in majestic splendour. It has a large, massive rhizome, bearing fresh, green fronds of leathery texture, and in favoured localities may often reach the towering height of 6ft. to 10ft. It is anomalously called the "flowering fern," on account of the sporangia (or spore cases) formed in terminal brown panicles above the fronds and which are strikingly obvious at first sight, adding considerably to the majestic growth and stature of the plant. The following are worthy of a position for planting on the shady side of water-lily ponds or streams, lakes or anywhere where their fibrous roots have the benefit of the spongy, peaty soil:

O. regalis, the well known royal fern; O. r. cristata, a very beautiful crested form, with large spreading fronds.

Scolopendrium vulgare (the hart's-tongue fern).—Few genera are so varied in construction as the hart's-tongue ferns. Their flaccid, bright green leaves, with cordate base, are to be found in all the most fantastic forms imaginable, from the strap shape of the typical species, to the most beautifully crested and waved forms. All are perfectly hardy and evergreen, revelling in limestone rocks, cliffs, ravines or the shady parts of lakes or streams, hedgerows or leafy woods. If planted in light, peaty soil, or leaf-mould, and given good drainage, a luxuriant growth is assured. It must suffice to mention but a few outstanding varieties, as they are endless:

S. v. crispum nobile, of recent introduction, the large and deeply frilled fronds are extremely beautiful, 2ft. or more in length and 5ins. broad at the base, a most handsome pot plant. S. v. crispum Robinson's var.; S. v. fimbriatum; S. v. grande; S. v. peraferens; S. v. robustum; S. v. plumosum, are all extremely decorative.

Other interesting ferns and well adapted for the rockery are the Polypodium Phegopteris (the beech fern); does well where moisture and shade prevail. P. Dryopteris (the oak fern), delights in woods and dry, shady nooks in the rockery; P. calcareum (the limestone polypody), produces masses of lovely foliage, and delights in limestone rocks and shade.

P. vulgare is extremely pretty in almost any position in shady or practically shaded rockeries, etc., and embraces some of the most exquisite evergreen species and varieties in hardy ferns. The following should be in all collections: P. v. Bideford variety; P. v. cambricum (the Welsh polypody); P. v. cambricum Barrowi; P. v. grandiceps, P. v. Forster's variety; P. v. Fox's variety, each beautifully crested, and P. v. ramosum.

Blechnum Spicant (the hard fern), is most charming for pot culture, and for shady damp situations in the rockery in a peat and leafy soil. B. S. cristatum and B. S. trinervum coronans are most beautiful.

Adiantum Capillus-veneris is one of the most popular ferns for planting in the crevices in the rockery, producing neat tufts

A DECORATIVE FERN FOR POT CULTURE, SCOLOPENDRIUM V. C. PLUMOSUM.

of handsome maidenhair fern-like foliage. A. C.-v. imbricatum and A. C.-v. magnificum are exceedingly handsome, comparing favourably with the well known greenhouse fern, A. Farleyense.

Asplenium Ruta-muraria (the wall rue), quickly becomes established on old walls and in niches in the rockery in old mortar rubbish and leaf mould. A. Trichomanes, the common spleenwort, and A. T. cristatum should be similarly treated and will create a glorious effect. A. viride (the green spleenwort) delights in a more moist situation.

Athyrium Filix-fœmina (the lady fern) is a very important, interesting and varied group of deciduous ferns, consisting of many curious and fascinating forms, from the most diminutive to several feet high. To give an accurate description would be too complex, and a most difficult task. The most important feature of this group is, that they lend themselves to almost any kind of soil and position, but like other members of the family, require shade and moisture, with a free, open, light, leafy soil to ensure their successful cultivation The raising of ferns from spores is very interesting and will be dealt with later.

W. LOGAN.

ONE OF THE MANY FORMS OF THE PRICKLY SHIELD FERN, POLYSTICHUM ANGULARE.

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INSECTICIDES

THE NECESSITY OF YOUR GARDEN IS TO BE KEPT FREE FROM PESTS.

AT this time of the year, when everyone regards their garden with pride, be it one which runs into many acres or one which can be measured in terms of square feet, an unwelcome visitor in the form of the insect is always to be found near by and may, if suitable conditions prevail, multiply rapidly and become a serious menace to the grower, whether of flowers or fruit. The gardener regards with great misgiving the visits of these marauders, and begins to look around for the necessary materials to entrap the unwary and keep his flowers free from their attacks and hence maintain a good crop of fruit, flowers and vegetables—which, in the end, is both economical and the result gratifying to the onlooker.

One could write at great length on the many and varied kinds of insecticides which are at present on the market, but it would serve no useful purpose to the amateur, at least, to be faced with more or less of a catalogue of these sorts and hence be in a maze when he is confronted with a particular problem. I think, rather, it might be better to give a general survey of the various washes and discuss their uses, their advantages and disadvantages, so that the reader can choose for himself the particular one which will meet his own case.

Insecticides generally take the form of poisons, washes or gases. The essential requirements in these substances are, primarily, safety to the plant and also to animals which may, perchance, roam in the garden; secondly, efficient killing power combined with cheapness and ease of application. To a large extent, the nature of the insecticide used is governed by the nature and growth of the plant, and also by the nature of the insect, and the method whereby it obtains its food. They may, then, be classed into those which kill by poisoning the insect in application with food, those that kill by contact with the insect's body, and fumes of gases, used in fumigation, especially in greenhouses. The poisons are effective against the biting and chewing species, while the contact insecticides are used against the sucking kinds.

The most widely used substance for poisoning insects is arsenic in its various compounds. One should be careful in that only compounds insoluble in water should be used, as soluble arsenic is injurious to the leaves. There are quite a number of arsenical sprays, the most important of which are (1) Paris Green, which contains a high percentage of copper and arsenic; this has been an important insecticide in orchards for many years, but has now been replaced by others, such as lead arsenate. Its poisonous nature stands in the way of its universal use, as it scorches the leaves, and thus there is a certain risk to the plant. It can generally be bought in three forms: (1) lump, (2) powdered and (3) paste. The last-named, I consider, is the best, as it is easily mixed with water or Bordeaux mixture. The fluid should be constantly agitated. The average strength is about an ounce to 10 gallons of water or Bordeaux mixture. It should not be used with lime-sulphur wash as used for summer spraying. Arsenate of lead has now come into great favour. It has a decided advantage in that it is not so dangerous to human beings or to the plants. It adheres much better to the leaves and can be employed at considerably greater strengths without injuring the foliage. By sweetening the substance it is often more readily partaken of by insects. Some books indicate that it may be freely used, but that is hardly correct, as it should be used under control. It can also be bought in paste form. It can be made by dissolving arsenate of soda by itself in water, and also lead acetate, and then mix the two. It can be employed in any strength desired, depending on the nature of the insect and whether or not the foliage is susceptible to injury. About 7 oz. to every 10 gallons of water will doubtless serve for ordinary purposes.

A preventive wash may often be applied with beneficial results. An example of this is lead chromate, which can be used for spraying on the leaves of fruit trees as soon as the foliage is out. The wash remains on the leaves during the season and they are rendered distasteful to caterpillars, sawflies, etc. Dissolve 1lb. of lead acetate or nitrate in the sprayer; then dissolve 2lb. of potassium bichromate and add to the sprayer. In using it the mixture should be kept well stirred.

The most important contact insecticides are soaps, sulphur compounds, and oily or resinous emulsions.

Paraffin and nicotine emulsion sprays are useful, especially when combating sucking insects and also certain caterpillars. About 2olb. of soft soap should be dissolved in 5–10 gallons of boiling water. Emulsify the paraffin in the hot soap solution by taking the paraffin up a syringeful at a time and squirting it violently into the soap solution. Then add the nicotine (½lb.) and dilute to 100 gallons. A difficulty often met with when combining a lead arsenate and a spray for sucking insects is the difference in the application of the two sprays. For a sucker, spray with force and in abundance; but when using an arsenate the spray should be fine and misty, so as to adhere to the foliage. What is required is as uniform a spray as possible.

Paraffin emulsion can be used alone by dissolving soft soap in water and, while still boiling, pour in the paraffin. Churn very thoroughly. For use, dilute 1 part of the emulsion with 10–50 times the bulk of water, according to the tenderness or hardiness of the leaf.

Tobacco is one of the most useful of insecticides owing to the alkaloid nicotine. The strength varies much, and it would be well to have a standardised nicotine spray on the market. The nicotine generally used is not pure, but sulphate of nicotine. It is an excellent contact spray, and can also prevail against some biting insects. Pyrethrum powder is also to be found on the market in three brands. It can either be used in solution or dry.

In fumigation one of the commonest fumigants is bisulphide of carbon. It is a heavy liquid which has ready volatile properties. It is heavier than air, and the material to be fumigated must always be lower than the fumigant. The drawbacks are: (1) Vapour is poisonous if one remains in it for a long time; it is also explosive, and no naked light must be brought near. It can also be used for reaching soil insects. Liquid should be put in with a syringe and should not be allowed to touch the roots. It is somewhat expensive.

Sulphur is excellent for pests in houses, but, unfortunately, the fumes injure the plants. It affects injuriously the germination power of the seeds. To a certain extent sulphur has a bleaching action. Tobacco is useful as a fumigant, but if used as such the plants may show spotting. The most dangerous—but, nevertheless, perhaps the most useful—is hydrocyanic acid. Fumigation should only be carried out by an expert. Recently potassium cyanide has been put on the market in metal plates. The advantage is that the operator has time to get away before the metal is eaten through.

Many poisons can be employed, such as arsine—which should be used under control, as it is injurious to the plant; carbon monoxide, which should be used in fairly high concentration to be really efficient, and then it becomes dangerous.

Winter washes should be given during the dormant season, but should not be carried out too often, as it is bad for the tree. A caustic wash can be used at any time, and the strength of the solution is not of much account. The best form of soda is powdered soda 98 per cent. purity. Lime-sulphur washes are finding great favour these days and are exceedingly useful for protection of fruit trees. It should be extensively used against scale insects. A stock of this wash can easily be made up, and for use this should be diluted with varying proportions of water according to the season of the year. The stock should be kept in an air-tight barrel. The purpose of caustic washes is to clear and clean the trees of injurious growths, such as moss and lichens, which act as a shelter for hibernating insects.

Where insects may escape the winter wash a spring wash is necessary and is often more important. Summer and autumn washes should also be given throughout the year. These washes can be obtained made up by the many firms engaged in this trade, and no trouble should be experienced in procuring them, or in their application.

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There are many proprietary brands, such as white fly compounds, sold by Messrs. Abol, Limited; Niquas, by Messrs. Corry and Co.; quassia extract (a bitter principle), etc., which one ought to mention and which can easily be obtained in the market; but the few dealt with will serve to show the range and scope of the various brands. Many well known firms such as Messrs. E. Cook and Co., Bow, and G. H. Richards, specialise in the manufacture of up-to-date insecticides suitable to meet particular cases, and their respective specialities are worthy of notice. The grower cannot afford to neglect the ravages of the marauders, otherwise a serious loss will be the inevitable result, and a few shillings well spent may save one pounds in the near future, and if anyone needs to look ahead it is the gardener and the fruit grower. G. C. TAYLOR.

BOTANICAL WIZARDRY: OR PLANT PROPAGATION AT EDINBURGH

IT is now many, many years since the name of the Plant Propagating School at the Royal Botanic Garden, Edinburgh, has been known over the civilised world; indeed, one is tempted to go farther back—it was an Adam who propagated Cytisus Adami; it was an Adam who projected a lantern slide upon a screen at Edinburgh on July 17th, to illustrate how a fig-leaf detached from the parent plant could, under certain conditions of temperature and moisture, produce root and shoot and develop a young plant. Surely, then, we do not need to emphasise the great antiquity of the art and craft of the propagation of plants by man.

During the last twenty years, however, this craft has gradually approached the status of a science in this northern school. At least one text-book contained the statement that the pine could not be propagated from cuttings—that was sufficient for the head propagator at Edinburgh, Mr. L. B. Stewart. Within three months of this statement being made, he had a 70 per cent. success with these "impossible" cuttings. In another case, Erinacea pungens, commercial propagation takes fifteen months; but, by means of the sun-frame, Stewart has produced 700 cuttings within two months, obtaining successful rooting in twenty-one days. Many other similar successes might be recorded, but the master has gathered together a group of University botanical workers whose results will shortly be given in detail and it is the purpose of this note to report briefly the first conference on plant propagation to be held in Edinburgh.

On July 17th and 18th the Botanical Society of Edinburgh devoted the tenth ordinary meeting of its eighty-eighth session to this subject and provided a very interesting and most instructive programme. The first morning was occupied with a demonstration of vegetative propagation by means of stem cuttings, copiously illustrated by some 212 actual specimens and by about 200 photographs. In the afternoon the President, Professor W. Wright Smith, explained that the idea of the conference was to give healthy publicity to such results as were certain and to stimulate others, if possible, to assist in dealing with the complex problems involved. Then followed three papers by Miss E. Philip Smith, Dr. R. J. D. Graham and Mr. L. B. Stewart, through which ran the twin golden threads of well regulated team work and that keen interest in the mechanism of the living plant which is our only hope of learning the truth about propagation.

The second morning was occupied with a demonstration of vegetative propagation from leaf and root, again illustrated by numerous specimens. Then followed a paper by Dr. Graham on "Propagation by Bulb Scales," and one by Mr. Stewart on "Root Cuttings." During both afternoon sessions discussions were lively, and many interesting points were brought out in response to queries from the audience.

Although clematis will not normally root at the nodes (only from the internodes), Miss Philip Smith demonstrated very clearly how, by blanching the stem for about three weeks while it is still on the plant, nodal cuttings can be induced to strike. This rooting is associated with a softening of the tissues

GENERAL VIEW OF THE LABORATORY SHOWING THE MANY EXHIBITS.

and a disappearance of stored starch as the result of covering the stem to be cut with black paper or even with Indian ink.

In Dr. Graham's work on propagation from leaves a number of interesting generalities became apparent. In propagation from the leaf the adult form is produced if the whole leaf be allowed to develop one plantlet; whereas, if the midrib be cut and the leaf thus persuaded to develop several plantlets, a more juvenile type of plant is produced. With normal dicotyledonous leaves the roots appear first and are followed by buds at an interval which appears to depend on the period during which the parent leaf can remain alive. Thus the leaves of Coleus Blumei var. develop roots readily, but only two out of sixty rooted leaves were found to produce shoot-buds. Melastomaceæ and Gesneraceæ were mentioned as being readily propagated from the leaves. Most species of hoya are likewise easily propagated in this fashion, with the exception of Hoya carnosa, where

TWO SPECIMENS OF GARDENIA.
The short squat one is a branch cutting taken from the taller plant near the base, and is only one year younger.

the leaf-base has a large amount of hard tissue.

On the other hand, the development of the shoot-bud comes first in the case of monocotyledons and succulent dicotyledons. An exception occurs among the former in Zamioculcas Loddigesii, which produces roots first and then a tuberous structure from which ultimately the shoot-bud arises as the parent leaf dies off.

In propagation from bulb-scales the plant is even more vigorously treated. The scales as a rule are left in the light on a dry bench for three to five weeks, and at the end of that period they develop shoot-buds on the inner surface, either from the new tissue of the callus, as in ornithogalum species, or from the old parenchymatous tissue of the scale above the injury, as in hæmanthus, or from both regions, as in drimia. Interesting cases of buds occurring normally on the back or exterior surface of bulb scales were given; in ornithogalum species these arise in two opposite rows on the line of junction of the leaves. Scilla and hyacinth were also mentioned as having been known to give rise to adventitious buds on badly injured scale-leaves.

Mr. L. B. Stewart dealt in particular with branch cuttings from plants with whorled horizontal branching and demonstrated how such cuttings remain branches in form, not developing a vertical axis and, in the case of gardenia species, producing flowers every year after being struck, although the parent plant does not flower until over ten or twelve years old. This curious persistence of branch form is accompanied by the even more curious phenomenon of the production of vertical normal non-flowering shoots by buds from the roots of the branch cuttings. These phenomena are general in all cases of plants, such as araucaria, other conifers, and Napoleona, which have whorled horizontal branching. Regeneration of a leader, when the primary leader is injured or lost, takes place, according to this authority, by the development of superficial buds as an injury response.

Mr. Stewart, in response to a query, delivered a lecturette on the various types of stem cuttings, distinguishing between the herbaceous or chrysanthemum type, which dies down to ground level and produces new shoots; the woody type, where the original piece of stem persists; and a third type, which produces a more or less tuberous rootstock from which shoots are thrown up annually.

Dealing on Friday afternoon with root-cuttings, he demonstrated how true roots develop buds only on the upper side as a rule, while dormant axillary buds develop on rhizomes on any side of a horizontal piece. This obvious distinction is confirmed by anatomical investigation. As in the case of dicotyledonous leaves, it has been found that the smaller the piece of root used for propagation the more juvenile the form of the shoot produced. Equal weights of acanthus root were found to develop exactly the same type of shoot from whichever part of the root they were taken.

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During the discussions it became evident that, while special cases require special treatment, a general guide to successful propagation by means of stems in particular may be found in the taking of the cuttings from twigs which are neither so soft that they rot away quickly in a moist medium or so hard that the primordia encounter mechanical difficulties. This condition is most frequently found when the twigs have completed their seasonal elongation and before the tissues have become thoroughly lignified. "Half-made wood strikes best." Finally, the work as a whole tends to show that, in the hands of a really efficient plant propagator and under certain conditions which vary from species to species, practically any part of any plant is capable of reproducing the whole.

The general impression gathered by a visitor may be compared with the early stages of the blooming of a century plant, when the concealing sheaths are being thrown off and the team work of the whole plant is bringing into view the superb mass of bloom which is the natural result of years of quiet storage and accumulation of a very large mass of reserve material. We shall undoubtedly hear much more of the Edinburgh School of Plant Propagation, and the publication of results will be awaited eagerly by all those interested in the vegetative propagation of plants. (Prof.) JAMES SMALL.

CORRESPONDENCE

CONCERNING A FUCHSIA PLANT.

SIR,—About Christmas time a friend interested in gardening matters gave me a fuchsia in a 4½in. pot. He did not know the variety, but said the parent plant from which he had obtained it was growing outside in a Cornish garden. Towards the end of January the plant began to show for bloom, and it continued in flower for eight to ten weeks. Then followed a fortnight's rest, during which period I took off and inserted half a dozen cuttings, thinking there would be no more flowering. To my pleasant surprise, however, the plant again started blooming, and it is still doing so now, mid-June! The cuttings are rooted, though not yet potted, and they, too, are showing many buds. Is not this record of profuse and continuous flowering most unusual for Fuchsia triphylla?—which species, I understand from the Director of Kew to whom I sent blooms, is the plant here under notice. It would be interesting and valuable to hear from anyone who has grown this plant for greenhouse decoration whether it is customary for it to be so free and long-flowering when so grown.

I have never grown this fuchsia for greenhouse work before. Has any reader of THE GARDEN? Its genuine decorative worth is beyond question. Practically every shoot bears flowers, the pendulous clusters varying in size according to the strength of the growth. Should it be the nature of Fuchsia triphylla so to behave, surely it deserves greater recognition, for, in my opinion, it is questionable if another plant can be named to surpass it for beauty and usefulness under glass in winter and spring.

The flowers are about 2ins. long and of a salmon-scarlet shade, while the base of the leaves, the midrib and veins are a purplish tone.

I believe there are in commerce some splendid hybrids of F. triphylla. Is it possible my plant may be one of such?—C. TURNER, *Ampthill*.

ANOTHER APPRECIATION.

SIR,—I am an amateur in the kindergarten class of gardening, having possessed a real garden for some three years. I took in THE GARDEN at the outset of my career, and though at first, I must confess, it served only to illume the depth of my ignorance, I would like here and now to say how very much it has helped me, and to add mine to the many letters of appreciation I know you have received. Although about 90 per cent. of the matter contained in the articles is still beyond my depth, I can find a great deal of pleasure in my weekly pursuit of this most illusive knowledge—and oh! the thrill of joy in discovering, in reading the record of someone else's failures, that one has, so to speak, spotted a winner on one's own! I made myself a ranunculus bed with all the dash and daring of a kindergartenite and read in the following week's issue of THE GARDEN one of Mr. Jacob's delightful articles on bulbs. The reverend gentleman said frankly that with the Ranunculus he had found a great deal of difficulty. I trembled guiltily. How dared I rush in where angels feared to tread? How dared I even hope that the pretty things would do for me what they had persistently refused to do for Mr. Jacob? Only the kindergartenite can imagine my unhallowed joy when my ranunculus (or is it "i"?) came up—rows of dainty frilly-petticoated ladies who filled my heart with delight. The experience has given me a rather fearsome confidence, not in myself, but in my luck. "Remember the ranunculus bed," I say to Wisdom when she bids me hesitate. Needless to say there are many sad little graves in my garden, and sometimes the weight of my concealed crimes lies heavily on my conscience. One success, however, wipes out a whole season's failure from a conscience kept well in hand.

A CURIOUS PHENOMENON IN MIGNONETTE.

(*a*) Flowers protruding from ovary, which is open at the top. (*b*) Ovary cut open longitudinally, showing the flowers closely packed together.

Three changes of gardeners in my short garden life have proved themselves to be adversities that also have their "sweet uses." I am rapidly losing all fear of the species. I am wiser now, and no longer quote THE GARDEN to my man. I follow the lead of an old schoolmistress of my youth, who used to say with quiet dignity when her methods were questioned, "This is the method I have adopted," thereby silencing all argument.

Have I written too much? You have written so often lately asking readers (class unspecified), to write anything that may help or inspire fellow readers. I feel sure that the class of kindergartenites must be legion, and we need a whole lot of inspiring—one reason for my daring. A second reason, to give my thanks for the weekly page on "Simple Gardening." I love it chiefly because twice I have actually found myself doing the right thing at the right time. And last and best reason, because I have a friendly feeling towards everyone who writes to the garden—Mr. Jacob, the entertaining Mr. Elliott and all, and I would be of their company (oh! the impertinence of me!). Of course you could punish me by refusing to publish this, but you would not have the heart?—M. WILSON, A KINDERGARTENITE.

TIGRIDIAS.

SIR,—I should be pleased to hear of any of your readers who have had experience with tigridias, also any who have grown watsonias outdoors.—"FANHAM."

ABNORMALITY IN MIGNONETTE.

SIR,—I do not know if it is a common occurrence for mignonette, instead of producing seeds, to grow a small head of flowers growing out of what should be the ovary. I have some of Dobbie's Queen in pots, and this only appears on two plants and only on one or two ovaries. Those I have shown it to say they have never seen this happen before. —J. M. W., *Bristol*.

[This apparently is a case of where the plant is cutting out part of its vegetative life. As far as we are aware this failure is not at all a common occurrence in the case of flowering plants and we should be glad to receive any comments by our readers on this phenomenon.—ED.]

A TROPICAL GARDEN.

SIR,—I have taken THE GARDEN for a year now and it is a tremendous help. Although my garden is only about sixteen miles from the Equator, the altitude, 8,700ft., enables me to grow practically all the English herbaceous plants that it is possible to raise from seed. The ground selected for my borders is a good lightish loam, and quantities of leaf-mould are available from the forest, which almost encircles the garden. Half-hardy plants are hardy here, and amaryllis, crinums, bougainvillea and such-like flourish, though I do not encourage them, as they look out-of-place among delphiniums and honeysuckle.

I am writing to ask if you can give me any help in regard to the raspberries. I have had the canes for about three years now and have picked a very few fine-sized, good-flavoured fruits from them, but cannot grow fine tall canes because they seem to expend all their energies in making suckers, so that each new row I plant is presently a jungle of 18in. high weakly canes. I was told that this was caused by injury and disturbance to the roots, but this is evidently not so, as a new row planted last year in a well manured trench and left undisturbed but for a spraying and attention to tying has behaved in just the same manner. If you can tell me the cause of the trouble I shall be very grateful, as the small canes bear nothing but one bunch of fruit at the tip. There are quantities of wild blackberries which are most prolific and a wild raspberry of very lusty growth, making upstanding clumps of 5ft. and 6ft. They have the true pendulous raspberry flower, in size quite

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three times as large as the English species, while the fruits are very large, soft and juicy, of a clear orange colour, but not very tasty.

I cannot obtain any local information about raspberries because I do not know anyone who has any. In fact, the newness of our country and the extraordinarily local conditions make things difficult, and personal experience is often the only guide to growing things at all. I was once told that no gooseberry had ever, or would ever, live and fruit here, but that was disproved last year, and I am trying to get new bushes.

Strawberries are badly infected with leaf-spot, which rapidly kills the plants of all except the alpine varieties. At 7,000ft. they grow well, but whenever I have brought new plants up here (this farm is on virgin land, uncultivated till we settled on it) they have quickly died off, and even from English imported seed the young plants have succumbed in their second year. Yet on top of one of the Ruwenzori Mountains, with the wind from the snow peaks whistling over them, they grow rampantly near a tiny bamboo shelter, untended and left to battle with wild grasses. I believe that Musandama Mountain, where I found them, is approximately 9,000ft. high, and the variety looks and tastes like Royal Sovereign, though what kind traveller left them behind him I do not know!

I have so far entirely failed to raise from seed rhododendrons, clematises or the herbaceous phloxes, though I have tried often in boxes under shelter and in a hot-bed. Bulbs suffer badly from heat and damp on the voyage, and take some time to recover, but this year I have Narcissi incomparabilis and Emperor, chionodoxas (the only ones in the country I am told) and a few weedy tulips. I am trying all bulbs from seed. Wild flowers are a help in suggesting what classes of plants should do well. We have a beautiful gladiolus (Mellori you named it in an article in your paper), tritomas (flame and yellow) in the marshes, small blue lobelias and giant ones 14ft. high, thalictrum and maidenhair fern, Royal Osmunda fern, long white sprays of sweet-scented parasitic orchids on the forest trees, a beautiful tree hypericum with golden blossoms larger than Moserianum, a type of laburnum with yellow flowers as large as the crab's-claw of Australia, two kinds of wild clematis (one like Traveller's Joy and one like montana), a type of bright pink crocus, two varieties of sisyrinchium or bluet, and a laurel with small green inflorescence. Also an iridescent blue-green aconite and other less striking flowers. From the Traveller's Joy and laurel I imagine that both clematises and rhododendrons ought to thrive if only I could get them started. Both plants when imported from South Africa have been dead on arrival.

Our pests are many, but we have no slugs, earwigs or American blight, and no rabbits (there are a few hares, but they are no trouble). However, turnip fly, moles, mice, birds, wireworms, buck, cut-worms and elephants are all a nuisance. The latter, which live in the forest close by can be counted on to do more damage in ten minutes than all the rest put together in a year! The buck eat the hearts out of the plants, but are fairly easily scared off by putting up string and netting and wire nooses.—J. R. BARRADELL, *Kenya Colony*.

[We believe the difficulty of obtaining strong plants of raspberries and good crops of fruit lies in the fact that the soil is too shallow and too poor for the cultivated variety. The ideal soil should be deep and moist. A hot, loose or sandy, shallow soil is the least suitable. The raspberry bears leaves profusely and transpiration from them is great. In poor, shallow soils extra surface mulches and top-dressings are needed to encourage the growth of canes strong enough to bear average crops. The surplus young canes should be pulled out while small to prevent exhaustion of the ones retained—in this case the strongest.—ED.]

CORNUS CONTROVERSA, OF VERY ELEGANT HABIT.

AN ORNAMENTAL TREE.

SIR,—The accompanying photograph is that of a fine plant of Cornus controversa at Headfort, Kells, County Meath. It has been in the collection for at least thirty years. The plant as carefully measured by me is 38ft. high, and has two stems from the base. It is in robust health and is one of the most ornamental plants flowering at present (June 25th) in the arboretum.

It cannot in any way be confused with C. alternifolia, as both in habit and size it is abundantly distinct.

It is flowering earlier than usual this year, and may be ranked as one of the most desirable of our smaller flowering trees. Its habit is upright, not too spreading and very graceful.

We are indebted to Mr. W. J. Bean for clearing up the rather confused synonymy of this plant (see "Trees and Shrubs Hardy in the British Isles," by W. J. Bean, Vol. I, page 387).—HEADFORT.

SAXIFRAGA CÆSIA.

SIR.—I enclose a photograph I have taken of Saxifraga cæsia growing on my moraine. The two larger clumps are plants I bought from a reliable nurseryman three years ago. The smaller tufts are plants which I collected near Mürren last summer. I am afraid the picture is too small to illustrate the point I wish to raise, namely, is there more than one variety of the plant? Because the bought plants have very minute rosettes growing very closely together and the flowers are rather small, whereas the collected plants have slightly larger rosettes, which are inclined to straggle on short stems above the level of the soil and the flowers are distinctly larger. In other ways, such as length of flower stem, colour and markings, the plants are identical.

WILD AND CULTIVATED FORMS OF SAXIFRAGA CÆSIA.

While on the subject of this saxifrage, can any of your readers tell me why it is classified among the Kabschias. When comparing it with the dwarf Aizoons, such as S. valdensis and S. baldensis, it has always seemed to me to be a nearer relation to them than to the Kabschias, chiefly in the structure of the rosette and the type of flower and stem, and not least in the time of flowering, for S. cæsia comes into flower at the end of June, just as the large group of Aizoons are finished, and several weeks after the Kabschias have usually finished flowering in April. I am quite aware that I am possibly treading on uncertain ground, and that I shall be told rather severely that my powers of observation need a little cultivation, but that is what I am asking for, if only the answer is convincing and also helpful to any other readers who may have been puzzled on the subject.—(DR.) H. STEWART WACHER.

A USEFUL GREENHOUSE PLANT.

SIR,—Will you please let me commend to your readers who like winter-blooming flowers Browallia speciosa major. It is easily raised from seed or cuttings, does quite well in an ordinary cool greenhouse, and is simply never out of bloom winter or summer. The bright mauve flowers are about the size of the periwinkle and much like it. The plants attain a height of 2ft. in 5in. pots; and when they become leggy, if cut back they will be in full bloom again in a week or two. Care should be taken to get the correct seed.—EDWARD HOLT EVANS.

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NOTES FROM CONTRIBUTORS

THE SAFFRON CROCUS.

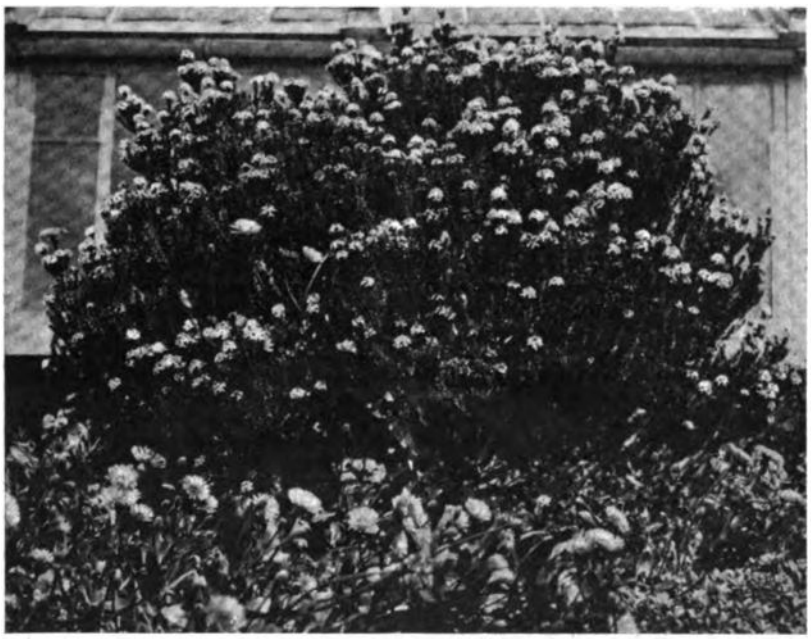
NOW that the time for the planting of autumnal-flowering crocuses to bloom this season is at hand, and lists are available from some dealers, it may be well to make a few remarks regarding the saffron crocus, Crocus sativus, and its shyness of flowering. It is a striking crocus with its purplish-lilac flowers and its brilliant scarlet stigmata. It is certainly a most attractive flower in every way, but its drawback is that when established it is a shy bloomer. It is a little difficult to understand why this is the case, as C. sativus was in past times largely cultivated in some parts of England for the production of the true saffron of commerce. This is now abandoned. It appears to be a crocus which requires a resting period greater than we can provide for it in the soil in most parts of this country, and that it would probably do better were it lifted when the leaves withered and rested until July or early August, when it might be replanted. In most cases it flowers fairly well when first procured, and this seems to bear out the idea here mentioned. In subsequent years it proves most disappointing, and the experience of the writer has been confirmed by many other cultivators who have tried this showy and attractive crocus. I am not anxious to deter anyone from trying it, and I may mention that I found the form known as C. sativus Cartwrightianus preferable on this account. C. sativus itself is a most interesting crocus and its literature is both extensive and most fascinating.—S. ARNOTT.

ROSE COLOURED VERONICAS.

THERE has been a recent addition to the number of dwarf herbaceous veronicas bearing rose-coloured flowers. This is V. rupestris rosea, which blooms during May and June. The species has had other names given it, such as V. prostrata and V. Teucrium dubia, the first two being old and appropriate to the habit of the plant. Whether or not V. rupestris rosea is an improvement upon the rich blue of the type is a moot point, but it is conspicuous and distinctly noticeable in a collection, and that is sufficient justification for including it among the occupants of the rock garden. A much older one is V. pectinata rosea, not very common in gardens at the present day. V. fruticulosa is even rarer, but very distinct in its way, since the stems are about a foot in height and perfectly erect. The most widely cultivated of these rose-coloured veronicas, and the tallest, is V. spicata rosea, which grows to an average height of 18ins., but may be taller occasionally. It is a very old one and may have arisen as a cross between the type and V. hybrida, or V. longifolia, for this is possible in gardens where the different species are brought close together.—HORTULANUS.

SHRUBS IN A READER'S GARDEN.

FOUR shrubs are now attractive in my garden. I send you a photograph of Olearia nummularifolia. It grows here 4ft. to 5ft. high and 5ft. to 6ft. wide—the composite in front is Urospermum Dalechampii. A second photograph is of Olearia insignis, the flowers and hoary white foliage of which are pretty. It grows very slowly and, like many woolly-leaved plants, requires slight protection in winter. Ozothamnus rosmarinifolius is a mass of white and well worth a place, and so is Stephanandra Tanakæ, not only for its present flowers, but for its rich autumn colouring. — SPENCER BICKHAM, *Ledbury*.



AN ATTRACTIVE GARDEN SHRUB, OLEARIA NUMMULARIFOLIA.

THE HOARY WHITE FOLIAGE OF OLEARIA INSIGNIS.

FLOWER LAWNS.

FOR those who cannot afford to pay for much labour and yet love to have their lawns in the trim, well kept condition which characterises British gardens, a lovely substitute for a grass lawn can be had by sowing flower seeds instead of grass ones. Messrs. Vilmorin sell a delectable mixture of dwarf flower seeds and ornamental grass aptly named Gazon du Paradis. When once this has been sown it can be left to its own charming devices, as it seeds itself abundantly. Gazon du Paradis is particularly effective if it replaces a grassy slope.

Another plan to save constant mowing is to dot a number of flowering plants in the grass. Bulbs of anemones, daffodils, ranunculus, Parisian hyacinths, etc., which are planted in the autumn can be interspersed with clumps of dwarf perennials such as the dwarf centaurea, mossy saxifrages, polyanthuses and double daisies. Annuals like poppies and cornflowers may be sown thinly here and there. Banks and slopes can be entirely planted with a variety of mossy saxifrages. When the beauty of their pink, white, yellow and red blossoms is over, their foliage makes a green carpet for the rest of the year. The French call these saxifrages "Gazon d'Espagne."

The most attractive and ambitious flower lawn is, however, the planted alpine meadow. In this case bulbs of all sorts are planted thickly in clumps or in broad stretches in colour schemes according to the fancy of the planter. Breadths of yellow crocuses, for instance, merging into a sea of gentian-blue scillas; a sweep of Poet's narcissi flanked by gorgeous plantations of French anemones of every hue.

Clumps of such herbaceous plants as are not out of their natural habitat in a meadow may be set among the bulbs. Giant marguerites, geums and delphiniums, for example, add to the interest of this flowery mead. From February to May annuals are sown broadcast to succeed the bulbs. These may be mixed in tall and dwarf varieties or sown in masses planned to give a certain effect. Californian poppies, scarlet, orange, yellow, pink and mauve, dainty Shirley poppies, larkspurs and cornflowers are all delightful denizens of the *pré fleuri*. I have just made such a one in the country not far from Paris. It is a sloping field with a tall hedge as a background and ends in the main sandy drive of the garden. Along the hedge I have planted white, yellow and red foxgloves. Down the slope, the plants get gradually shorter until they overflow into a rockwork border of many alpine plants but few rocks! The flatness of the meadow is broken by a tree or two. A silver birch half way down on one side of the slope, a Cornus mâle (with its mimosa-like flowers and attractive fruit) in the midst of the bulbs, and three Scotch firs *en marmite* on the right at a short distance from the hedge. Perhaps the chief fascination of a conceived alpine meadow is that, like an herbaceous border, its greatly to be envied owner can create it "to the *zest* of his mind."—VICTORIA SLADE.

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SIMPLE GARDENING

CUTTING HEDGES.

HEDGES are either ornamental and useful and add to the attractiveness of a garden, or they are untidy, neglected, and detract from the general appearance. Privet hedges are useful and look well, too, in a suitable position where the roots will not interfere with garden crops or shrubs, trees or flowers. There is the evergreen and the variety that loses its leaves, or nearly all, in the winter months; but in the case of all privet hedges their good appearance during the wintertime depends very much upon their treatment at this season. I always make an effort to cut my privet hedges twice after midsummer—about the end of July and in October—then they remain green throughout the winter. If the shoots are allowed to grow long and then cut hard back late in the year, there will be much bareness of outer surface afterwards. These remarks apply to all evergreen hedges. Now, we should consider how to cut the hedges so that they will retain their natural form and appearance. Privet, thorn, plum and all small-leaved deciduous hedges should be cut with shears or "brushing-hook." But laurel and other large-leaved evergreen plants should be pruned, as it were—that is, the stems should be cut individually, then the leaves will not be mutilated and the outer surface will retain its natural appearance and not show signs of having been "clipped."

WALLFLOWERS AND SWEET WILLIAMS.

I daresay we all feel that it is a very easy matter to grow even thousands of plants of wallflowers and sweet williams. They are not difficult to grow, but I have found it a very difficult matter to induce many cultivators to take the proper amount of trouble with them so that they may be grown well. Usually, the seeds are sown thickly in narrow drills late in the summer. The result is that the plants, even if given the very best treatment, will not be satisfactory. We now deal with the seedlings resultant from a May or early June sowing. Such seedlings are now ready to be transplanted in a nursery bed 4ins. apart each way. Only moderately rich soil will be needed and the plants well watered several times afterwards. Owing to this early transplantation the roots of the wallflowers increase in number very much, and, as a consequence, the branches are more numerous and sturdier. Sweet williams should be planted deep enough to ensure steadiness, with the result that roots are plentiful from the basal leaves downwards, and this ensures a very sturdy upright growth. When the time comes to put out the spring-flowering and other plants it will be found that fifty of these carefully transplanted specimens will fill a border that would require a hundred or more of the weaklings from the seed-beds. Furthermore, the individual flowers are larger and the general display splendid.

"TAKING" CHRYSANTHEMUM BUD-CROWNS.

I prefer the words "selecting," "securing" or "retaining" the buds, rather than the word "taking." But as bud selecting has been generally referred to as "taking" the bud, I use it for our purpose now. The experienced cultivator knows all about the operation, the inexperienced does not. For the latter's benefit I have drawn a sketch which will, I hope, prove helpful. From late in July to the end of August the majority of the buds will be crowns—that is, a bud surrounded by young shoots. The latter should be removed gradually, not all at one time in one day, but during a week. No. 1 shows where a shoot has been pinched off; Nos. 2,2,2 are the remaining shoots to pinch off. The stem of the crown bud, No. 3, must not be damaged by hand, knife or insect or the bud will develop one-sided. No. 4 shows the bud swelling satisfactorily, and a keen watch should be the rule, especially at night, for earwigs, as they soon spoil a plump bud by eating out the centre.

SUMMER TREATMENT OF RASPBERRIES.

It is astonishing how many cultivators, especially those who have not had any practical experience, and some who have, fail to treat these plants as they should do during the hot days of summer. The summer-fruiting varieties require different treatment, to some extent, from the autumn-fruiting ones. To refer to the former first. Usually, the plantations become overcrowded with young sucker shoots, these growing up among the old fruit-bearing canes and, also, on both sides of them. Now, as raspberries are surface-rooting plants, it would be wrong to dig up the soil between the rows. On the other hand, it would be a mistake to cut off all surplus young suckers at the soil level. The old canes, directly the fruit has been gathered, should be cut out low down. All the weakly suckers should also be carefully pulled up. It may be necessary gently to ease up the soil around each one with a hand-fork. The fairly strong young suckers retained should be about 6ins. asunder. They will thus receive the maximum amount of light and air and so mature. The cultivator is thus providing for the next year's crop of fruit. There should not be any need to cut out surplus canes in winter. The autumn-fruiting plants should be left untouched beyond the removal of the outer, dwarf-growing sucker shoots to allow those retained, and bearing fruits, to ripen the latter. Retain all the fruit-bearing canes till late in the year.

RAISING SCHIZANTHUS PLANTS.

The present is a very suitable time to sow seeds of schizanthus. Probably, the cultivator will not require more than fifty plants, taking an approximate number, so that the extra trouble in raising seedlings, that I wish to advocate, will not be great, but the results in the form of fine specimen plants will be. I find it best to collect—for a batch of fifty plants—sixty quite small pots, to drop a tuft of fibrous turf in the bottom of each, no crocks, and to place these small pots in a shallow box quite close together. Then the pots are nearly filled with compost of equal parts of leaf-soil and fibrous loam and gently firmed. Several seeds are dropped near the centre and lightly covered. If the soil is watered in the pots before the seeds are sown the seedlings will soon appear. When the seedlings are growing freely remove all but one in each pot and re-pot before the plants weaken in the tiny pots. They do not receive any check and if given well ventilated positions on shelves in a greenhouse, they will form beautiful compact specimens. GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Celery.—The crop should be examined occasionally, and useless leaves, weeds and side growths removed. Where paper collars are employed, additional ones may be required, and other plants may be earthed up when the weather is dry. A soaking of water and liquid manure should be given the day before such work is carried out. Later trenches should be kept well supplied with moisture, and any leaves attacked with the maggot pinched off, and an occasional dusting of soot given during showery weather.

Cabbages.—A liberal sowing of seed should be made during the next few days. If the ground is dry water the drills a few hours prior to placing the seeds therein. Protect them from birds.

Winter Onions are fit for the kitchen some weeks before the spring onions, so it will be necessary to sow seeds of one or two varieties about this date. The lines should be 1ft. apart and the seeds sown thinly. The seedlings should remain in the rows until the spring before being transplanted.

THE HARDY FRUIT GARDEN.

Strawberries.—The straw and decayed leaves should be removed from the strawberry bed, and the soil well hoed between the plants. Runners ought also to be cut away, if not required to make new plantations. Give the beds a sprinkling of some reliable fertiliser, and if a dry spell of weather sets in, a thorough watering will help to build up strong fruiting crowns for next year. Layers that were placed on pots of soil a few weeks ago may be severed from the parent plant, and new beds made. The ground should be trenched and a liberal dressing of manure given. Allow the soil to settle down, and before planting give it a treading over to make it firm for the plants. A distance of 2ft. should be allowed between the rows, and 18ins. between the plants. A deep loamy soil is best for strawberries, but where it is light and sandy, a good dressing of cow manure may be afforded. Most soils will benefit by a light sprinkling of lime. Planting should be completed as early in August as possible, spread out the roots, make the soil firm and provide a little shade if the sun is hot. Each evening a sprinkling of water will help the plants to become established.

THE FLOWER GARDEN.

Summer Bedding.—The plants in the beds will require attention occasionally, and to have all dead leaves and flowers removed. Tall-growing plants will need a stake, and the soil may be lightly hoed to keep down weeds. Seed pods should be picked off the sweet peas, thereby prolonging the flowering period.

Roses.—Those belonging to the rambler section may be pruned soon after the flowering season. The exact amount of pruning to be done, will depend on the varieties; such kinds as Dorothy Perkins thrive best if the old growths are cut out or reduced to a vigorous new shoot. Others may have their old flowers removed, and any young growths tied in, but where they are likely to be overcrowded some of the old wood may be dispensed with. Dead flowers should be picked off the hybrid perpetuals and others.

Lavender.—If it is desired to increase the stock, cuttings may be inserted in the open ground, placing a little sand in the soil which falls in the hole made for each shoot. Where the flowers are needed in a dry state, cut the spikes before all the blooms are open.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Brussels Sprouts.—Plants raised from seed this year and set out about the end of May or early in June, should be sufficiently advanced now to have the soil drawn up on either side of the stems. This will not only stir the soil and so retard the progress of weeds, but it will also help to keep the plants — especially in exposed places — in an upright position.

Cabbages.—All spent crops should be cleared from the ground and also anything left in the vegetable seed bed. A little cauliflower and lettuce seed—to provide plants for setting out early next year—should be sown on a south border.

Onions.—Those who desire to have onions for pulling early should sow seed now. There is no need to dig or manure the ground on which to sow provided this was done for a previous crop, such as early potatoes. Select a place on a south border, then hoe the surface and rake to level the soil and clear away weeds, this is really all the preparation the soil will require. Drills should then be drawn out about 2ins. deep and 1ft. apart and the seed of White Lisbon—which is one of the best varieties for early pulling—sown therein. Other kinds such as Ailsa Craig and Cranston's Excelsior to be transplanted in March or April of next year and grown for bulbing purposes may also be sown now.

Potatoes.—Large quantities of the early varieties will now have gone to the kitchen, and those who harvest their own "seed," should have the tubers—which were left for that purpose—lifted from the lines. Tubers for "seed," should be carefully selected, large and very small ones being rejected, and those of a medium size and good shape being retained. Each variety should be placed separately into boxes—ordinary cutting boxes will do—and properly labelled. The boxes should be left out of doors for some time and the tubers occasionally turned, so as to get them properly "greened," all over. Tubers of Epicure turn a very dark colour under this method.

Jerusalem Artichokes.—Where these plants do well they usually get very tall. A foot or more should therefore be taken from the top of each stem.

THE FLOWER GARDEN.

Delphiniums.—These plants have grown and flowered splendidly this year, having sent up many tall and stately stems. All stems which have borne flowers should be removed, so that the energy of the plant is not expended on seed bearing. Those, of course, who wish to increase any special favourite from seed would require to leave a few stems, until the seed was secured.

Narcissi.—Those having bulbs to plant in beds or in grass should make a start now. If holes are made with a trowel or bulb planter the work may be quite expeditiously done and the bulbs set out in any formation desired. Each bulb should be covered with 2ins. or 3ins. of soil.

THE HARDY FRUIT GARDEN.

Strawberries.—As soon as the crops are finished on the early plantation and those still to be retained for future cropping, the runners—if sufficient have been secured for fresh plantations—should be cut from each plant and with the old straw, they should be cleared away and burned.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Humea elegans.—From now until the end of August seed of this plant may be sown in a cool greenhouse. H. elegans is generally regarded as being difficult to grow successfully. This is true as regards its final stages of cultivation, and care in watering is required. However, in its younger stages no difficulty should be experienced. Failure is generally due to keeping the young plants too close and warm; perfectly cool treatment in a light airy house is essential at all times. When large enough to handle, the young seedlings should be pricked off singly into thumb pots, potting them on as they require it. Early in the New Year the plants should be ready for a shift into 6in. pots, and later on into 8in. pots, in which fine specimens can be flowered. It is during their final potting that special care is required, and water should be very carefully supplied at the roots until they get a good hold of the fresh compost. They are somewhat liable to attack by aphis, which should be prevented by light fumigations. A compost consisting of a good medium loam with the addition of a little leaf-soil and enough sand to keep the whole open and porous is suitable for this plant.

Fuchsias.—Where large specimens are required for the greenhouse next summer they should be propagated by means of cuttings during September. To secure suitable cuttings for this purpose, the required number of stock plants should, at this time, be partly shortened back and started into growth in a warm greenhouse. The young growths produce roots very readily, and the young plants should be grown on steadily all through the winter, potting them on as they require it. By this method fine specimens 7ft. to 8ft. high can be produced by July and August next year. The leading shoot should be kept tied up to a stake, and not stopped, as they will produce lateral growths naturally. They should not be pinched until some six weeks before the plants are required to flower. If standards are required the main shoot should be kept tied up to a stake, rubbing out all lateral shoots as they appear, until the desired height is attained, then stop the leading shoot.

Cyrtanthus.—This genus of South African bulbs is deserving of more general cultivation, as they only require cool greenhouse treatment. There are some fifteen species, but only three or four are in general cultivation, viz., CC. lutescens, Macowanii, Mackenii and sanguineus. The bulbs can generally be purchased dry during autumn, but under cultivation they should never be dried off altogether, as they are more or less evergreen. The best results are obtained by placing five or six bulbs in a 5in. or 6in. pot. They grow quite well in any good potting compost, but with newly potted plants water should be very sparingly supplied until they have made fresh roots and got well away in the fresh compost.

Desfontainea spinosa.—This beautiful plant when out of flower is often mistaken for a holly. It is hardy in the West, but in the colder parts of the country should be more generally grown in the cool conservatory, where it is seen to best advantage when planted out in a well drained bed. It produces its tubular scarlet and yellow flowers over a long period. Cuttings of half-ripened shoots root readily in sandy soil. Stand the cutting pots under a bell glass in a cool greenhouse or cold frame.

J. COUTTS.
Royal Botanic Gardens, Kew.

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MAGENTA

IT is an interesting sign of a changing point of view that magenta is once again becoming a fashionable colour, for the prejudice against it has been so strong these last thirty years that the mere mandate of a fashion maker would hardly have prevailed if the feeling of people in general had not lent facility.

Hall-marked with vulgarity, it was rightly banned as a quite impossible colour by everyone, except by a few painters who were suspected of being deliberately eccentric. No other colour seemed to evoke such strong feeling, and it may be reasonably assumed that the feeling was not purely æsthetic, but due chiefly to its association with the mid-Victorian period when it was last fashionable. It seems to be a general law that we react against the taste of our parents, and against the taste of Victorian parents the reaction was very strong and emphatic. But the present generation has no personal memories of magenta in the setting of Victorian domestic life, and it seems to have become a little impatient of those soft, sometimes even dingy, colours that are, curiously, called "art shades"; so that, if we allow something for this last reaction, it is now possible to look at magenta with a fairly dispassionate eye and to get some measure of its æsthetic value.

Even during the hey-day of its unpopularity the offensive colour was, significantly, more easily tolerated in natural than artificial surroundings, and although magenta as a colour description disappeared from the catalogues, yet magenta-coloured flowers remained in fair demand if they were discreetly listed as "amaranth" or "glowing crimson." It had been appreciated for a long time that magenta flowers became a fine red by artificial light, while crimson and scarlet took on a sombre, blackish tone; but quite apart from this accidental advantage the colour retained a place in the flower garden, and two families of steadily rising popularity, the primulas and rhododendrons, continued to add to it. When Primula Juliæ arrived from the Caucasus and settled down so happily in our gardens, covering its hummocks of dark green leaves with brilliant magenta primroses, it was given a very warm welcome and nothing was said against its colour.

The incompatibility of magenta was the chief objection to it, if we set aside the epithets "crude" and "virulent" as expressions of merely personal distaste. This objection would be more serious if the plants themselves did not provide, so often, an admirable setting of grey or dark green leaves, and there are surely occasions when the passion for combinations of brilliant colours need not dictate. Magenta is not an easy-going, companionable colour, but its incompatibility has been rather exaggerated; there is no denying, for example, the brilliance that it adds to a bunch of purple and violet sweet peas or to a group of red polyanthuses. For it has a peculiar luminous quality, hardly matched by any of the pure colours, which is well seen in Cyclamen Coum, glittering in the pale sunshine of February, or the fierce intensity of a clump of Lychnis Viscaria in a half-shaded border.

Perhaps its most interesting combination is a dull gold or an ochreous yellow with a really vivid magenta, the pale biscuit-coloured annual nasturtium provides just the right ground colour, and it may also be found in some of the new lupins. The curious pale green of Helleborus lividus seems to invite a trial with magenta, and next spring will show whether Peonia corallina and P. tenuifolia, which vary a good deal in their "crimson," can provide the right tone. We are never likely to let magenta flood the garden, but it has a very definite value within certain circumstances, and it is interesting to see it coming into play.—F. A. HAMPTON.

BOOK REVIEW

HORTICULTURISTS are becoming less conservative every day now and it will no doubt be pleasing to many to see a new and somewhat unique publication in the form of "The Cultivation of New Zealand Plants," by Dr. L. Cockayne (Whitcombe and Tombs, Limited, New Zealand), price 4s. 6d., which deals solely with the plants from "down under," as the name implies. One need not discuss at length the merits of this little book. The name of such a well known author and botanist stands as a criterion of its quality. Probably no other man has such a wide and varied knowledge of the New Zealand flora as Dr. Cockayne, and he is equally at home when describing and dealing with garden plants and their propagation. The present little booklet is the outcome of some thirty-five years experience with New Zealand plants and as such should be of valuable assistance to those in doubt as to the best species to grow. Many could be tried in this country with good results. The style is simple and lucid, yet captivating and instructive, and the amateur should find no difficulty in following the text. The book is clear and nicely printed and shows every care in compilation, being free from errors in nomenclature.—G. C. T.

OBITUARY

ANTHONY WATERER.

JUST as we are going to press we have been informed of the death, on July 24th, of Mr. Anthony Waterer, proprietor of the world-famous nursery at Knaphill, Surrey. His name is especially well-known in connection with the raising of choice hybrid rhododendrons and azaleas, and he probably did as much to popularise the genus rhododendron as any man of this generation. Like the equally famous Bagshot house of John Waterer and Sons (now J. Waterer, Sons and Crisp), the Knaphill firm always steadfastly refused to send out hybrids which were not absolutely hardy in every part of the country. We are sure that our readers will share our regret at the passing of yet another of the little band who helped to lift British horticulture to the proud place it occupies at present.

DR. ROBERT KIDSTON.

IT is with much regret that our readers will learn of the death, which took place the other day, of Dr. Robert Kidston, the well known authority on the fossils of the carboniferous period and a botanist of the highest attainments. Dr. Kidston was equally interested in living plants and in his beautiful garden at Clarendon Place, Stirling, he grew many border and alpine plants. His extensive rock garden is well known to many visitors. Dr. Kidston was one of the kindest and most respected of men and his death is deeply lamented.

TRADE NOTE

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ANSWERS TO CORRESPONDENTS

THE FLOWER GARDEN.

Clarkia Plants Dying (H. J. R.).—The plants have died owing to an attack of the fungus Pythium de Baryanum. This disease is generally accompanied by a greyish-coloured, web-like substance on the soil and around the roots. It was present on the roots of the plants sent. Too much moisture, at some stage of the plants' growth, is the general cause. The soil sent for examination lacks lime. This may be remedied next autumn by adding some or lime rubble from old walls taken down.

Dianthi for Identification (" Dianthus ").—The dianthi sent for identification are seedlings. A. is a seedling from Dianthus monspessulanus alpestris and is a very good form, but slightly taller in habit than the type. B. is a seedling from D. glacialis, and C. from D. barbatus. One of the aggravating things about dianthi seedlings is that one gets such a multitude of them which are very little better than the original species and none of the specialists seems to have made great headway in the improvement in rock varieties of dianthi.

Peonia Stem Dying (W. B., Oxon.).—There were no grubs to be found in the stem enclosed for examination The stem appears to have received an injury from some cause or it may have suffered from frost and the maggots entered the decaying stem afterwards. It would have been more satisfactory to have sent a larger portion of stem and some grubs secured in a tiny bottle for examination.

TREES AND SHRUBS.

Olearia (J. M.).—The correct name of the specimen sent, with two photographs, is Olearia Gunniana. The shrub is often grown in gardens as O. stellulata, but the plant originally described under this name by De Candolle is more open in habit, with larger leaves up to 4ins. long, and larger flowers. In the first edition of " Trees and Shrubs," by W. J. Bean, the plant sent is figured and described as O. stellulata, but in the second edition the correct name of O. Gunniana is given. Mr. Bean explains the mix-up as due to Bentham uniting the two. There may not be much difference botanically, but cultivated in pots or in warm sheltered positions outside they are very distinct. In the southern and western counties, in various parts of Ireland and the west of Scotland, some ten or twelve species of olearia are grown in the open. These include OO. Forsteri, insignis, albida, macrodonta, erubescens and the subject of this note.

FRUIT GARDEN.

Fig Tree not Ripening Its Fruits (Mrs. E.).—Although a fig tree produces three crops of embryo fruits each year, only one matures in the open air in this country. The first tiny fruits are formed on the shoots of the previous year's growth, the following crops do not go further than the embryo stage and should be pulled off. In spring the tips, only, of the shoots bearing the young fruits should be pinched off. This will have the effect of causing the fruits to swell and if water be applied liberally in dry spells then, if the tree is growing in a sunny position, a fair crop of ripe figs should result.

Peach Tree Cankered (H. S.).—If the tree is old and badly cankered the wisest thing to do is to remove it and the soil about the roots and plant a young one in November. If it is not old and gummed, not cankered, then cut out the bad parts and train in young wood next year—the medium-strength shoots, not the strong ones. Remove the latter by disbudding in a young state.

Gooseberry Mildew (D. C., Dunsfold).—The berries are almost covered with the mildew in its worst form. For our correspondent's own protection in the future the bushes affected should be dug up, and the roots as well as the branches and stems burned. Apply 6oz. per square yard of gas lime on that particular quarter and leave the soil uncropped till next spring. Carefully watch the remaining bushes as it is quite useless retaining any that are diseased. Plant new ones in another part of the garden.

About Gooseberries and Black Currants (" Limington ").—If the gas-lime is applied to the ground in which the gooseberries have been growing straight away, the black currant bushes may be planted early in November with perfect safety.

Strawberries not Fruiting Satisfactorily (J. P.).—Undoubtedly some of the flowers were frozen, and, furthermore, the stock was raised by layering from unsuitable parent plants. Although the plants were treated well, a good average crop of berries would not result in the circumstances. Procure a new stock of young plants as early as possible, now, and allow fruits, in reason, to ripen on them next year.

Gooseberry Bushes Attacked (E. W., Somerset).—The caterpillar attacking the gooseberry bushes is that of the gooseberry sawfly, Nematus ribesia, which is a common and destructive pest throughout the greater part of the British Isles, and is quite common on black currants, red currants and gooseberries. It is a pest which increases steadily whenever it is neglected. The cocoons remain in the soil during the winter, and produce the adult flies in the following spring. We advise our correspondent to deal with small attacks, otherwise it is almost certain that serious trouble will follow. Hand picking is the simplest method in the case of a few bushes, but it should be done before the young larvæ have scattered on the bush. Some may prefer to pick the leaves on which the eggs have been laid. Spraying is thoroughly effective against this pest. The chief difficulty lies in the fact that the best washes are poisonous. Lead arsenate may be used in the case of early attack, where it can be applied before the gooseberry flowers appear and also after the fruits have been gathered. Hellebore, when fresh, and nicotine are also effective and, though poisonous, do not retain this quality for long. They may, therefore, be used with safety if an interval of three weeks be allowed between spraying and picking.

There are also a number of proprietary brands of insecticides on the market which can be recommended for small gardens.

VEGETABLES UNDER GLASS.

Tomato Foliage Attacked (A. H.).—No doubt the growing of tomatoes and melons together last year pre-disposed the crop of tomatoes this year to the disease as the spores of this disease, Dactylium roseum, germinate on the plants, soil or woodwork. The only remedy at this stage is to use dry flour of sulphur dashed on the leaves, to cut off and burn the badly-diseased leaves, to be careful in watering and admit abundance of air, night and day. Next year use fresh soil after thoroughly washing the interior of the woodwork with an insecticide and lime-washing the walls.

Tomato Plants Unsatisfactory (" Cheshire ").—The plants, judging from the leaf sent for examination, are not diseased. The leaves have curled because green aphides have attacked them on the undersides. Aphides were present on the leaf examined, but these insects were more numerous a month ago and so caused the leaves to curl. The plants have been treated too generously and are the result of a bad strain of seed, which mainly accounts for the poor crop of fruits. We suggest that our correspondent buys seeds from a good firm of seedsmen next year and burn all his own plants when the tomatoes have ripened.

MISCELLANEOUS.

Solomon's Seal Foliage Attacked (Mrs. E. W. M.).—The caterpillars sent are those of the sawfly. They are most voracious and assume, to a great extent, the colour of the foliage on which they feed. Throw soot or dry lime, separately, not together, nor at the same time, on the plants. Also syringe with Abol according to the instructions given with this insecticide and mildew remedy.

Insects at Roots of Plants (G. M.).—The insects sent for identification are woodlice and the flattened millepede, Polydesmus complanatus. A fair dressing of common salt will kill these millepedes, also an application of nitrate of soda in solution, one ounce to three gallons of water. There must be moisture with the salts and a common brine solution, one pound of salt to ten gallons of water, would answer without doing harm to the plants. The woodlice are not doing the mischief. But the soil is very sour and quite fibreless. It needs a dressing of lime in the autumn, quite two pecks per rod of ground.

Bog Garden (A. M. C.).—The situation of the proposed bog garden does not sound very promising with the hedge on one side and a tree on the other. But it can be converted from a water tank into a bog garden very easily. It is necessary to have an overflow in order to take off the superfluous water and keep it sweet. Put 3ins. of drainage in the bottom, cover this with thin turves placed upside down, and on top fill up with a mixture of loam and sand. Only small plants can be grown in a garden of this size, like Primula rosea, P. involucrata, P. Wardii, Saxifraga aizoides, Parnassia palustris, Myosotis Rehsteineri, and others of similar nature, or the large ones will crowd out the choicer plants.

Table Decorations (E. S., Reading).—It is exceedingly difficult to give our correspondent any advice upon table decoration as, for one thing, he does not mention the names of the flowers he proposes to use. The great thing is not to have too many blooms in the decoration, and so make the arrangement crowded. Another thing is to avoid violent colours. Yellows and blues go well together; mauves and whites and so on; but the art of table decoration is an entirely personal one, and is, of course, akin to the artistic sense.

Name of Plant.—(Charts Edge).—Rosa moschata alba.

FORTHCOMING EVENTS.

August 4th.—Heathfield and District Horticultural Society's Exhibition.—Bishop's Stortford Horticultural Society's Exhibition.—Shoreham Horticultural Society's Exhibition.

August 5th.—Royal Caledonian Horticultural Society's Meeting.—Walsall Horticultural Society's Exhibition (two days).

August 6th.—Scottish National Sweet Pea, Rose and Carnation Show, and Provincial Show of the National Rose Society, to be held in Kelvin Hall, Glasgow (two days).

August 7th.—Market Bosworth Horticutural Society's Exhibition.

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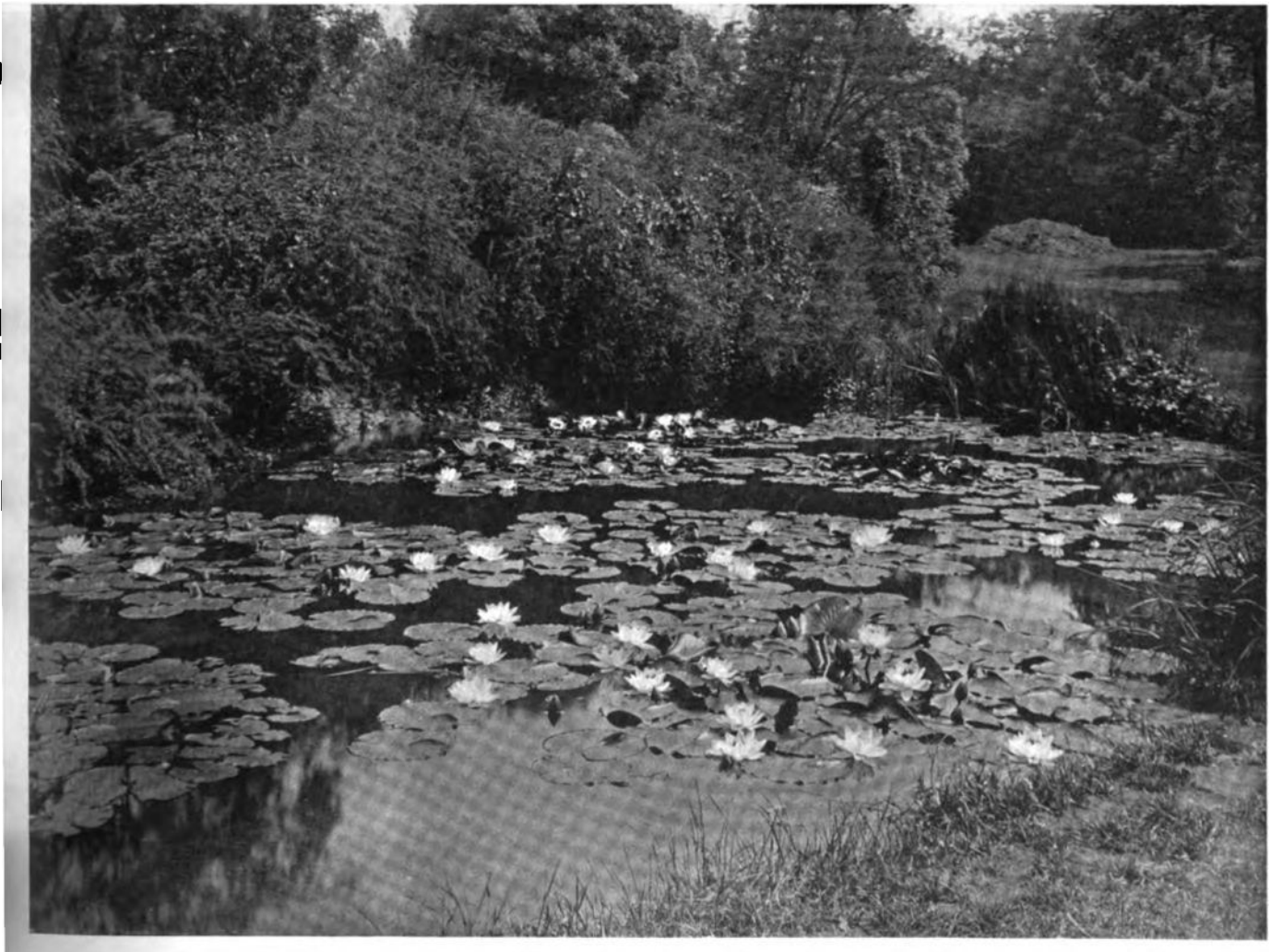

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THE GARDEN

AUGUST 9, 1924

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ROBERT FORTUNE

A GREAT deal has been heard within the past twenty years of new introductions from China to our gardens, so much so that some of the older collectors have gradually passed into oblivion. Their memory only remains in an occasional plant called after them. Many people know a conifer called Cunninghamia sinensis, but few know that the genus Cunninghamia was named after a Scotch surgeon called James Cunningham, who was one of the first, if not the very first, collector of plants in China, and that at the end of the seventeenth century.

It may be pardonable that his name be forgotten, for his researches did little towards improving our gardens, but it is unpardonable that the name of Robert Fortune should be allowed to fall into oblivion, for Fortune, apart from the valuable garden plants he introduced from China, some of which I will mention later, laid the foundation of the gigantic tea industry of India and Ceylon. Not only did he study the cultivation of tea and write several books dealing with the subject, but he also was in charge of the herculean task of transplanting 20,000 tea plants in Wardian cases from Shanghai to the Himalayas, a notable achievement.

Robert Fortune was born in Berwickshire in 1813 and served his apprenticeship in the Edinburgh Botanic Gardens. He then entered the services of the Royal Horticultural Society, under whose auspices he made his first journey to China from 1843-45. He made subsequent journeys in 1848-51, 1853-56 and 1860-61; in the course of the last journey he visited Japan. Apart from miscellaneous papers, he published narratives of each of his voyages, which are interesting reading, but uninspired. It is difficult to form an estimate of his character from his writings, except that he must have been a very canny Scot. In speaking of the Chinese he says, "In fact, latterly I made a practice of disbelieving everything they told me, until I had an opportunity of seeing and judging for myself." Obviously a case of once bitten twice shy. However, he was a careful and skilful observer and like many of our race he was not satisfied with seeing; he wanted to know the reason of what he saw. Usually he got his way, but how the Chinese must have hated him in the process.

The reason for this reminder of the existence of Robert Fortune is that I was asked the other day why Rose Fortune's Yellow was called Fortune's Yellow. My questioner had some idea at the back of his mind that there was some mythological story attached to its nomenclature and was rather annoyed to find that it was only called after somebody. Incidentally there are two Fortune's roses, both from China. According to Mr. Bean one is supposed to be a cross between R. Banksiæ and R. lævigata, the other, yellow variety is a form of R. indica.

Fortune was the discoverer and introducer of such well known plants in our gardens as Skimmia Fortunei, Prunus triloba, Viburnum macrocephalum and V. tomentosum var. plicatum, Lonicera Maacki (this he did not introduce), and L. Standishii, Rhododendron Fortunei and several forms of R. indicum, Forsythia viridissima, Jasminum nudiflorum, and so on. He also was the first to introduce Pinus Bungeana, Cryptomeria japonica and Primula japonica.

The main reason for his journey to Japan was to get a male plant of Aucuba japonica. Female plants had been introduced in 1783, but of course, would not berry; his object was to make up this deficiency; surely a long journey to obtain this horrid plant. It is the only grudge I have against Mr. Fortune.

On reading his works and about his exploits, I have been more struck by his successful use of Wardian cases for the transport of plants to England than by anything else. Before their introduction apparently the average survivors of a long voyage were one in a thousand, and with such results, the voyage was hardly worth the trouble. By the introduction of the Wardian case Fortune managed to send home an enormous number of plants alive; in one shipment of 250 plants there were only 35 deaths, surely a good advertisement for that method of transplanting plants alive—and that was in the days of slow travel.

Perhaps in these few notes it will be seen that Robert Fortune is worthy of a place in that great band of Chinese collectors who have done so much in the way of introducing worthy plants to our gardens.

E. H. M. C.

OUR NEXT ISSUE WILL TAKE THE FORM OF A SPECIAL BULB NUMBER IN WHICH WILL BE FOUND, AMONG OTHER ARTICLES,

THE CULTIVATION OF FLOWERING BULBS.

THE MODERN TREND OF NARCISSUS EVOLUTION.

BULBS TO BUY.

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CEANOTHUSES

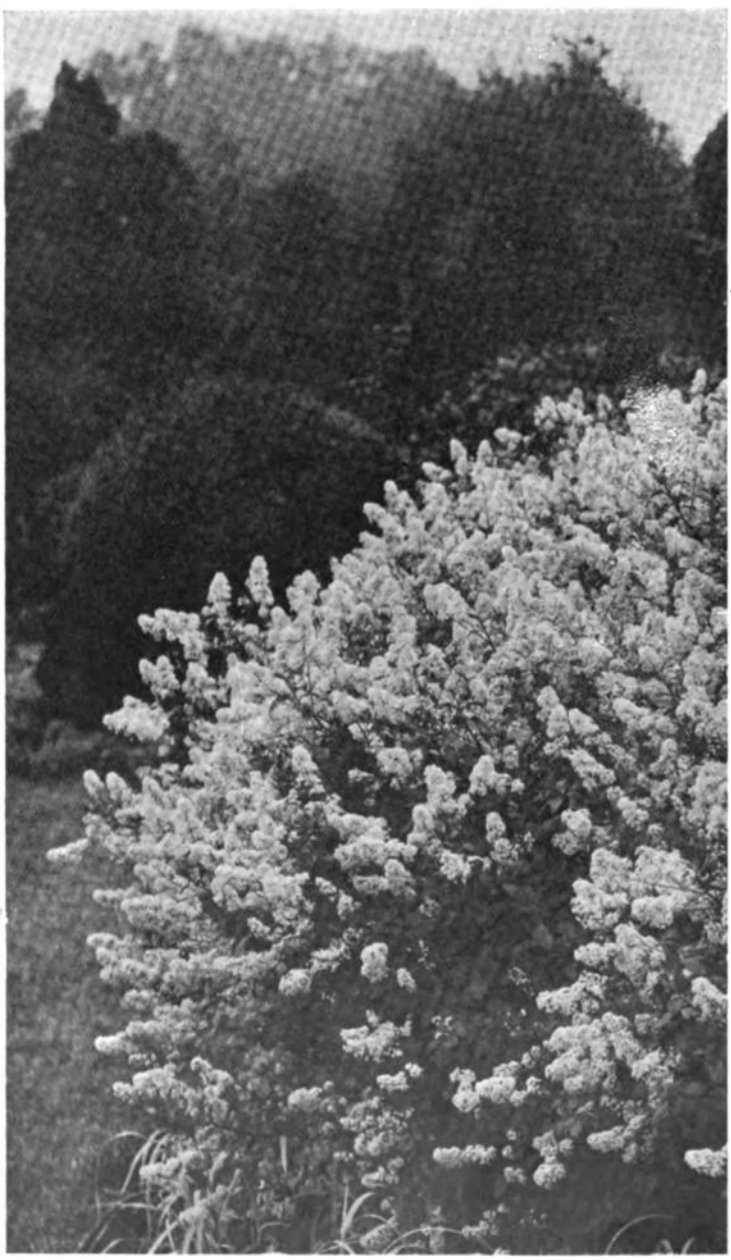
BY W. J. BEAN.

THESE FREE-FLOWERING SHRUBS ARE ESPECIALLY VALUABLE FOR THEIR LATE FLOWERING.

ALTHOUGH blueness is not a uniform characteristic of the flowers of the ceanothuses, it is a prevailing one, and so uncommon is the colour among hardy trees and shrubs that it imparts a special value to this genus in gardens. A recent picture in these pages of C. rigidus in the Royal Botanic Gardens, Kew (see THE GARDEN, June 14th, 1924)—a plant apparently about 10ft. high covered with blossom—gives, if one can imagine the blue colouring, some idea of the effect that can be produced by one of the best of these shrubs. The genus is exclusively North American, and the finest kinds come from the Pacific coast region, chiefly from California.

Except that some of them are tender and some transplant badly, they are quite easy to cultivate. They prefer a light, well drained soil rather than a heavy one, and should be grown fully exposed to the sun. The difficulty in regard to transplanting is got over by putting them in their destined places early and growing them in pots until this is done. Nurserymen, fortunately, realise this and all who know their business supply in pots stock of these bad-shifters. In the extreme south and south-western counties the tender species can be grown fully in the open; but near London and farther north wall space has to be provided. A south wall is to be preferred or one facing west, but if an east wall is the only one available it may be used. A list of the kinds that are worth growing and need such protection is as follows: azureus dentatus, integerrimus, Lobbianus, papillosus, rigidus, Veitchianus and velutinus.

But wall space is often scarce, and where it is not to be had a very attractive selection of ceanothuses may still be grown. C. thyrsiflorus is one of them; there has been for forty years a large group of it near the Broad Walk at Kew. But apart from that species one has to rely mainly on a group of hybrids that have been raised from CC. americanus, azureus and ovatus, the first and last of which are hardy. These hybrids are bushes more or less deciduous and usually 3ft. to 4ft. high, although, if unpruned, some will grow 2ft. or more higher, especially in mild districts. They also transplant well enough in the small state for pot culture to be dispensed with. M. Lemoine of Nancy deserves honourable mention for his work in hybridising this group, the value of which as ornamental shrubs is enhanced by their flowering from June onwards to October. Perhaps the best of the blue-flowered varieties is the well-known Gloire de Versailles, a hardy free-growing shrub with richly coloured flowers, of which a succession is produced from now until the early frosts of autumn. Other good varieties are Gloire de Plantières (blue), Indigo (a very deep blue, but not very hardy), Lucie Simon (light blue), Léon Simon (light blue), Gay-Lussac (violet-blue), Virginal (pure white), Le Géant (large trusses of white flowers), Perle Rose (pale rose), Mérimée (soft rose), Georges Simon (rosy lilac) and Président Reveil (pink). As all of this americanus-azureus group flower on the current season's growth, they can be pruned back almost to the old wood in March and thus kept comparatively small for a good many years. Those that flower earlier and from the growths made the previous year need pruning as soon as the flowers are over if the plants are given wall protection. But if, like C. thyrsiflorus near London, they can be grown fully in the open, they need not be pruned at all except when one may wish to correct some unshapeliness. All the ceanothuses can be propagated by means of cuttings made of short, firm side shoots during late July and August. They should be put in pots of very sandy soil and given the mild bottom heat of the propagating case.



ONE OF THE BEST OF THE BLUE-FLOWERED VARIETIES, C. GLOIRE DE VERSAILLES.

C. rigidus is one of the richly blue-flowered species and is readily distinguished from all the rest by having opposite leaves, that is, they are set on the stem in pairs. They are quite small, only ¼in. to ½in. long, but densely packed on the branchlets. Last year, owing no doubt to the dull cool weather, this species kept up its floral display for six weeks—from early May well into June.

Another well marked species of great beauty is C. papillosus, so called from the wart-like protuberances (or papillæ) on the upper side of the leaf, which is oblong and varies from ½in. to 2ins. in length. The flowers come in May in cylindrical racemes up to 1½ins. long, very abundant and of a charming blue.

I have already mentioned C. thyrsiflorus, and for the average climate of Great Britain no ceanothus to my mind is equal to it, although its flowers are of a paler hue than those of rigidus or papillosus. Its hardiness is its first great asset, and it is only severe and continued frost that seriously affects it. During the more than thirty years I have grown it without protection it has only

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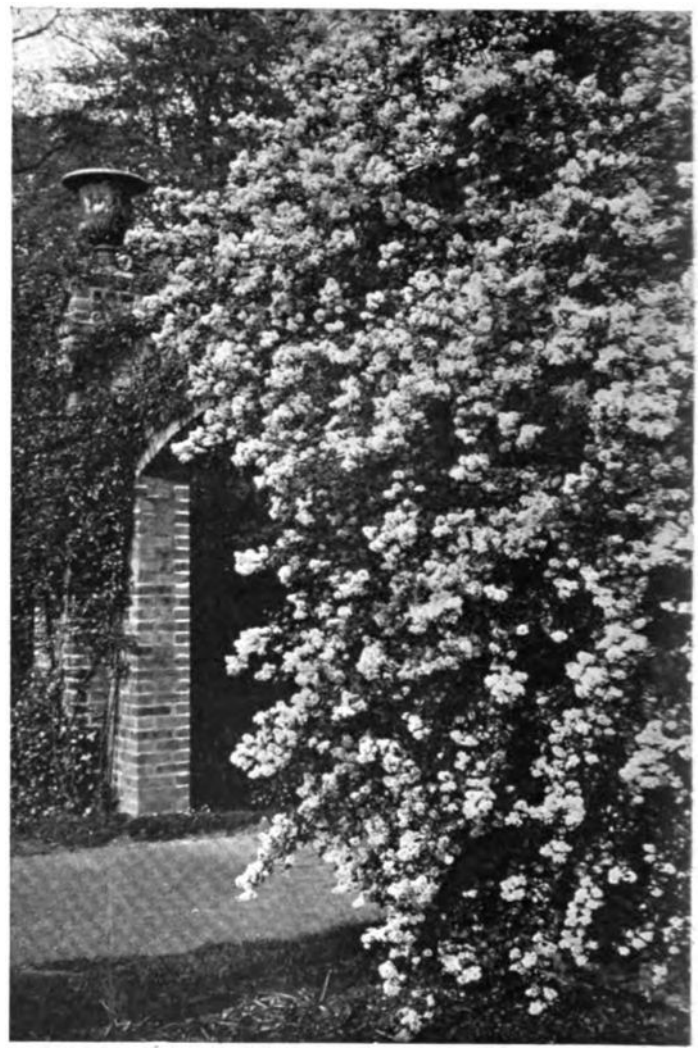
suffered once, which was during the February cold of 1895. Then, among blue-flowered shrubs, its size gives it distinction and prominence. It is often a tree in a wild state over 30ft. high with a trunk 1ft. or more in diameter. Even at Kew I have known it over 20ft. high grown in high shrubbery. It is readily distinguished by its angular branches and by the three conspicuous veins at the base of the leaf. It is evidently variable in the colour of its flowers. Sargent describes them as " blue or white." I have not seen any white ones, but there is a variety called griseus which has pale greyish blue or lilac blossoms and larger leaves. It is an attractive shrub, but not so hardy as the blue-flowered type.

Three ceanothuses, so much confused in nurseries that one can never be certain which of them will be supplied under a given name, are dentatus, Lobbianus and Veitchianus, the two last of which are natural hybrids with thyrsiflorus as one parent. All three are beautiful shrubs with alternate leaves and bright blue flowers, and there is not much to choose between them in that respect. It is somewhat difficult to distinguish them shortly in words, but C. dentatus is marked by the veins of the leaf coming pinnately (*i.e.*, featherwise) from the midrib and by having no suggestion of the three prominent veins at the base that distinguish thyrsiflorus and its derivatives. Veitchianus is to be distinguished by the smooth stalks of the individual flowers, Lobbianus by the downy flower-stalks and more distinctly, more uniformly three-veined leaves. The last-named is, perhaps, the handsomest of the three and, like Veitchianus, has inherited from thyrsiflorus sufficient hardiness to enable it to be grown without wall protection in districts slightly milder than the home counties.

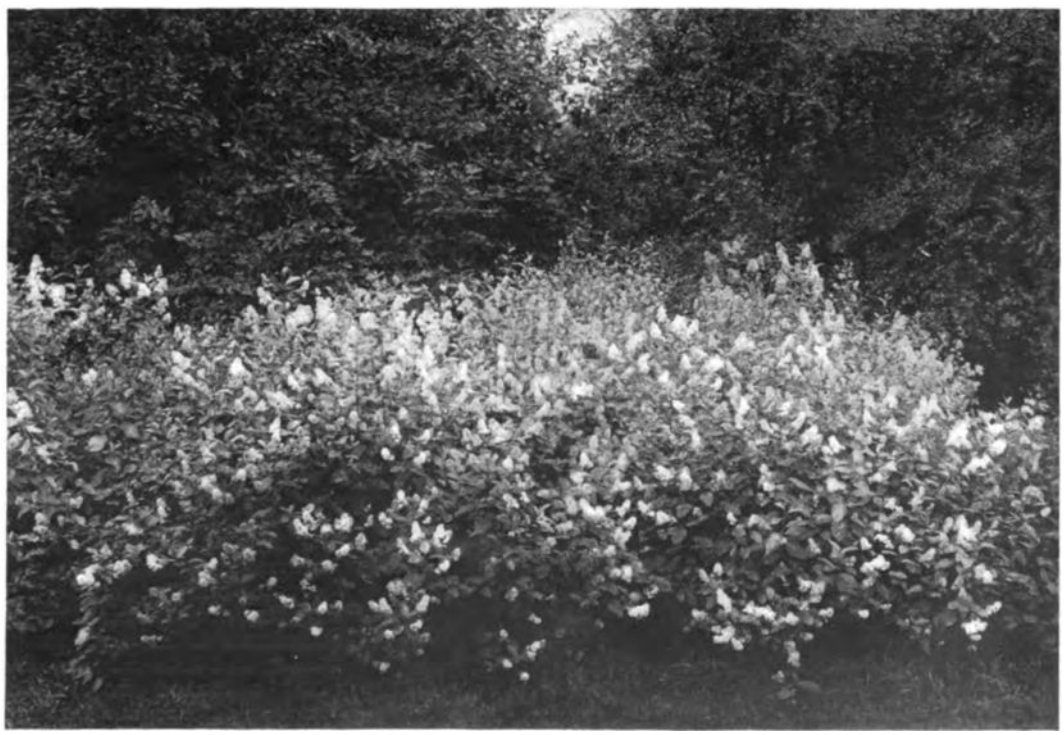
C. velutinus has prominently three-veined leaves up to 3ins. long and 2ins. wide, larger than those of any other species we grow in this country, very glossy, dark green and handsome. The bloom, however, is not particularly attractive, being dull white. This shrub needs wall protection and in the growing season has a resinous odour.

C. azureus, also a tender shrub introduced from Mexico over one hundred years ago, is probably not now in cultivation, although it has left its mark as one of the parents of the group of deciduous hybrids mentioned above.

Occasionally one sees a ceanothus labelled " floribundus " in nurseries and gardens, but, personally, I have never encountered the real plant of that name. It was discovered by Wm. Lobb when collecting in California for Veitch, and was figured in the *Botanical Magazine* in 1854. I doubt if this very beautiful shrub, with mazarine-blue flowers, is now in existence in this country.



C. THYRSIFLORUS GRISEUS, MAKES AN EXCELLENT WALL SHRUB.



C. AZUREUS, ONE OF THE PARENTS OF THE DECIDUOUS HYBRIDS.

To conclude these notes I may mention C. integerrimus, a June-flowering species, vigorous and free-flowering, but needing a wall. It has leaves nearly as large as those of C. velutinus and equally strongly three-veined, but they are dull greyish green. Its blossoms are pale blue or almost white, produced in panicles up to 1ft. long and 3ins. or 4ins. wide. A very effective shrub.

There are many other fine and distinctive species described from California but the ones selected and described will serve to illustrate the value of this genus as decorative and hardy shrubs for all garden purposes. They harmonise well with their surroundings and in summer lend a charming colour effect with their panicles of bright and pale blue flowers.

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HERBACEOUS PHLOXES

AS THE PLANTING SEASON IS GRADUALLY DRAWING NEAR, THESE FEW REMARKS ON THE CULTIVATION AND GENERAL TREATMENT OF THESE BEAUTIFUL FLOWERING PLANTS MAY NOT BE INOPPORTUNE.

IT is doubtful whether any other hardy perennial for garden decoration excels the phlox. Coming into flower in July, the plant carries on well into the autumn, thus serving as a decided adjunct to the herbaceous border and the flower garden when other flowers, especially those with bright colourings, are beginning to become scarce.

The family consists of about forty-eight species, as defined by Brand, one of which is Siberian (P. sibirica) and the others all North American. These occur in a wild state in woods and thickets, on the prairies and plains, some of them alpine and arctic. One can thus recognise the extraordinarily varied range and distribution of the genus and how it can accommodate itself to such enormous changes both in climatic and topographical conditions. It is thus but natural that this flower has played such a prominent part in giving us the beautiful florist's varieties which we prize so much to-day. The herbaceous phlox has achieved a large measure of popularity during the last few years, but it is still not so widely cultivated as its merits deserve. This may, in some measure, be due to the fact that few people realise how long its flowering period extends and how numerous are its varieties. These many beautiful garden forms constitute a prominent feature in gardening, either planted in groups in the herbaceous border, or placed by themselves in beds in half-shady situations.

These phloxes are not fastidious plants, but should be provided with a well cultivated position. A rich and rather moist loam, deeply dug, with a fairly heavy dressing of well decomposed stable or cow manure, will suit the phlox admirably. They should never suffer for moisture or food, as they are rather shallow rooting, very gross feeders and intolerant of drought.

If planted in the herbaceous border, special attention should be given to them most seasons, unless the soil is a rich greasy loam; but they are easier to attend to and generally do better when given quarters to themselves. Given an abundance of moisture at the root, they do not object to sun-heat, although the colours may fade in the strong sunlight. They are less troublesome to grow in a border with a north and west aspect and preferably backed by a wall. Hedges and trees in the vicinity should be avoided, as their roots attract much food material from the soil and it is next to impossible to maintain an adequate supply of moisture.

For high satisfaction in bloom, the plants should be relatively young, or at least fairly often renewed by dividing the clumps. The stool gradually enlarges outwards. The new plants should be raised from the young vigorous shoots on the outside, if one desires to propagate the variety to any extent. Old stools should be taken up every year or two, divided and transplanted. This should be done in the autumn after all growth has ceased. Planting should also be carried out at this time, as the plants are enabled to get a firm grip of the soil before the winter cold sets in. By this process the plants do not become weak or root-bound.

The original stock should always be strong and healthy. Named varieties are in many cases propagated by side shoots and by cuttings of well ripened shoots. Seeds generally give new and interesting forms. If thinning, as described above, is carried out, plenty of material will be available as cuttings. These should be inserted in pots, pans, or even boxes containing sandy soil, and placed in a frame or a cool greenhouse. When rooted, the cuttings will provide plants for next year. The raising of the plants from cuttings is probably the best method of propagation and is employed by almost all growers and raisers. When well established they should either be planted out where they are finally to remain and bloom, or else placed in a larger pot in the conservatory. They make ideal plants for the latter when other coloured flowers are rather scarce.

A CHARMING BORDER OF PHLOXES ADMIRABLY SUITED FOR SUCH A CORNER.

When planting out, some sort of colour scheme should be borne in mind, and the heights of the different varieties must not be forgotten. The colours should also be taken into account, such as reds (which are most frequent), purples, whites, pinks and salmons. From a horticultural point of view, they are generally thrown into five or six groups, such as the annual phloxes, the perennial, the summer phloxes of nurseries and gardens, the moss pinks, so useful in forming carpets, dwarf phloxes, for which the front of the border should be reserved, and finally, those useful in alpine and rock gardening. Their planting should not be too formal, although sometimes they are specially desirable when colour display is sought for in connection with a formal or semi-formal design as on a terrace. The clumps, however, on the other hand, should not be allowed to become large and straggly, as the flowers on such plants are never first-rate, and a few good trusses make for a much finer effect than a multitude of stunted ones. When staking, too many shoots should not be tied to one stake, and it is not

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THE DWARF WHITE PHLOX LA NEIGE.

Apart from its value as a decorative plant in the garden, it is excellent as a cut flower when placed in a vase, as its fragrant and bright coloured blooms are greatly appreciated in the house. The fragrance of the phlox is generally found to be sweeter when one is having a stroll through the garden at dusk, or even after darkness has just descended. It is strange why the scent of phlox, like that of so many other plants should be more noticeable at night. Perhaps it may not be due so much to the plant as to the person, whose olfactory organs may function better at night.

There are scores of excellent varieties in commerce, each with its own special appeal to the onlooker or intending purchaser, and everyone should be able to have their slightest whim satisfied. It would only be invidious, then, to attempt a selection, and I will not try to do so. Sufficient is it to say that, as a group, they rank among the most satisfactory of garden plants. Their neat habit, trusses of bright and gaily coloured flowers, and their easy cultivation and propagation should make them universal favourites. G. C. TAYLOR.

necessary to have long stakes towering above the plants. The main object in staking is simply to prevent the shoots from being blown down by wind and rain.

CAPE PELARGONIUMS

A GROUP OF VERY ATTRACTIVE FORMS AND HYBRIDS WHICH SHOULD HAVE AN INTENSE INTEREST AND FASCINATION FOR THE REAL PLANT LOVER. THEY ARE A VALUABLE ASSET TO THE CONSERVATORY.

IT is recorded that the first of the Cape or scented-leaved pelargoniums reached this country from South Africa in the year 1632, in the form of Pelargonium triste, and during the period of nearly three centuries that have followed, numbers of species and varieties have been arriving at intervals, many coming to England during the activities of the Naval forces at the Cape in the latter years of the eighteenth century. Naval and military travellers have greatly added to the plant riches of Great Britain, and in this group we, no doubt, can trace many of the varieties to this source. At Aldenham we have the pleasure of over 150 species and varieties, many of which are original species, while a number are improved forms of hybrid origin that have been raised by devoted admirers in various parts of the country. It is strange how the fashion of plants changes, for, whereas, in the Victorian era, "scented leaves" were very great favourites, there came a day when they were, with few exceptions, only to be found in the little homes of faithful cottagers. Now, once again, they are coming to the fore, trusted old friends, returned to favour, until it seems that a boom period is likely to occur; but, alas! how many of this fine family may have disappeared altogether during the period of their retirement. Why they should have been so neglected seems passing strange, for, while they are unquestionably most interesting, beautiful and fragrant, with numerous uses, they demand but little

PELARGONIUM PRINCE OF ORANGE.

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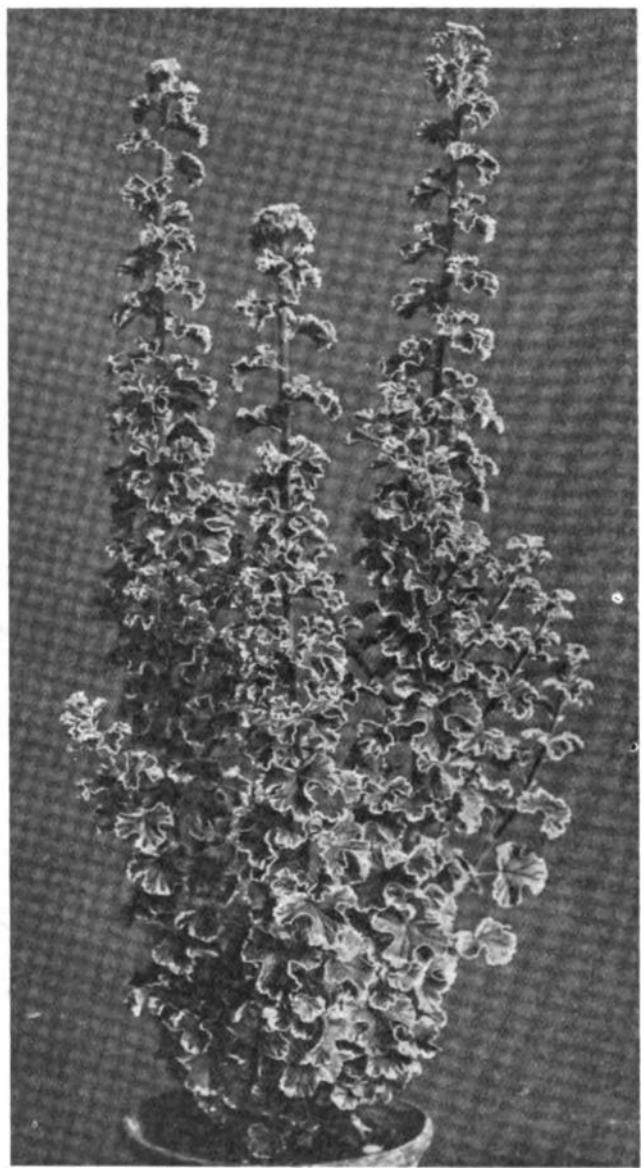
troublesome attention. Provided they are afforded shelter from frost during the winter period—the low limit of the temperature for them then is only 45° Fahr. for the tuberous-rooted forms and 40° Fahr. for the evergreen sorts—and the necessary cultural attention applicable to them, they thrive merrily on.

Some of them are tuberous-rooted, some greenhouse herbaceous, but the large proportion are evergreen shrubs in character, and we need only consider the first and the last groups for general purposes in these notes. The soil for both is the same compost of four parts good sandy loam, one part leaf-mould, one part spent manure, and a sufficiency of sand to keep the whole porous. Some are more difficult as to soil conditions, requiring a peaty leaf-mould and sand mixture, but they are few and far between. Watering during the summer months is important, and should be freely carried out from March to September, but at other periods should be considerably lessened for the evergreen sorts, and practically checked for the tuberous. Ventilation should be of the freest character at all times when the weather is suitable, all the year round, and the best temperature for them in the summer is from 55° Fahr. to 65° Fahr., so that efforts should be made in very hot spells to keep them cooler than the atmosphere generally will allow. A little stimulating liquid, such as weak manure water, and an occasional dusting with Clay's Fertiliser, are of great benefit for the evergreen forms, and when they have finished flowering the growths should be lightly pruned back. Tuberous rooted forms to develop their best efforts should be repotted each year after flowering, preferably in the spring, and increase of the stock can then be attained by division into suitable sized portions, which should then be potted up in receptacles of proper size to hold them, making fairly firm when so doing. The evergreen forms can be increased by cuttings. When the annual trimming takes place, the best of the side growths then removed should be selected and, removing most of the leaves, other than a few at the point, the growth should be carefully and cleanly cut through just below a joint. Insert these cuttings singly in 2in. pots, into a suitable sandy compost, only selecting the very healthiest, and making them not more than 3ins. long when finally trimmed. The cuttings may be struck either in a greenhouse or a closed cold frame, and by inserting singly, the cutting can then be potted on immediately the roots are formed, without risk of disturbance to the newly formed roots. When this potting on is finished, in order to promote sturdy healthy growth it is well to nip out the points of the growth and to grow the young plants on, close up to the glass of the house or frame in a temperature of about 45° Fahr. If the plants are required as standards, and such are great favourites with many, this removal of the point should not be done, but the growths should be restricted to one, to which give every encouragement, removing side growths as height is attained, until the plant is as tall as desired, when the point also can be checked as the head of the plant is formed. Pyramids also can be made after this fashion, stopping back the side shoots instead of removing, as the main growth progresses, thus shaping up the plant as it develops. When thus shaped, the plants are ideal for summer bedding schemes; in fact, at Aldenham we have had a long border of the bedding scheme completely filled with only "scenteds," of various sizes and shapes, from tiny plants out of 5in. pots to standards 6ft. tall. Many of the species, whatever shape is required, need the "stopping" treatment, to prevent the formation of ugly plants with too rampant growths.



ONE OF THE MANY FORMS OF BASKET GERANIUMS.

As furnishing for a greenhouse, there are few more charming plants during the summer months than the Cape pelargoniums, and we employ them largely for this work, completely filling a span-roof glasshouse, and often overflowing into another nowadays. Carefully arranged on the benches, having regard to colour of flowers so that they do not clash in their various shades of red, they form a most interesting group, and one that always has a great charm and fascination for our many visitors, for, arranged thus, one is afforded the opportunity of studying them and noticing the wonderful contrasts and variations of leaf shapes, and flowering habits and colours. When used in the bedding scheme, it should be noted that the plants can be left in their pots and just plunged into the soil of the beds, a decided advantage in the saving of time and labour, not only when planting, but also when the period arrives when it is necessary to afford them shelter against frosts, and the bedding scheme falls to be dismantled.

Attempts may be made, by those who have facilities, to raise new and improved hybrid forms. The term "improved" is used in order to impress on the tyro that only to raise plants of equal and lesser merit is a futile and useless business with any plants such as these, for the constant aim must be towards obtaining something better than already exists in the case of hybrids, for a race of mongrels lacking merit will soon tire even their, at first, enchanted raisers. Seed of the pelargoniums may be sown in the usual manner in March, and raised in gentle heat, placing the seedlings up close to glass when through, and attending carefully to the watering, for they have a tendency to damp off in the young stage. Pot on when

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necessary until such time as the young plants in 48 pots can be placed in the open without risk, to grow sturdily along with a view to flowering the following year, when selection should be made and only those allowed that show an improvement over existing varieties or a new break in character or habit.

It is hardly necessary to attempt a selection of varieties to grow, as they all have their differing interests, but any of the "Unique" hybrid forms are excellent, such as Purple Unique, Rollinson's Unique, White Unique, Scarlet Unique, Shelton Unique; while other hybrid forms are Lady Scarborough, Mme. Nonin, M. Nonin, Mrs. Kingsley, Pretty Polly, Shottesham Pet, Shrubland Pet, Shrubland Rose, Lady Plymouth, Pheasant's Foot, Sandbeck Beauty, Westonbirt, Godfrey's Bride, etc. Of the natural species there are many very interesting forms, such as P. Schottii, with its distinct grey foliage; P. crispum, with small green curly leaves; and the Aldenham variety of this, P. c. variegatum, one of the best variegated plants we have; P. Blandfordianum, a free pale pink flowering variety of good grey foliage; P. ardens, with fiery red flowers, marked at the base of the petals with darker tone; P. pinnatum, with very decorative large finely cut foliage; P. artemisifolium, white flowered and with foliage like the old Wormwood; and so one might run on; but the gathering together of the many other pretty and interesting forms and hybrids may be left to the real plant lover, for whom the group must have a fascination. Incidentally, it has taken nearly thirty years to form our collection, and yet interest in them does not lessen, as each year we make valuable additions.

EDWIN BECKETT.

ROCK GARDEN PLANTS

THE INFLUENCE OF MUTUAL COMPANIONSHIP.

PEOPLE with tidy minds and gardens of irreproachable neatness are sometimes visibly distressed when they are confronted with what appears to them to be a violation of the order of things. A weed or two may be excused, for such accidents are inevitable: the common lot of man since the thorns and thistles of Eden. But why do we allow some plants to indulge in unrestrained conflict one with another, to jostle in an ungoverned crowd, which manifestly must result in a mediocrity in all individuals thus engaged and possibly in the entire elimination of the weaker? A goodly portion of our rock garden presents this obvious lack of discipline, isolated plants consisting for the most part of the newly introduced or those few—very few—individuals which are too exclusive to associate with others.

There are at least two good reasons why we permit and oft-times encourage this overcrowding, as it is sometimes called. In the first place, the soil in many parts is so gritty and sharply drained that it will not support anything less tenacious of life than a house-leek until it is covered with a mat of growth. This latter, by checking evaporation and keeping the soil cool and uniformly moist, renders the root-hold quite congenial to many plants which would in other circumstances certainly languish. Then there are many plants, perhaps the majority, which are never really happy unless they are growing in close company with others. In their case it may not only be a matter of preserving that uniformity of moisture referred to. There seems to be what is vaguely termed root-association, a factor of no little importance in the well-being of some plants, and I would not like to assert that there is no such thing as temperament among plants, some positively suffering from a chronic nostalgia, or loneliness, which a label alone for company will never alleviate.

PRIMULA JULIÆ, A BOON COMPANION TO GENTIANA FARRERI.

If it is not always profitable to copy Nature in the building and upkeep of the average rock garden, Nature does always proclaim the virtues of that mutual companionship between plants to which I have just alluded. The struggle for existence is popularly supposed to mean the destruction of the weak and the survival of the strong; but the process, infinitely slow, means also that it gives to all engaged in it a zest for life that would, in the absence of that factor, be much less manifest, if not quiescent. The feeblest are rendered not more feeble but stronger by having to contend with others for a place in the sun.

To put the matter in another way, one of Nature's most finished products is the sod, whether it is the sod of an alpine meadow, a Devonshire hedge-bank or a Welsh moor. Any naked soil she hastens to cloak with a dense throng of growing things, for, so long as it remains exposed to sun and air, it is as inhospitable to plant life as a desert. And thus we find that in this respect at least one has either to copy Nature and adopt her principles or suffer the consequences which await those who hope to succeed by violating them.

However, the discreet gardener will always salt his judgment with commonsense in deciding how far a plant may be pressed by others, or to what extent companionship will be advantageous to it and its neighbours. The vigorous, such as the thymes, some veronicas, aubrietia and arabis will settle the matter for themselves by quickly covering their allotted space with a mulch of their own foliage. But Gentiana verna and many others of its genus, Dianthus neglectus, Daphne Cneorum, Dryas octopetala, Hutchinsia alpina, most of the silenes, dwarf heaths, alpine phloxes, arenarias and a host of other things delight in rubbing shoulders with their neighbours, if they do not actually yearn for such companionship. Indeed I think you may take it to be a sound rule that all those alpine and other plants which grow naturally in turf, or which cover the ground in dense masses, should always be grown in close association with their own kind or, preferably, some other herbs of suitable stature and kindred nature.

I have referred to mediocrity, or that falling off in quality which may be the outcome of allowing plants too much licence in their ambition to grab their neighbours' quarters; but it certainly

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does not always follow that close companionship leads to mediocrity in the individual or the general effect. I can, indeed, regard many of our most overgrown, congested and disorderly ledges not only without concern but with the deepest satisfaction and delight. Of course, it may be hopelessly wrong and all that, and it may savour of neglect (a very estimable virtue sometimes), but there it is.

Take, by way of illustration, a hummocky corner planted years ago with Lithospermum prostratum, Hypericum Coris, the false Veronica Bidwillii, some creeping thymes and one or two satureias. All these are now interwoven one with another in the direst confusion, or the happiest freedom, which you will. There is never any lack of interest the season through, and wild horses will not persuade me that a cheerful conglomerate of this kind which never grows a weed or asks any attention should be ruthlessly dismembered and once more lined-up for a fresh start with military precision.

A few shady steps have been given over entirely to two shades of green, the emerald of Acæna Buchanani and the glossy lettuce-green of Helxine Solierolii. The two plants, which are inextricably mixed, ensure a pleasant and entirely weedless verdure the year round, and while the acæna, being practically hardy, gives the helxine just as much protection as it needs, it affords it a timely check in summer. Another acæna, the bronzy microphylla, is doing good service in another way. For years a bush of Daphne Cneorum, flopping over a stone, was obviously ill at ease. It flowered fairly well, but its leafage was poor and it was ugly and leggy. Then the approaching acæna came closer. It got among the daphne. swaddled up its thin, unhappy legs,

THE LOVELY ARENARIA MONTANA GRANDIFLORA MAY BE GROWN AMONG OTHER ROCK PLANTS WITH ADVANTAGE.

and from that day the shrub grew away with a new vigour and it is now one of the best specimens in the garden.

Helichrysum trinerve, which was invited to clothe a rough slope, was not a success, mainly because, having no anchorage for its trailing stems, they were the toys of every wind. But no sooner had Lysimachia Nummularia (the large-flowered form) joined it than it settled down to a peaceful life, and the result is we can not only enjoy the beauty of the helichrysum, but the Creeping Jenny comes into flower when it is over and continues well into autumn. Both plants are thus manifestly the better for the mutual co-operation. Dryas octopetala, already mentioned, we failed to satisfy for years, that is, until the plants became nearly smothered by some creeping veronicas, thymes and a little bush of Hypericum balearicum, since when it has never looked back. Another example of this is afforded by a new bed of Gentiana Farreri, which has on one side several lusty clumps of Primula Juliæ. The gentians nearest the latter are not only much stronger than any of the others, but their boldest and best shoots are those which are almost covered by the leaves of the primula.

There are some plants, of course, which, while they may be grown with advantage among others, cannot be said to afford the latter any benefit. The lovely Arenaria montana grandiflora, serves as an example. Our most successful masses of this charming plant appeared as self-sown seedlings among some rocks about which Cotoneaster congesta and Erica carnea growing together make a dense carpet of dark and light green. Here the sandwort develops into a climber of some pretensions, and while the shrubs are certainly none the worse for bearing such a singularly beautiful burden, their foliage gives the latter the best of all possible backgrounds and a congenial support.

Admitting that there are plants too aggressive to be permitted a free range among choicer things, there are occasions when the ways of the transgressors must be pardoned. I confess to being unable to do away with a large mound of armeria which has become enmeshed by the violet-studded tentacles of Linaria æquitriloba, to which the former appears to be quite indifferent. Then there is Raoulia australis. A showery summer so stimulates this lowly mite that it streams in a grey-white spate that respects nothing which it is able to overflow. Now peppered with

DRYAS OCTOPETALA DELIGHTS IN RUBBING SHOULDERS WITH ITS NEIGHBOURS.

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its golden knobs, R. australis has just invaded a patch of Sedum origanum, so that the blood red foliage and flower stems of the latter are standing ankle deep in a pool of silver. The stonecrop may suffer and the little usurper may extinguish some small clumps of encrusted saxifrages which it is rapidly veiling with its gleaming filigree. But rather than snub so delightful a creature by banishing it from the ranks of the invaded, risking in the process the probability of doing as much injury to the rescued as to the aggressor, we let raoulia have its way. Winter will visit it with all the chastening it deserves, and, as for the saxifrages and stonecrop, it is a simple matter to give these a fresh start elsewhere. Viewed from such a standpoint, we can regard with delight rather than consternation the weaving of our tapestry of silver and crimson and gold. Whether it is the right standpoint opinions will differ. A. T. J.

SOME RECENT DEVELOPMENTS OF THE BEARDED IRIS

BY SIR ARTHUR HORT, BT.

(*Continued from page* 530.)

NOW, in what follows I hope I shall not be thought too egotistic if I describe how I have attempted to carry on some of the work of the master to whom I owe both the foundation of my collection of plants and many fruitful lessons. Others have worked on similar lines, and, if I mention my own plants rather than theirs, it is simply because I know my own nursery and the history of the infants reared in it. I am familiar with some of the *results* reached by distinguished growers like Mr. Bliss, Mr. Yeld, Mr. Dykes, M. Vilmorin, M. Denis, but, except perhaps here and there, I do not know how their results were reached.

Let us take a few examples, to show how Foster worked and how it is possible to work on his lines. By seeding his new cypriana, sent him from Cyprus, he produced Miss Willmott, a fine creamy white handsomely marked. (He himself, by the way, called this a seedling of Kashmiriana, but experiment seems to have proved that this was a mistake.) This plant, however, is shy-flowering and not a very good doer; moreover, the colour tends to "break," as tulip-growers say, and become faintly streaked with purple. By crossing Miss Willmott with Regan, a very robust child of Trojana and pallida, I produced Bolingbroke, which has all the good points of Miss Willmott, but is taller and more robust and has flowers of purer colour. I have heard it called the best white yet raised, though one Theseus, a casual seedling which turned up in my garden, runs it hard, and so does Kashmir White, a noble seedling of Foster's, which he did not, I think, live to see in flower. Mr. Dykes has just produced a white seedling, which I have not seen and which perhaps beats them all.

Again, from cypriana crossed with pallida, Foster raised several fine things, including Lady Foster, which also did not bloom till after its raiser's death, and Caterina (so called from the Queen of Cyprus), over which our American friends rave; but they complain that it is not robust, and in some of their gardens will not grow at all. Well, from Caterina in my Harrow garden came a whole tribe of seedlings, nearly all of stronger growth than Caterina (which generally has to be tied up) and with flowers not only larger but better built. I can claim no credit for this batch, save that of collecting and sowing the seed, since I had not pollinated the flowers: at that time I did not generally pollinate hybrids, but worked chiefly from wild forms. Some of these daughters of Caterina are getting well known, as Ann Page, Volumnia, Vincentio, Olivia. I have named in all about fifteen of them, all quite distinct, all, in my humble opinion, better than Caterina, and they have the advantage that I have flowers of Caterina type for a lengthened period, as her children bloom at different times. Thus, Olivia does not open till towards the end of June.

Again, from Volumnia, one of these Caterina seedlings, I have Leonato, a grandchild of Caterina: this supplies the frontispiece of Mr. Wallace's List for 1923, and, as he asks 6 guineas for a rhizome of it, I suppose I am not alone in admiring this flower. Again, I have new seedlings growing on of Leonato, a further generation, which may or may not give a further advance: I confess that I hardly expect Leonato to be beaten.

After Foster's death, his widow gave me, with other plants, a scrap of rhizome labelled "Ricardi seedling," namely, a seedling presumably of imported Ricardi, a variety of mesopotamica. This developed into a huge clump with massive red-purple flowers, rather loosely shaped, and bore abundant seed. From this seed, fertilised naturally or artificially, has come another fine race of giants, mostly with stiffer stems than the parent and flowers even larger, but well set up, not floppy. This batch includes Antonio, Eglamour, Shylock, Desdemona and Autolycus—an improved Isoline.

The pollen I used on the Ricardi seedling was chiefly that of vigorous and very hardy germanicas, such as Amas and Purple King, which might be expected to add robustness to the stature and size of the other parent. Pollen of the lovely Lady Foster gave me Desdemona, which seems to be the sturdiest of the batch for English gardens. Trojana, another of Foster's introductions, has a fine, well balanced branching inflorescence, but the stem is weak and the foliage thin and poor. Many hybridisers, such as M. Vilmorin, the raiser of Alcazar, have discovered the value of this plant as a seed-parent or pollen-parent, though, unfortunately, there has been some uncertainty what Trojana is, the name being sometimes given by mistake to a *western* germanica form. The offspring usually have the characteristic much-branched stem, which sets off the flowers. I have known the stem of a Trojana seedling to have ten perfect flowers out on it at once. This plant, by the way, is a puzzle: according to my (pretty careful) labelling it is a seedling of Trojana uncrossed; but, whereas the parent, as I said, has thin weak leaves, the child has the broadest and finest foliage I have ever seen: the branches are produced from spathe-valves sometimes 4ins. across. It is called Hermione. This is what I call a "casual": my deliberate efforts with Trojana have been chiefly with the pollen of Amas: I have a whole regiment of seedlings from this cross, a very strong-growing race of "purple bicolors" with abundant foliage (derived, no doubt, from Amas) and a pleasing range of shades, from Ann Bullen, a rich dark beauty, to Speed, which has almost sky blue standards; others of the batch are Angelo and Mistress Ford.

Pollen of pallida on Trojana produced a plant which I call Regan, and which I cannot distinguish from a thing that I bought as cypriana in the days when I always ordered cypriana on seeing it in a catalogue. I might add a warning that many things masquerade under that name. The true cypriana, given me by Foster from the plant sent him from Cyprus, I fear I have lost, and I do not know where one could be certain of getting it.

In my limited experience these three Orientals—mesopotamica (or Ricardi) cypriana and Trojana—have chiefly contributed to the production of improved garden forms, and I do not doubt that there is much yet to be done with them, especially, I believe, in the way of seeding on to further generations. Unluckily, plants containing blood of mesopotamica or cypriana keep one tiresome characteristic learnt in the higher latitudes from which those species came. I have never known any of them killed by a hard winter, but they are apt to suffer from a mild one followed, as in 1923, by a ferocious spring, because they tend to keep their foliage, instead of dying down decently like the irises of western Europe, and also to try to grow too early; then an April frost damages the foliage and may destroy the flower buds before they emerge. (This is no doubt what has happened with other early-flowering kinds, even the hardiest, in years when they do not flower. Thus, last year even Germania typica failed in my garden, and, as its aspect is south and it is very early, I take this to be the explanation.)

(*To be Continued.*)

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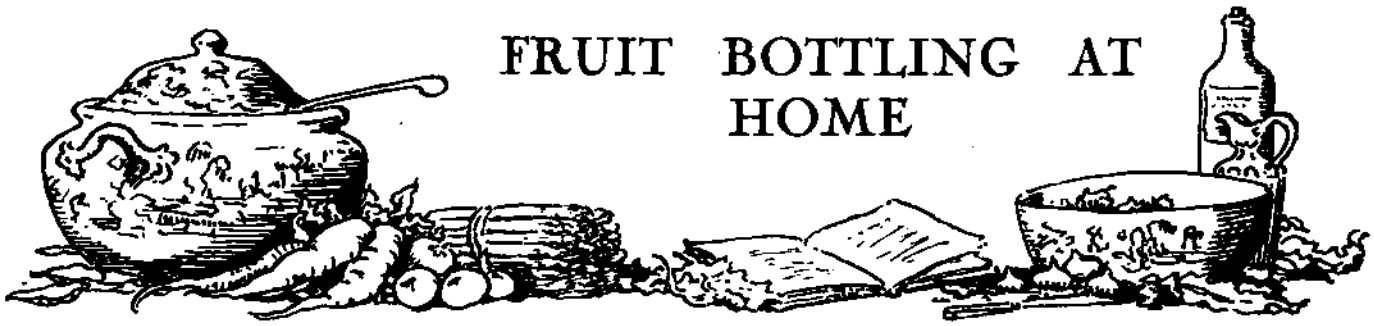

FRUIT BOTTLING AT HOME

THE old housewifely art of fruit bottling has come very much to the fore in recent years, due, no doubt, to the necessity for economy and to renewed interest in preserving our own garden fruit for winter use—possibly also to the introduction of the modern "fruit sterilising apparatus."

The bottling of fruit is really quite a simple process, cleanliness and minute attention to detail being the keynotes of success. Whatever the method employed, the underlying principles are the same—(A) Thorough sterilisation—the destruction of any germ in fruit or water productive of mould or fermentation; (B) exclusion of air after sterilisation.

A Fruit Sterilising Outfit, of which there are several reliable kinds on the market, is a useful addition to the kitchen equipment, for it economises time and labour and reduces risk of failure to a minimum. The old-fashioned method of bottling in ordinary jam jars and sealing with fat, parchment covers, etc., is by no means unsuccessful, but it is more laborious, and there is always just the risk of imperfect sealing.

A thermometer, which is supplied with a "fruit sterilising apparatus," is not an absolute necessity for bottling, but the use of one is an aid to success. A dairy or bath thermometer is suitable, but it is advisable to test it before use. Put it in a pan of cold water with the mercury about 3ins. below the surface. When the water boils (212° Fahr.), if the thermometer registers above or below this degree, calculate accordingly when sterilising.

Substitute for Patent Steriliser.—Use an ordinary fish kettle or any pan deep enough (10ins.). A false bottom is indispensable. A meat rack, strips of wood tacked together lattice-fashion, or even a folded teacloth, will answer the purpose. If using a thermometer, to avoid dipping it in and out, make a hole in the lid of the pan and fit into it a piece of rubber or cork with a hole pierced in the middle; this will grip the thermometer and keep it in position.

Bottles with glass caps, rubber bands and metal screw-down rings are largely used, and for hygienic reasons are preferable to those with a metal cap. On the cooling and the contraction of the contents of the jar a partial vacuum is formed within, and this, with the outside air-pressure, fixes the lid tight and seals it hermetically.

GENERAL DIRECTIONS FOR BOTTLING.

Methods vary vastly, but general rules are applicable to all.

(1) Use perfectly clean bottles with wide necks, and pure water.

(2) Fruit must be clean, dry and sound, and should be rather under than over ripe.

(3) If graded as to size and ripeness, space in bottle is economised and fruit is equally sterilised.

(4) Prepare fruit in the usual way, wash and dry, handling and cleansing soft fruits as gently as possible to avoid crushing. Peel, core, halve or quarter apples and pears, and, to preserve colour, drop into slightly salted water as peeled.

(5) *Well fill* bottles, shake the fruit down, pack tightly, but avoid crushing. Two wooden sticks (12ins. long), pointed at one end, are useful in arranging fruit in layers.

(6) Apply heat *very gradually* (see table).

(7) Glass, being a bad conductor, heats unequally and is liable to crack upon exposure to sudden extremes of temperature; hence the use of a false bottom in the steriliser. Never put a hot bottle on a cold surface or leave it in a strong draught, nor let a cold one come into direct contact with hot metal (such as the oven shelf).

(8) *Remove one bottle at a time* from the steriliser or oven and *seal at once*, to exclude air, by which germs gain access to the fruit.

(9) Store in a cool dry place. Strong sunlight is apt to bleach the colour of fruit. Examine bottles occasionally, particularly those covered with paper.

Use of Water or Syrup.—Water preserves the fresh flavour of the fruit better, and sugar can be added when it is used. Fruit bottled in syrup is richer in flavour, but there is greater shrinkage. For a thin syrup dissolve ½lb. of cane sugar in 2 quarts of water, boil for ten minutes, skim, and use when cool. For a thicker and richer syrup, increase quantity of sugar.

Causes of Fruit Rising in Bottles.—(A) Loose packing. (B) Over-heating and heating too rapidly. Fruit must be sterilised, *not* cooked.

Approximate Time and Temperature.—For time and temperature there cannot be a hard-and-fast rule. They depend upon the kind, quality and ripeness of fruit.

Fruit.	*Time.*	*Temperature.*
(1) Soft: Raspberries, Strawberries, Loganberries, etc.	1¼–1½ hrs.	155°–160° Fahr. Keep at this for 5 mins.
(2) Hard: Plums, Damsons, etc.	1½ hrs.	160° Fahr. Keep at this for 5 mins.
(3) Apples and Pears	1½ hrs.	180° Fahr. Keep at this for 5 mins.

Note.—(*a*) During the first hour, bring the water very gradually up to 100°, then gradually during the last thirty minutes up to the required maximum temperature. (*b*) Stone fruits generally crack slightly unless under-ripe.

BOTTLING IN FISH KETTLE OR ORDINARY PAN.

(1) Pack bottles as directed.

(2) Fill with cold water to overflowing.

(3) Put on rubber band and glass cap, and screw down metal ring tightly, then give a half-turn back to allow of expansion within.

(4) Place bottles in pan, do not let them touch, and cover with cold water.

(5) Apply heat very gradually—

(*a*) If using thermometer, proceed according to table.

(*b*) If not using thermometer, more care is required. Heat water very gradually to simmering point and keep it there for twenty to twenty-five minutes. To test, remove one bottle, with a cloth, and gently twist in the hand. If the fruit moves slightly, it is ready. Very tight packing is essential, otherwise this test is no sure proof of sterilisation.

(6) Remove one bottle at a time, and at once screw down the ring tightly.

(7) Leave bottles to get quite cold, and follow directions given.

Note.—If ordinary glass jam jars are used, do not fill so full. Also the surrounding water must only reach to the level of that in the bottle.

METHOD OF BOTTLING SUITABLE FOR SOFT JUICY FRUITS.

(1) Remove the stalks from the fruit—such as raspberries or loganberries; sprinkle with white sugar (or not), and pack as tightly as possible without crushing.

(2) Sterilise in the ordinary way at 160° Fahr. When the fruit has shrunk in its own juice, fill up from another bottle and re-sterilise at 160° for another ten minutes. Seal in the ordinary way.

W. L.

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NOTES FROM CONTRIBUTORS

THE COTTAGE GARDEN.

AS a regular reader of THE GARDEN, I have, with considerable interest read the various articles and studied the designs set forth by expert and practical advisers; but I have noticed that most of the information and instruction given has been more or less for the man of means. The cottage garden in rural districts has been and always will be a source of pride to the owner and a great pleasure to passers-by. Unfortunately, private enterprise to-day is hampered in house-building, and, instead of a variety of designs in cottages, we see, as a consequence, blocks or rows of cottages with much about the same appearance when taking a general view of them. I have no doubt that the schemes set forth are most economical from the Councils' point of view: what cannot be cured must be endured!

I have in my mind a garden city (so-called) of about 400 cottages, wide roads, avenues of trees, which will, indeed, look beautiful

A CHARMING COTTAGE GARDEN.

in a few years' time. The roads and trees are worthy of all praise, but the cottages are all set out in perfectly straight lines, and separated from the roads solely by posts to which has been attached about three strands of wire. They are also separated from each other in precisely the same way. Alas! for poor Mrs. Jones's children when their ball—which, under the circumstances, naturally gets between the wires—breaks Mrs. Smith's prize marigold. The still small voice of Mrs. Smith wafts softly over the breezes and—but we had better leave it at that. I think, with the aid of the Housing Committee, by putting some decent oak palings and gates to each cottage, in an undulating manner, to break the institutional effect of the scheme, the tenants would be encouraged to put forth their best efforts, and the garden city might quickly and easily become a *real* garden city, and not a city minus the garden. These notes are not for the man of means or the professional, but simply for the cottager—a man who cannot afford to employ labour, but who takes a personal interest in his garden. The following notes and photograph will show what a great variety can be got in a small space, in their proper proportions. Readers may criticise and say this or that should be put in large clumps, and I quite agree to that, provided there is plenty of space, so that the effect can be seen from a distance and from an expert's point of view. But my experience of rural life is that the cottager likes a variety, and why should he not have it for lack of space to put big clumps? The accompanying photograph is of a cottage garden, the size of which is 45ft. long by 30ft. wide. The herbaceous border runs the full length and is 6ft. wide. The background is planted with rambler roses trained on wire netting, which also acts as a screen to the vegetable garden. The front has a grass border 1ft. wide. A gravel path leads up to the rustic summer-house, the size of which is 5ft. long, 3½ft. wide and 6ft. high, with climbing roses each side. The rockery is banked against the wall and is planted with aubrietias, alyssums, Sunbeam poppies, ferns, fuchsias, saxifrages, veronicas, violas and irises. The artificial pond has a cement bottom and is 12ft. long, 3ft. wide at its widest point, and spanned by a rustic bridge 6ft. long by 2½ft. wide, with an escallonia trained across it. Round the edge of the pond are planted irises, violas, aubrietias, pinks, veronicas and rock roses. On the right of the pond is planted a pampas grass, and on the left red-hot pokers in the grass. Near the pampas grass is a mound on which is planted, quite in the centre, a broom, at each of four corners a cupressus, and filled in with polyantha roses (Orleans) and Mrs. Sinkins pinks. The small mound in front of the pond is planted with a gypsophila. The rose-beds are planted with roses of various colours, mostly hybrid teas. I have not restricted the herbaceous plants to any particular variety or colour, as that would be getting away from the idea in mind. Real lovers of the English garden admire the individual flowers themselves rather than the blending and harmonising of colour. Planted between the herbaceous plants and on the rockery are crocuses, snowdrops, chionodoxas, tulips, hyacinths and narcissi for spring flowering.

Of course, this is only one idea, but an original one, and it is the original combined with the practical which would make a welcome variety in place of the rather monotonous sameness we behold in our garden cities.—P. E. C.

THE DYER'S GREENWEED.

GENISTA TINCTORIA, recognised as a summer-flowering native shrub of lowly, straggling habit on heaths and commons, is not particularly attractive. But under cultivation it is greatly improved, the flowering spikes being not only longer but branched so as to form well furnished panicles of yellow. Suitable as this is for associating with heaths and such like, its double form (G. t. flore pleno) is a really good rock garden plant. This is, moreover, especially desirable since it does not come into flower until most of the dwarf blooms are over, and its foliage, which forms a dense mat some 4ins. thick, retains its rich green for the greater part of the year. At the time of writing (early July) a large patch of this double variety, growing in poor soil on the top of a very dry retaining wall, is a gorgeous mass of golden yellow, a better colour, by the way, than that of the type or other form of the species. It is interesting to note that the flower-spikes of this broom, having shed their blossoms, become so hardened at the tips that by the time winter comes along they assume what is practically a formidable array of spines, presumably designed to bristle defiance at the prowling rabbit or other browsing animal.

The earliest to flower of the tinctoria group is G. t. mantica. We grow this among heather and other plants in open woodland where it makes a spreading bush about 2ft. high, bearing from May onwards a succession of flower-spikes in a somewhat feeble yellow (for a broom) yet one that is by no means ineffective against the dark green foliage.

The tall-growing variety known as elatior has a stiff, erect habit and may be anything from 2ft. to 6ft. in height. The rather fine flower panicles are raised aloft at the extremities of the upright branches, and when these do not blossom until the later summer, which is often the case, they afford a very welcome touch of just the right note of flaming yellow to harmonise with the first hints of autumn. Although the brooms of the tinctoria set generally will doubtless prosper in the poorest of soil, I am inclined to think that they would repay one for better living and moister conditions than are usually granted them. This is especially true of var. elatior, which if it cannot make sufficient growth during summer may not break into flower until the autumn rains come along.—N. WALES.

NEW ZEALAND PLANTS IN SCOTLAND.

IN these days when so many products of our colonies are being seen and admired at Wembley, it may be a consolation to those of us who have to remain at home to know of others which are more attainable. In the marvellous group of islands known to us as New Zealand, our plants for many years have been acclimatised with the greatest success, and recently plants from there have come to adorn our gardens.

Of these, perhaps the most easily grown and the most decorative is the Senecio Greyii, a shore plant which grows best in the neighbourhood of the sea. Once established its large grey leaves are beautiful all the year round, its buds are like silver balls, and its flowers appear in large panicles—from five to forty in a bunch, of a clear yellow colour contrasting exquisitely with the foliage.

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From the window where I write I can see three clumps of this fine shrub, two in the sunshine growing to the top of a fence 5ft. high, the other luxuriant in very poor soil under the shade and drip of a large chestnut tree. Given a maritime district it seems to flourish anyhow and anywhere, and it grows very readily from cuttings. After ten years' experience I can heartily endorse Sir Herbert Maxwell's recommendation of it in his recent "Notes from the Garden."

Another beautiful grey plant is Geranium Traversii, which adds a charm all its own to the rock garden. It has a fine glaucous foliage of a trailing habit, and pink flowers larger and brighter than the G. argentum. Old plants cannot survive severe winters, but they seed freely, and the seedlings are very hardy.

Veronicas from New Zealand may also be grown here in great variety. In my own small garden I have quite a number of them. V. Hulkeana, which is said to be somewhat tender, I grow against a wall where its long sprays of lavender flowers were beautiful at the end of May. The hybrid V. Fairfieldii, which flowered about the same time, while also very pretty is not to be compared with Hulkeana. Early in June V. Catarractæ was smothered in white blooms each with a narrow line of pink, and V. Hookeriana was in flower at the same time, its flowers similar to those of V. Catarractæ, its leaves a little broader and larger. V. pinguifolia and V. monticola, both suitable for the rock garden, produced a profusion of white flowers in June, also V. Bidwillii, the smallest of all and fit to mingle with the choicest alpines. In July V. pimeleoides, only 6ins. high, is beautiful, with blue-green foliage and covered with lavender flowers. At the opposite extreme is V. speciosa, which grows in bushes 3ft. or 4ft. high and thrives even in the shade and with a northern exposure. This fine shrub with large leaves and dark purple flowers is now—in July—flowering freely. Other late-flowering varieties are V. parviflora, which has delicate spikes of very pale lavender, V. salicornoides and V. cupressoides, which all thrive here and flower well.

Of hybrids now coming into bloom V. Autumn Glory is the most notable. This will continue to flower on into the winter months. In another garden near here, but more sheltered and with a better exposure many other New Zealand plants have made themselves quite at home. Olearia ilicifolia, O. myrsinoides, and O. macrodonta are all there, and—on a south wall—a number of fine plants of Clianthus puniceus, both crimson and white, make a splendid show this spring in spite of the severe winter. A remarkable hedge of O. Haastii and New Zealand flax—Phormium tenax—the latter throwing out great flowering spikes, is also to be seen there at present among many other wonders from overseas for which one may search in vain through the Great Exhibition.—H. W. L.

CORRESPONDENCE

CALLISTEMON SALIGNUS.

SIR,—I am sending you a photograph of Callistemon salignus, or bottle-brush plant, which has just recently been taken on my lawn.

It blooms every year, and is kept all the year round in a cool greenhouse. I thought perhaps it might be of interest to your readers, since it is not without its unique points and is somewhat of a rarity in these parts.—SAMUEL H. LANE, *Isleworth*.

ANOTHER APPRECIATION.

SIR,—I read with interest the editorial articles of June 14th and July 5th. Being very fond of gardening in imagination as well as in practice I am a subscriber to THE GARDEN and two other gardening papers, and I have sometimes tried to formulate the distinctive characters of the three. It seems to me that THE GARDEN helps a beginner (and that a more advanced gardener would be helped too) to get good general views of gardening possibilities. You give an article on some genus. Well, few of us can grow all its members. But perhaps we grow one, or are encouraged to grow one by your article, and then our specimen stands to us, not as an isolated plant valuable merely for its beauty, but as related to the others of its genus of which you have told us and for which we probably long. Then there are such articles on garden practice as those which have frequently appeared on seed-raising of perennials and alpines. One, on August 18th last, has a most useful table, "When and How to Sow."

There is, I imagine, a public who, like myself, are beginners and amateurs, and we want to be helped along the less commonplace ways of gardening; and we want also that kind of general knowledge which will enable us to go into a fine garden and enjoy it with understanding.—W. R. JOHNSON.

THE CHARM OF A SMALL GARDEN.

SIR,—Permit me as an old reader and an occasional contributor to THE GARDEN to express my great pleasure and gratification upon reading the editorial "written round a correspondent's answer to a short note of a week or two ago entitled "Encouragement." Certainly the introductory page of the issue July 5th (page 460) is most encouraging, and I feel sure will give great pleasure to very many, like myself, who are workers in a small garden. There is certainly great beauty in "simple gardening," equally so to the most extensive, pretentious or ornate forms of gardening. And though we possessors of tiny gardens cannot boast of our orchid houses or extensive rock or alpine gardens, we are enabled to grow to considerable perfection the "poor man's orchids," and I venture to say they are among the most glorious flowering plants in cultivation, and they cost nothing! Upon my border at the present moment there is one of the finest and most noble of foliage plants upwards of 5ft. 6ins. in height, and I think Mr. George Garner will call this one of the simplest forms of gardening, for the plant is only the common iris, the water-flag of our riverside. Then, we cannot form great rock and alpine gardens or alpine meadows in our modest borders, but we can grow some of the most glorious of plants in our borders with equal success to the gardener who has his broad acres and staff of helpers. Not only so, but the small garden of just a few square feet is usually tended by the amateur gardener, and therefore has the great advantage of that "personal touch" that means so much in all gardening either great or small. His plants become to him as personal friends, and as time goes along the most modest of flowers, even the simplest of garden flowering plants like the daisy, talk to us and we to them and, like Francis Thompson, we also are enabled to see "the bitter in the sweet and the sweet in the bitter" as we labour year by year in our "simple gardens." Oh! I can assure every reader of THE GARDEN that there is great charm and pleasure in the study and contemplation of the smallest of Nature's treasures as we work on our tiny plots. My own experimental plot is not more than 44 square yards in

THE "BOTTLE-BRUSH" PLANT.

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extent, yet even here this small space has enabled me to carry out many forms of gardening and to contemplate the inner meaning of flowers and gardens. There are no more potent factors in the world for good than flowers and music, "and by the aid of gardens and good music," I am assured by the governor of one of our great penal establishments that he can reach the hearts of men who are considered beyond the pale of human society, and I have seen the same for myself, therefore one is assured that the charm of a small garden is real and abiding, and I gladly welcome the page upon "Simple Gardening." The charm of a small garden is this, there is no finality. Of necessity it is ever changing, and by the time the borders are planted and finished from end to end the plants have matured and been photographed in endless stages of growth. One may with pleasure and advantage commence again and rebuild our rock borders, introduce plants that we have not hitherto grown, and so the changes may be rung in endless ways, and our garden education is gradually evolved from the simple—shall I say to the beautiful. And this gradual knowledge and garden craftsmanship is largely the result of our wonderful British garden journals and the valuable information that one finds just of use as one refers to them as guides or text books. Need I say more than this: That for years we have taken four garden papers, and THE GARDEN for upwards of twenty years has been to me as a personal guide and friend, and with the new issues and extra features, not overlooking the exquisite and superb quality of the illustrations, I shall feel an added interest, and most sincerely wish the Editor and all those concerned in its production great success in the publication of THE GARDEN.

One final word. Have you noticed that the present issue is No. 2751? and through all the years week by week gardening has been the subject written upon, and one wonders that the topic has not "run dry." Truly, gardening is a hardy perennial, ever new, and that is the especial charm in either gardening or garden journalism, they are ever new and our age is rejuvenated and in the garden one becomes a youth again. Some of my friends who have only small or simple country cottage gardens are young at eighty years and over. I venture to think there is no other hobby on earth that is more adaptable to the conditions of every type of man, be he rich or poor, old or young, learned or simple.—JAMES PARKINSON.

WISLEY.

SIR,—It is possible to agree with part of your article on this subject without in any way adversely criticising the directorate.

As I understand it, Wisley is run by a committee. Now, the best work in any art cannot be done by a committee unless that committee is dominated by one personality, which is hardly likely to be the case with a committee of such ability as the R.H.S., and the result must be compromise.

When two or three great minds endeavour to co-operate on a subject in which they are intensely enthusiastic, the compromise cannot be so good as if each were acting independently. Taking your paragraphs:

(1) Everyone will agree with this; but the trouble is, as your leader of July 26th says, the definition of what is the most beautiful garden.

It seems to me, and to those with whom I sympathise, that a most beautiful garden must be one in which a complete and perfect "design" is worked out in its entirety and to the last detail.

If I may drag in another quotation, "From the nature of the ground in its original state—partly wooded, partly bare field—and from its having been brought into cultivation and some sort of shape before it was known where the house now upon it would exactly stand, the garden has less general unity of design than I should have wished" (preface to "Colour in the Flower Garden"). If this is the case with Munstead Wood, it is very much more so with Wisley.

The R.H.S. took over the garden in existence, by this means realising in a few years a result partly as good as would have been obtained in twenty, but not entirely. The garden had been laid out as a private garden with the anticipation of such expenditure as could be laid out on a hobby, and to convert that into a National Undertaking is a big job. They were handicapped also by the fact that the ground was a gift, and no radical or sweeping change could be made at once; neither did the finances of the Society at that time permit it.

A FINE CLUMP OF LILIUM GIGANTEUM.

What has been attempted can in some measure be gauged by the difference in the first buildings and the present building which house the laboratories and offices.

But there is another difficulty. Doubtless the majority of the committee are in sympathy with the trend of modern opinion in garden design, but there is a certain lingering of the old idea of the landscape gardeners that a garden is not to be treated as a garden but as a sort of imitation of some *natural* effect or effects.

There are at Wisley some herbaceous borders; they are replenished occasionally by stock from "trials," and their design, wriggling round a meadow terminated by one of the most awful "villas," leaves much to be hoped for. The arrangement of the plants is either accidental or the result of many opinions acting in discord.

I suggest scrapping the lot, laying the borders out long and square, double with grass or stone walks between, with yew hedges for boundaries, and bays in the grass for seats, with terminals, vistas and spaces for one or two really good pieces of sculpture. Then give each border, or pair of borders to one of the more eminent designers among the V.M.H.'s with the utmost liberty to design a border which, in colour and form, should be an example of British gardening: invite, if desired, contributions of the necessary plants from Fellows of the R.H.S.; and import, if need be, loam and calcareous soil—of peat and sand we have plenty.

We are at the moment particularly fortunate in possessing garden designers whose work is the envy of the world; but alas! there are few public gardens where it is to be seen, and a general invitation could not be admitted to private gardens so near London.

Wisley should, undoubtedly, be a place where gardeners can see what is the best plant of its kind and how to grow it.—H. FALKNER.

LILIUM GIGANTEUM.

SIR,—I am sending you a photograph of a clump of Lilium giganteum as nine bulbs flowered at once in the same clump, in case you would care to publish a reproduction in your paper. The photograph, of course, does not give one any idea how beautiful they were. They are grown in the home wood at Merton Hall, near Thetford, in Norfolk.—(Lady) ETHEL EDGAR.

GOOSEBERRY MILDEW.

SIR,—I notice in the answers to correspondents, July 19th issue, the advice given to burn the bushes. This disease no longer needs to be notified in Scotland, and if you cannot cure you can at least keep it in check. There are several methods which have been tried by the horticultural departments of the Scottish colleges of agriculture.

The first point to be observed is winter pruning; the points of all young shoots should be taken off and burned. You can see the mildew as a chocolate film on the young grey bark. Some people say spray with a caustic winter spray, others that this is useless. I am inclined to think dusting with a mixture of slaked lime and flowers of sulphur will do good, but will give it a further trial this winter.

Summer spraying with ½oz. of ammonium polysulphide does very well in some cases; but the fashionable summer spray is now sodium carbonate, 1lb. dissolved in 4 or 5 gallons of water and the spraying begun just after the fruit is formed; this is simple and no harm can be done with a weekly spraying, though other authorities think two or three times should be sufficient.

It allows the crop to be marketed as green gooseberries, as the white fungus, if washed off, does not hurt cooked fruit.

The trouble about replacing the bushes is that few nurseries have a stock of clean plants. I hope to try the effect of hot lime on the ground during winter; it cannot do any harm and may prove useful. But I was informed by one authority that it has never been proved that the fungus lives in the ground.

Is the disease known on chalk soil or where chalking is done regularly? Here the soil has very little lime in it and periodical dressings are needed to maintain the necessary lime content. Unless this is regularly done the soil becomes decidedly acid.—WILLIAM LOW, *Montrose*.

[The advice given to our correspondent was applicable to England, where our correspondent resides.—ED.]

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SIMPLE GARDENING

PLANTING STRAWBERRIES.

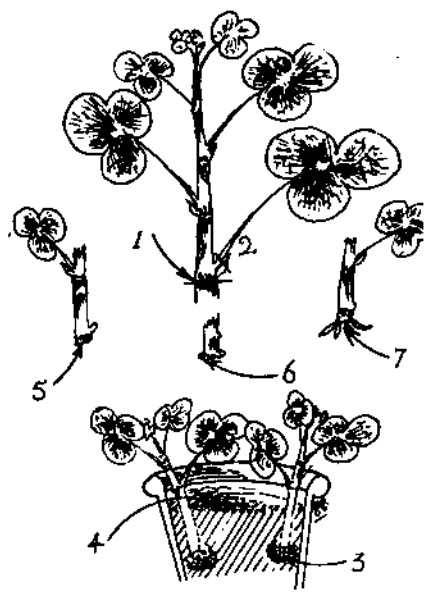
THE early planting out of strawberries results in the security of the plants against severe weather in the winter. This is a fact that applies in the case of heavy, as well as light, soils. In both instances numerous roots are produced throughout the autumn while the soil is warm. In naturally heavy ground a plant, possessing only a few roots, receives a severe check. In naturally light ground this early production of healthy roots helps the young plants to form plump crowns before the hard weather comes. A weakly plant in a sandy soil will not make up for valuable lost time in the spring. The soil, in every instance, should be very deeply dug or trenched, two spits deep. Soil already rich in humus—that which has been manured liberally with organic manures for the preceding crops—does not need any more prior to planting the strawberries, but all ordinary soils should be manured at this stage. After the strawberries are planted a surface dressing of basic slag, at the rate of 4oz. per square yard, will be very beneficial; it should be lightly pointed in and the whole work finished by adding a surface mulch of littery manure. In many gardens much space is wasted by planting too far apart. I like to plant in pairs 7ins. apart, 18ins. dividing each pair in the row and 20ins. from row to row. After the first year of cropping one plant of each pair may be discarded.

WHEN GRAPES ARE COLOURING.

When the berries reach the colouring stage they require different treatment from that necessary previously and up to this stage. The berries swell in three stages, first, directly fertilisation is complete; second, as soon as the stones have hardened, and lastly, when the colouring begins. The Black Hamburg and Foster's Seedling varieties are, approximately, eighteen days in the stone-hardening process; Alicante, Gros Colmar and Muscat of Alexandria with other late sorts, twenty-four days. While the stones are hardening there is no perceptible swelling of the berries, but directly the stones are hard the swelling begins. From the first appearance of colour in the berries twenty-four days should be allowed for the complete process in the case of early sorts and thirty days in the case of late ones, and, of the latter Alicante may be named as a variety in point. Before colouring commences, and especially while the stones are hardening, there is always a danger of the berries being scalded and, up to this stage, more atmospheric moisture is required with less ventilation. After colouring begins there is not much danger of scalding and less atmospheric moisture is required with more liberal ventilation. Ventilate judiciously through the front ventilators as well as through the top ones and, furthermore, a small opening at the top of the house through the night will be beneficial. Black grapes colour best and retain that dark blue-black appearance longer under a canopy of healthy leaves; the white varieties need sunshine and light to ensure that golden amber colour so much desired by every cultivator.

PROPAGATING SUMMER BEDDING PLANTS.

It is not possible to describe, in detail, the work connected with the propagation of all kinds of plants used for this purpose.



Only a few are referred to and these will be a guide to the methods necessary in striking others. Zonal pelargoniums, commonly called geraniums, are propagated as shown in the accompanying sketches. Short-jointed branches, not very sappy, are the best to select. This fact also applies to fuchsias, heliotrope, petunias, salvias and similar plants. Small cuttings, such as those of lobelia, are easily rooted in boxes; so, indeed, are all cuttings. The compost should be sandy and a cold frame used. No. 1, shows where to cut off the stem—through a joint; No. 2, leaf at that joint to be removed; No. 3, sand at the base of the cutting; No. 4, sand on the surface of the soil; No. 5, the base of the cutting when inserted; No. 6, the callus forming; No. 7, the roots beginning to grow. Careful watering is essential and shade in the case of tender cuttings.

CABBAGES AND ONIONS FOR SPRING.

The true value of these two crops can only be appreciated by cultivators after the passing of a severe winter. Even when crops, generally including, of course, the stored roots, are good or normal, the spring cabbage bed is very closely examined both by the owner and his neighbours. The present is a suitable time to make preparations for having such beds by sowing seeds of good varieties. Very early—July—sowings often result in the "bolting" of the plants; in the northern counties the latter part of July is not too early, but it is in the southern. But it is a fact that the strains now sold by our seedsmen are very pure and lessen the risk of "bolting" to a minimum. Now, I would urge readers to take a little trouble with the raising of the seedlings and their treatment during this autumn. The seeds should be sown in soil not previously cropped with these and similar plants, at least for several years past. The seeds should be sown thinly and the resultant plants transplanted before they become drawn. The ground for the final planting should be good, yet firm and well surfaced with old soot. Harbinger, Flower of Spring, Enfield Market and Wheeler's Imperial are typical varieties to grow. Of onions, Leviathan, Giant Rocca and White Mammoth are suitable.

OLD AND NEW LAWNS.

I am referring to the old lawns first because more work will be done on them, at this season, than on new ones. Where the soil was in good condition the grass has needed cutting every week throughout the summer, and that troublesome pest, moss, is already beginning to spread again. With the aid of a sharp-toothed iron rake all the moss possible should be removed and, twice weekly, afterwards the lawn should be vigorously brushed to help in the destruction of all bits that might grow again. Avoid rolling the lawn for several weeks as the firming of the ground tends to new growth of moss. The soil is warm now and new grass seeds will germinate rapidly and soon cover bare patches with young grasses. All that is necessary in preparing the ground, is vigorously to rake the surface, removing the roots of daisies and coarse weeds, and then sow the seeds thickly and evenly. Instead of raking them in, cover with a thin layer of sifted soil, roll and place a net on to prevent birds eating the seeds. New lawns may be obtained in the same way. The ground must be retained in a firm condition not dug deeply. The resultant young grasses should be cut once only this year—in early October, with a sharp scythe.

GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Brussels Sprouts.—In some gardens seeds are sown during the early part of the present month, with the object of securing an early supply of buttons next year. Sow the seeds thinly in lines 1ft. apart, and when the seedlings are large enough a portion should be pricked out in a nursery bed, the remainder being left undisturbed till the spring.

Cauliflowers.—Towards the end of the month a sowing of cauliflowers should be made, but to be safe I make three sowings: one at the middle of August, and then two more at fortnightly intervals. This is an important crop, because the cauliflowers are fit for the kitchen at a time when vegetables are none too plentiful. Select a sheltered spot, preferably an open sunny border which is well drained during the winter months. Thin sowing is essential, as strong sturdy plants are less liable to damp off through the winter months. When the plants are large enough, prick off a quantity in a cold frame, but the lights will only be required during frosty weather. Magnum Bonum and First Crop are both reliable.

Runner Beans.—During dry weather these are benefited by an occasional thorough soaking of water, and a spray overhead each evening. A light mulching of long manure is also beneficial. The pods should be picked directly they are ready; if allowed to remain the plants soon cease to be profitable.

VEGETABLES UNDER GLASS.

Cucumbers.—Where accommodation is available, and the requisite heat can be maintained, cucumber seeds may be sown to produce a winter supply. Keep the plants sturdy, free from mildew, and never allow them to become dry or pot-bound. In the meantime, collect the fermenting material, viz., manure and leaves, and when it has been turned several times it may be taken into the house and made into a hot-bed. Allow the rank heat to escape, and then place mounds of fibrous loam at intervals of 3ft. When the plants are put out, tie the growths to the wires, and frequently stop the young shoots. Plants in bearing should be assisted with liquid manure and a light top-dressing of soil. Avoid over-cropping, and cut the fruits before they begin to impoverish the plants. Mildew can be held in check by a sprinkling of sulphur; while the house or frame should be vaporised at intervals if white fly is present.

THE FLOWER GARDEN.

Antirrhinums.—These charming plants play an important part in the flower garden, and are fine both for beds and borders. Although they are often raised under glass in January, excellent results are obtained by sowing at the present time, when, moreover, they flower earlier. Sow the seeds thinly in lines 1ft. apart, and when the seedlings are large enough prick them out on a well drained border where they will pass the winter. In districts where this method has proved a failure, a cold frame will be necessary, but the lights will only be needed during severe weather.

Nymphæas.—To keep the pools clean and the plants healthy, all decaying leaves and old flowers should be removed about once each week. Weeds should also receive attention, and for small areas an iron rake or old birch broom will be found convenient for collecting them from the water. If black fly is present, a weak solution of insecticide should be sprayed over the leaves.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Peas.—The early kinds, Little Marvel and Pilot, have borne fairly good crops, but as each year passes one cannot fail to observe that the latter variety is pre-eminently the pea best suited—both as a first-early and as a cropper for Scottish gardens. As soon as the crops are over the pea straws should be cleared away and burned.

THE FLOWER GARDEN.

Centaurea candidissima.—This somewhat old-fashioned plant is very useful for bedding purposes, especially if anyone still goes in for the ribbon border style of bedding, as its silvery white foliage shows up with marked effect, even intermixed with begonias or brown calceolarias in beds it is quite suitable. To obtain plants for next year, seed should be sown now in a box filled with a medium fine soil. When the seedlings are large enough to handle, they should be potted singly into 3in. pots and wintered in a peach-house or other structure from which frost can be excluded.

Chrysanthemums.—These plants should be looked over and kept well tied to the stakes, as winds and heavy rains are liable to damage them.

Cuttings.—If reserve stock has not been kept from which to procure cuttings, every opportunity should be taken from now onwards to secure a few from such bedding plants as alyssum, lobelia and nasturtiums.

Roses.—The climbing varieties have as usual grown well and produced many long and vigorous new stems, these require to be occasionally tied in to prevent them from being broken and blown about.

Sweet Williams.—Seedlings should be set out about 6ins. distant from each other in lines 1ft. apart. Those who are fortunate enough to possess the old dark crimson double-flowered sweet william should secure cuttings now and insert them in sandy soil in a cold frame. Seedlings of double daisies should be set out at similar distances. Seedling foxgloves should also be set out and if one has ground to spare they should be allowed a distance of 9ins. from plant to plant in the lines.

THE HARDY FRUIT GARDEN.

Wall Trees.—Apricot, pear and plum and indeed all fruit trees growing against walls should be copiously supplied with water—and occasionally with liquid manure—at the roots.

FRUITS UNDER GLASS.

Melons.—The pleasant aroma in the melon house is a good indication that the fruits are near the ripening stage. The cultural conditions therefore should be somewhat changed, the ventilators being left open night and day, and the damping of stages and pathways discontinued, while the roots should only receive sufficient water to keep the plants in a turgid condition. Each fruit should part readily from the stem when ready for use.

Peaches.—As soon as the fruits are cleared from the intermediate house, resume the syringing of the trees, and make sure that the borders are sufficiently moist, as at no time should peach and nectarine roots suffer for want of water. If red spider gained a footing during the ripening period of the fruits, the trees should be well sprayed with Abol. The strength to use is indicated on each tin—but if ½oz. of nicotine is added to each gallon the insecticide will prove more effectual.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Veltheimia viridifolia.—Where stocks of this plant exist, the bulbs should now be started into growth. If in bad condition at the root, they should be shaken out and re-potted in fresh compost. Single bulbs will do quite well in 5in. pots. By allowing the bulbs to increase without dividing them, fine large specimens in 7in. or 8in. pots may be obtained, and when well flowered are very handsome. Such specimens, if in good health, will often go for several years without re-potting. Dry bulbs can generally be purchased at this time; a stock can also be raised from seed, and if well grown should flower the third year from seed sowing. This plant, with its reddish spotted lachenalia-like flowers, although not showy, has a certain charm which always appeals to lovers of choice plants. V. glauca, with beautiful glaucous undulated leaves, is also worth growing. They are both natives of South Africa and, like most South African bulbous plants, only require a cold frame or a cool greenhouse. Newly re-potted plants should be given very little water at the root until they have made a quantity of fresh roots.

Aristea corymbosa.—This beautiful blue-flowered plant is a native of South Africa, and although it belongs to the iris family it has a hard woody stem, with fan-shaped clusters of leaves. It is by no means an easy plant to propagate, but may be increased by means of cuttings inserted in pots of sandy peat some time during August. The cuttings should be detached with a little of the woody stem attached to the base. The cutting pots should be stood under a bell-glass in a cool greenhouse and the plants given the same treatment as greenhouse heaths.

Cyclamen seed for flowering next year should now be sown thinly in pots or pans, using a fairly light compost for this purpose. The seed pots should be stood in a house with an intermediate temperature, and, after watering, a piece of glass should be placed over the pots, keeping them shaded until germination takes place. As the latter is generally somewhat irregular, the most forward plants should be carefully taken out, without unduly disturbing the remaining plants or seed. For this reason, also, thin sowing as already advised is very important. The young seedlings should be pricked off into pans or pots, according to the quantity required, using a light rich compost, to which some old mortar rubble may with advantage be added. They should be wintered in an intermediate house, keeping them well up to the roof glass. If forward enough, they may be, in late autumn, potted on singly into thumb pots. Cyclamens which are well established in their flowering pots will now benefit by frequent applications of dilute liquid manure and soot water; a good guano is also a safe and good all-round fertiliser. Later batches as they require it should be placed in their flowering pots; 5in. pots being of suitable size.

Freesias should be potted up this month, as early potting is very essential for success. As they are free-rooting plants, a good compost should be used; this may consist of 3 parts good mellow loam, with the addition of some leaf-soil or old mushroom-bed manure. Five or six inch pots should be used, placing twelve to fifteen corms in a pot. The pots should be stood in a cool frame and kept shaded until growth appears. They should not be covered with ashes, as is sometimes advised, although they may be plunged to the rim in ashes or fibre. Cool treatment with plenty of light and air is very important.

Royal Botanic Gardens, Kew. J. COUTTS.

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ANSWERS TO CORRESPONDENTS

THE FLOWER GARDEN.

Verbena venosa (K. E. T., Warwick).—The roots of this beautiful verbena are perennial, but they so frequently succumb to the wet and changeable weather during our winters it is usual to treat the plant as an annual, seeds being readily obtained. Sow the seeds in a heated greenhouse during the second half of February or early in March. Another method is to lift and store the roots in a frost-proof frame, keeping the soil just sufficiently damp to prevent the roots shrivelling.

Pink-coloured Flowers for a Border (J. M.).—The following kinds and varieties of flowers would fill the gap referred to by our correspondent: Anemone japonica, A. rubra; Aster Lil Fardell; Chrysanthemum James Bateman, C. Kitty; Phlox conspicua; pink antirrhinums, including the variety Nelrose; Phlox Clara Benz; P. Meteor and P. Selma, with Antirrhinum Nelrose, would make fine effective groups, alternating with the blue flowers in the border. The anchusa thrives in a deep loam in a sunny position. It would be advisable to surround the roots in winter with old dry ashes. Also, the boards may be used. Grow Malva moschata.

Water Lily Pond (E. E. S.).—If our correspondent is able to move the tubs, transfer them under the dense shade of trees where they can be frequently saturated with water. Wet leaves would be useful round the tubs, providing they did not heat. Assuming that it is not possible to move the plants, pack wet tiffany or cloth round the tubs and during the day cover the tops of the plants with tiffany or frigidoma. Place short thick stakes standing perhaps 1ft. or more from the soil to prevent the covering crushing the leaves and flowers unduly. Drench the covering several times daily with water. Remove the covering at night and during rain if of some hours' duration.

Violas Dying (D. H.).—The soil in which the violas are growing is very sour and would be much improved if a dressing of lime, at the rate of 6 oz. per square yard, was applied in the autumn, not for violas only, but also for general crops. The plants of violas have perished through a root fungus which has been much favoured by the present condition of the soil. Treat the latter as advised above.

Plants to Flower with Delphiniums (Mrs. R. T. P.).—The following kinds of plants will be found suitable for such borders. All the plants, whether raised from seeds sown this summer or from the division of roots, will need planting during the autumn: Canterbury bells, Centaurea montana, columbines, flag iris, hemerocallis, lilies, peonias, pentstemons, pinks, antirrhinums (especially A. Nelrose), Oriental poppies, pyrethrums, sweet peas (the latter sown in the autumn), carnations, cornflowers, campanulas, gladioli (the corms of these being planted in March) and montbretias.

Failure of English Irises (E. S. C.).—It is difficult to account for the failure of our correspondent's English irises. The failure this year might be accounted for by the exceptional time they took before they flowered, owing to the cold spring, so that the flowers came out when the foliage had begun to turn colour and they in turn were affected. The failure of the roots points to something in the soil eating them, or to there being something in it which poisons them. The manure our correspondent dug in might have been good for nothing, hence the poverty of the soil would still remain. Plant them in fresh ground another year.

Nelumbiums (W. R. J.).—If our correspondent employs large tubs for these liquid or artificial manure should be liberally used. Nelumbiums are really suitable for large ponds, as the rhizomes may run 30ft. or 40ft. in a year. The lotus, is such a gross feeder, that, sometimes, when grown in tubs the plants are starved into rest at an early date and the leaves turn a sickly yellow and present a sorry appearance. An excellent method of growing them under artificial conditions is to excavate a hole 5ft. or 6ft. in diameter and 2½ft. deep, with slightly sloping sides. A form should be placed inside the excavation, leaving about 4ins. clear for concrete. This makes an ideal pool for either nelumbiums or water lilies, being both water-tight and frost-proof.

Peonies Not Satisfactory (W. B.).—The specimen shoots sent for examination show more clearly than ever that frosts injured the young shoots, and also that the plants are not making healthy roots in the soil. The latter is deficient in nutriment for these plants. It would be advisable to prepare another site and transfer all the healthy plants to it. Peonies have not many insect enemies, and the grubs enclosed are not the cause of the trouble, but the condition of the plants attracted them. The tiny maggots are of the species cecidomyia, generally found in grasses.

Standard Heliotropes (Miss G. P.-D.)—Probably the specimens now being cultivated are too old and stunted through the roots being confined in such small pots. It is advisable to propagate young plants every year, to grow the single stem to the required height, then stop to encourage branching. Stake at an early stage of growth. Re-pot as required to avoid stunted growth. The old specimens should be re-potted into larger pots, not reduced to enable re-potting into smaller ones. Use a good compost. Winter in a greenhouse temperature and water sufficiently to keep growth just active throughout the winter.

Bulbs (J. W. B.).—Impossible to say definitely what the bulbs are, but they are probably some scilla species. Without knowing where they come from, one cannot tell whether they are hardy or not.

TREES AND SHRUBS.

Grubbing Thorn Bushes (C. E. C.).—Steam tractors are used to haul out trees by the roots. Whether this method would be as cheap in our correspondent's case as grubbing them out by hand will depend largely on local circumstances. The best way will be to consult a local timber merchant or tractor contractor, and get a rough estimate of the cost. Compare this with the probable cost of grubbing by hand. Unless the area is a large one, we should recommend the latter method, as it would certainly be more efficient, if there is not much difference in the estimated cost.

Dodonæa viscosa (Mrs. H. J. E.).—This plant grows up to about 20ft. It is a slow-growing shrub, native in New Zealand. The leaves are narrow, 1in. to 3ins. long, and pale green. It prefers a coastal position and is very suitable for seaside planting. In cultivation it enjoys a medium soil, and should be propagated by means of seeds.

Dwarf Conifers from Cuttings (C. C. M.)—The average cuttings made of short twiggy growths will be from 1in. to 2ins. long with a thin "heel" of the previous year's wood attached at the base. Insert the cuttings during August or September in pots containing sandy soil, cover with bell-glasses, and stand them in a cold frame or cool greenhouse and shade from sun. When a large number of cuttings are to be rooted, make up a bed of sandy soil in a sheltered shady spot outside, and insert the cuttings in groups according to the size of the hand-lights or cloches that are to cover them.

Plagianthus Lyallii (A. C. B.).—This beautiful New Zealand shrub seems more subject than most exotics to the sudden collapse of a twig or branch; sometimes even the whole bush withers. In the first place, it is not absolutely hardy, and, growing in unfamiliar conditions, is more liable to disease. The least damage to the bark from chafing by the wind we have known to start the coral spot disease. In another case, a plant growing against a west wall lost one of its largest branches through injury where fastened to the wall for support. There is no difficulty in layering the branches successfully, but rooting takes two years. A fair percentage of cuttings made of the half-ripe wood during late summer should root in sand in a close propagating case.

Specimen Tree for Grass Path (W.E.N.)—For such a position one of the double Japanese cherries would be very suitable. The trees are comparatively slow in growth and very free flowering. The blooms are more lasting in beauty than the single-flowered fruiting cherry. The latter would also soon outgrow the position. The variety Hizakura, with double deep rose blossoms, is one of the best sorts.

THE ROCK GARDEN.

Silvery-leaved Rock and Border Plants (Mrs. W., Berkhamsted).—Acantholimon androsaceum; Achillea argentea, A. ageratifolia, A. Kellereri, A. Wilczekii, A. umbellata; Alchemilla alpina; Alyssum argenteum; Anaphalis margaritacea, A. cinnomomea; Androsace lanuginosa, A. sarmentosa; Antennaria dioica; Anthemis Biebersteiniana, A. montana; Anthyllis montana; Artemisia lanata, A. Baumgartenii, A. pedemontana, A. vallesiaca, A. sericea, A. Mutellina, A. Stelleriana; Asperula arcadiensis; Aster sericeus; Carlina acanthifolia; Centaurea dealbata; Cerastium Biebersteinii, C. tomentosum; Chrysanthemum Aucherianum, C. deustum; Convolvulus althæoides, C. incanus, C. spithamæus; Dianthus cæsius, D. plumarius; Eriogonum racemosum; Erodium chrysanthum, E. amanum, E. supracanum; Geranium argenteum, G. cinereum; Helichrysum plicatum, H. angustifolium, H. Stœchas; Hieracium villosum, H. gymnocephalum, H. pannosum; Iris fœtidissima variegata; Leontopodium alpinum; Lithospermum canescens; Marrubium sericeum; Omphalodes Luciliæ; Veronica telephioides; Onosma albo-roseum, O. Bourgæi; Origanum Dictamnus; Othonnopsis cheirifolia; Oxalis enneaphylla, O. adenophylla; Paronychia argentea; Potentilla argentea, P. Anserina, P. argyrophylla, P. nitida, P. speciosa; Ranunculus amplexicaulis; Salix lanata; Scabiosa Pterocephala; Sedum dasyphyllum, S. Ewersii, S. roseum; Sempervivum arachnoideum; Stachys lanata; Teucrium Polium, T. montanum; Veronica incana; Wahlenbergia Pumilio; Saxifraga lantoscana, S. Aizoon, S. Cotyledon, S. Burseriana, S. cochlearis, S. longifolia; Romneya Coulteri; Veronica pinguifolia.

THE GREENHOUSE.

Plants to Grow in a Small House in Winter (A. K. M.).—Sweet peas would do well for furnishing the back wall in spring. the seeds should be sown in small pots late in September, two seeds in a pot. The young plants may be kept in a cold frame till January, then shifted to the large pots. Flowers will open about May 5th. Scillas.

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crocuses and irises would answer for the box. The Spanish iris would flower early in spring. Pot early and use for all a good porous soil. A few winter-flowering wallflowers would be useful; procure young plants now, pot or box them, retain outside till November, then place under glass. The faded leaves only of hollyhocks should be cleared away after flowering, and any loose surface soil, then place 1 peck of dry ashes round each plant close up to base of leaves. Set traps to catch the mice.

THE ROSE GARDEN.

Leaf-curl in Roses (Miss N.).—As regards the curl on the leaf of the rose specimen sent, it appears to be due to the ravages of caterpillars. We should suggest that spraying should be carried out throughout the summer. A paraffin and sulphur lotion might be found useful in this case, or even Bordeaux mixture. If the attack is limited, hand-picking of the leaves might be resorted to. Soapy or sooty water might also quite well be applied.

MISCELLANEOUS.

Various Questions (M. M. B.).—The only effective way to get rid of the nettle roots is to dig them out—every bit that can be found. If our correspondent wishes to have the bank covered with a carpet of foliage simply, then plant Cerastium tomentosum. A good glaucous grass is Elymus arenarius. Funkias would also succeed. Bamboos thrive best on the banks of streams; they like moisture, but not stagnant conditions. The plants would do well near the stream—about 2ft. above water level. Spiræas should also be tried. Trout would be the best fish to place in the stream, but neither these nor any other fish would live if the stream nearly dried up at times. The Madonna lily does not like disturbance in the soil, nor its bulbs being planted deeply; ordinary garden loam is suitable. Pears may be tried on the bank, but the soil should be well trenched and prepared.

Gas Lime (D. C.).—If our correspondent is not able to procure gas-lime, the soil should be sterilised with a solution of formalin. One pound of formalin to 12 gallons of water and apply at the rate of 1 gallon to 2 square yds. of ground. If applied forthwith, leave the ground uncropped for two months—till the end of September.

Names of Plants.—(H. F.).—Cistus cyprius.——(W. L. T.).—1, Genista tinctoria; 2, Campanula pusilla; 3, C. p. alba; 4, Veronica orientalis; 5, Sedum reflexum. ——(A. G. P.).—Teucrium fruticans.——(Col. J. H. H.).—1, Lysimachia vulgaris; 2, Ilex Aquifolium ferox.

PUBLICATIONS RECEIVED.

"A Garden Substitute for Farmyard Manure," by W. Auton. Post free, 6½d., from Mr. W. Auton, The Gardens, Pyrford Court, Woking.

"Lawns for Sports," by Reginald Beale, F.L.S. Published by Messrs. Simpkin, Marshall, Hamilton, Kent and Co., Limited, London, E.C.4. Price 12s. 6d. net.

CATALOGUES RECEIVED.

Mr. T. Smith, Daisy Hill Nursery, Newry.—Hardy Bulbs.

Messrs. Stewart and Co., 13, South St. Andrew Street, Edinburgh.—Bulbs.

Mr. Charles Turner, The Royal Nurseries, Slough.—Strawberries.

G. H. Richards, Limited, 234, Borough High Street, London, S.E.1.—New White Fly Vapour.

Messrs. R. H. Bath, Limited, The Floral Farms, Wisbech.—Bulbs.

POTTING NERINES

OUR first advice upon this subject is never to re-pot at all if it can possibly be avoided, but a time comes when this must be done and a similar necessity arises when new bulbs are procured. In both cases, the period when this is done is of vital importance and the best time is when they are at their most dormant stage and just *before* new root and foliage growth commences. This is during August and no time should be lost in dealing with the whole of the plants that need this attention.

Second only in importance to the date of potting comes the soil and this should consist of strong, rich loam, to which a generous addition of coarse silver sand has been made, with a very moderate amount of leaf-mould. In no case must the pots be large, the 4½in. being sufficient for a single bulb, while three may go to the 6in. New bulbs should be potted as soon as possible after receipt and a great point about the new hybrids is that—if culture is correct—they will flower annually. Flowering takes place during September and October and the flowers are remarkable for the extended period over which they remain in good condition.

Synonymous with flowering is the production of the leaf growth and, all through the winter, the soil should be kept evenly moist and the plants in a good light as near as possible to the glass. Do not water until new growth does appear and remember that old established bulbs, that have been in the pots for three or four years, must be freely fed all through the growing season with liquid manure, continuing this until May when the foliage begins to fade. After this time, gradually reduce the supplies until the plants are completely at rest and then place on a shelf as close to the glass as it is possible to get them and allow to bake quite unshaded, until flowering time returns. Regular flowering is entirely a question of winter growth and this summer baking; therefore success cannot be achieved where due attention is not paid to these important items.

When potting, it is not at all necessary to split up the clumps of bulbs into single examples, for the whole mass can be transferred to a slightly larger pot and filled in all round with new soil. Pick away a little of the old soil and do not give too large a new pot or you may check flowering. Make the soil quite firm and do not water until new growth begins.

Nerines seed very freely when hand fertilised and raising seedlings is most fascinating work, especially where one has several varieties and some cross fertilising has been done. Seedlings are quite easy to raise, especially if they are sown immediately the seed is ripe, and by careful culture, flowering plants may be secured in three years. BULBIST.

TRADE NOTE

A NEW LABEL.

We have received from Messrs. W. Darlington and Sons, Limited, London Fields Station, Hackney, E.8, a new label for the nurseryman. In appearance it is just like the ordinary tie-on label as used by nurserymen, but it is claimed that this new label resists the action of rain and sun and that it is waterproof through and through. If this label lives up to its reputation it should prove a boon to both nurserymen and their customers.

Wisley Trials.—The following awards have been made to Currants by the Council of the Royal Horticultural Society, after trial at Wisley: Award of merit—Florence (black), sent by Sir Charles Nall-Cain; Invincible, Giant Prolific (black), sent by Messrs. Storrie and Storrie, Glencarse, Perthshire; "Big Red Dutch" (red), sent by Messrs. B. Ruys, Dedemsvaart, Holland. Highly commended: Orr's Seedling (black) sent by Mr. William Orr, Carnforth; Long Bunch White (white), sent by Messrs. B. Ruys, Dedemsvaart, Holland.

The Glasgow Show.—Present indications point to the forthcoming Horticultural Show in the Kelvin Hall, Glasgow, from September 2nd to 5th next, being one of the most popular and attractive ever held in Scotland. The Show will again be run under the joint auspices of the Glasgow Corporation and the Glasgow and West of Scotland Horticultural Society and apart from numerous cups, trophies and medals, a sum of £1,500 will be awarded in prizes. Substitutes for stone for rock gardens will be allowed, while water will be supplied if desired. Cut flowers of aquatic plants may be used. There are over 400 classes in all in the Schedule of Prizes. Entries close on August 23rd. A large space in the hall has been reserved for trade exhibits and already a good amount of this has been booked. Applications by firms for space should be made to Mr. C. P. Hainsworth, General Manager, The Kelvin Hall, Glasgow. The Show will be opened by Her Royal Highness the Duchess of York.

A Show for Amateurs in London, 1925.—The Council of the Royal Horticultural Society is making arrangements for holding, on June 30th, 1925, in the Royal Horticultural Society's Hall in Vincent Square, Westminster, S.W.1, a special show for amateur growers. Special classes for cut roses, delphiniums, sweet peas, gladioli, carnations, hardy pinks, herbaceous plants and violas will be included. There will also be classes for greenhouse plants in pots, orchids and ferns. Amateur exhibits from all over the United Kingdom will be welcomed and the classes will be arranged to suit the owners of small as well as of large gardens. Schedules giving full information concerning this show are now in preparation and, in a few weeks' time, will be obtainable on application to the Secretary, Royal Horticultural Society, Vincent Square, Westminster, S.W.1.

A Useful Invention.—We have received from Mr. C. J. Beckett of Fulbourne, Cambridge, a very useful appliance which he has invented. It will enable a gardener to attach an ordinary pair of pruning shears to a light pole, broom or hoe handle and cut off shoots from bushes and trees many feet higher than he can reach by hand. Practically every cultivator who has pruning to do will find the tool a boon. The action is somewhat similar to that of the "Tree-pruner," as two plates are screwed together to hold tightly one handle of the pair of pruners, instead of a socket; pruners of various sizes and forms may be fitted. The other handle of the pruner is worked by a long wire to which is fastened a wooden handle. There is a slight weakness here as neither the wire nor the wooden handle is strong enough to enable the operator to lever the handle of the shears with ease when engaged in cutting off matured shoots. But this weakness can be remedied by the operator himself, if found to be a defect, by attaching a stronger wire and handle, respectively.

A CORRECTION.

In our issue of August 2nd, by an unfortunate typographical error, the wrong titles were given to the illustrations of the article on "Hardy British Ferns," by Mr. W. Logan. The correct titles are: On page 532, "Polystichum a. d. p. densum robustum Perry"; on page 533, top, "P. a. d. plumosum densum Perry's No. 4; bottom, "Scolopendrium v. crispum plumosum Perry." We much regret this mistake.

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THE GARDEN

ORCHARD GARDEN WOODLAND

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THE GARDEN

VOL. LXXXVIII.—No. 2752. AUGUST 16, 1924

THE COTTAGE WITH ITS YELLOW ATTENDANTS, AT GRAVETYE MANOR.

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Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

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THE GARDEN

AUGUST 16, 1924

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OUR BULB NUMBER

I APPROACH this Editorial with considerable misgiving; as it is a Bulb Number, I ought to write upon bulbs, and I know little about the intricacies of these fascinating plants. I feel like the journalist who has to prepare a Christmas number with the temperature over 70°. I had my chance the other day during the hailstorm to write a most cheering article upon how bulbs with snow above them are only waiting for the first fine day to spring into growth, but, like so many real chances, this one was missed, and now I have to think ahead and imagine bulbs being planted, bulbs lying dormant underground, bulbs pushing their noses through the soil, and bulbs in their first burst of flower after many weary months of waiting. After all, they are worth waiting for. What could be more beautiful than a meadow filled with the first daffodils swaying in the wind and dancing because Spring is approaching; or a bed of sturdy tulips on a May evening; or all the hundred and one charming plants which are included in the word "Bulb"?

I have read all the articles in this issue as an ordinary reader, a most gratifying sensation, and have found them intensely interesting and useful upon the subject of bulbs. And now—well, if I write a dissertation upon bulbs, I lay myself open to attack from every side, and I am very vulnerable on the bulbous question; so let me approach the subject from another angle, that of bulb catalogues and of the people who buy bulbs. Here I feel myself upon surer ground, for bulb catalogues are always interesting and many of them are full of information unobtainable elsewhere. I have not seen the 1924–25 series of catalogues, but there is little doubt that they will be equal to, if not better than, the previous high standard which most firms have attained. Probably in bulbs more than in anything else there is a distinct cleavage between layman and specialist; the layman buys his bulbs in bulk, and as long as what he buys as a daffodil comes up as a daffodil he is satisfied; but the specialist examines every point down to the minutest detail: there is no specialist like him, and specialist in this case is synonymous with enthusiast.

I am very much of the layman. I am agreeably interested to hear that a Poetaz Narcissus is the result of a marriage between Poeticus and Tazetta; they have such charming names; but I am little the wiser. In bulb time at Vincent Square I have to tread very warily. When I get into difficulties I enquire discreetly of some kind-looking specialist for information and then claim it as my own with as bold a face as possible.

However, this is all by the way; it is only to show how very ignorant even a gardener can be in some branch of this gigantic subject. Some complaints have reached me that bulb catalogues are too obviously written for the specialist; but it must be remembered that the bulb merchant has to satisfy everybody. He has no idea to which category you belong, and, after all, you may go to bed a layman and, being sleepless for an hour or so, read from cover to cover Mr. Jacob's new book on "Hardy Bulbs for the Amateur," which *Country Life* is bringing out, and so wake up in the morning a budding specialist. Such things often happen, and it is for such as these that those who sell bulbs have to cater. Is there not a proverb about the early bird? Most catalogues mention collections of unnamed bulbs sold at a fixed sum, and these are for the layman. He may not buy individual varieties, but at least he can read, mark, learn and inwardly digest.

At least, I have learned one valuable lesson regarding bulbs, and that is, "First come, first served." Buy your bulbs early, and have in your mind's eye the exact position where the bulbs are to be planted. Plant at the correct season, and then you can hibernate until the first one arrives at flowering stage. After walking gingerly around the subject I can say no more. THE GARDEN hopes that the next bulb season will be a successful one, be you a layman or a specialist: I am sure it will be after reading the words of wisdom in the following pages.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

SOME OF THE BEST SAXIFRAGES.

NEW AND RARE SHRUBS.

ROYAL HORTICULTURAL SOCIETY'S FORTNIGHTLY MEETING.

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THE CULTIVATION OF FLOWERING BULBS

BY J. DUNCAN PEARSON.

THE Editor has asked me to write a few notes for amateurs on the growing of bulbs. This I will do to the best of my ability, but would preface the instruction by saying that no information that I or any other writer can give will be of much service unless the amateur will make full use of his own observation, and be ready to turn even failures into good account for future guidance. A writer on photography once said, "let all your chemicals be mixed with common sense." This remark might equally well be applied to gardening, for if gardeners merely follow the advice of writers on gardening, without considering the weather, condition of soil, or their own particular position of latitude, they are certain to go wrong sooner or later.

In trying to give advice about growing bulbs one is faced with a difficulty, namely the greater number of amateurs do not want to *grow* bulbs, but only to flower them successfully.

HERALDS OF SPRING THROUGHOUT MEADOWS AND WOODLAND ALIKE.

For instance, they have a nice bed of hyacinths or tulips, but cannot afford to leave these undisturbed until they ripen off, as the bed will be required for summer bedding of some kind. Trade growers on the other hand make the *bulb* of first importance, the bloom a rather secondary matter. Bulbs lifted before they have gone to rest will never equal properly ripened ones, but if lifted when out of flower and laid in the soil in trenches they will generally make fairly good bulbs for the next season—if not good enough for bedding they often come in very useful for cut flowers if planted in the kitchen garden.

HYACINTHS.—To secure the best results the bed should be well dug, and roughly raked, then place the bulbs in position (about 6ins. apart) and plant with a trowel, taking care to put them at an even depth of 5½ins. (4ins. of soil above the bulb). Then rake again to make tidy. If severe weather sets in during the winter a light dressing of short stable manure may be applied with advantage; it will protect the bulbs and give them a little extra "push" when the flowering time comes round. Hyacinths require such very special cultivation that one must not expect much from them a second year, but they are worth keeping for odd corners of the garden.

TULIPS.—Same preparation as for hyacinths, but dig in some bone flour when planting, and if the soil be poor give a dressing of stable manure during the winter. Tulips are rather greedy feeders and like rich soil, but it is never wise to dig in fresh manure with any bulbous subject. If the bulbs can be left until the foliage has turned yellow or brown, they should then be lifted and stored in shallow boxes in a rather warm room or shed, but not exposed to the sun. On some soils tulips may be left in the ground for two or three years, but in nine cases out of ten the artificial ripening is of much benefit. If the beds must be cleared before the bulbs have gone to rest, lift them and lay them in as mentioned at the beginning of this article; taking them up when tops are dead and replanting them in October or November. October is the better time as the soil is more likely to be in good condition than it may be later on. The bedding varieties of tulips are most suitable for mass bedding. Darwin and other May-flowering kinds are more suitable for dotting between other spring flowers, such as myosotis, arabis, etc., or for planting in clumps in the herbaceous border. Plant 4ins. or 5ins. deep and 5ins. apart.

CROCUSES.—These are very hardy bulbs and no particular preparation is really necessary. They may be planted nearly any time between September and December; cover with 2ins. of soil and place them about 3ins. apart. Crocuses look their best when dotted about among low-growing perennial plants, the green of the perennials setting off their vivid colo urs to advantage. They may also be planted as edgings to taller-growing bulbs, or in bold clumps; but I strongly advise the first style of planting.

BULBOUS IRISES.—These include the English Iris, the Spanish, the Dutch, and the little gem Iris reticulata. All these should be planted earlier than most bulbs, about mid-September is a good time. English iris will succeed best on rather stiff, cool soil, the others require a lighter soil to be seen at their best. Reticulata is a very early-flowering species and is very particular about its soil, so it would be wise to try only a few to see if they will be happy in your garden; more can be

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added if found to do well. The Spanish are so cheap that they are worth planting every year even if they do not thrive a second season. Plant about 3ins. deep, reticulata and Dutch should be 2½ins. deep and about 3ins. apart, the English being more robust growers may be a little deeper and rather farther apart. These bulbous irises will generally last a year or two without being lifted; a light dressing of stable manure put on the bed in the autumn is beneficial.

DAFFODILS.—These are my prime favourites and I could write pages about them, but the Editor has limited me to a certain space so I must refrain! These plants hate fresh manure, and some of the species cannot stand a trace of it in the soil. However, the bulk of the hybrids in general cultivation do best on fairly good land. The best preparation is to manure the land for a previous crop, then let the daffodils follow after well digging up and airing the soil. The only safe manure I can advise at planting time is bone meal, about 3oz. per square yard—not more—also a dusting of wood ashes when the growth is pushing through is good. I have tried many other manures but never found them of any service. Plant in September, about 2½ins. of soil above the bulb where soil is stiff, deeper on sandy land. They may be planted in rows in beds, in clumps in the flower border, or in the grass. Nowhere do they look better than in the grass, but they must be planted in artistic groups to give the best effect. Let the intending planter study some well arranged groups already in position, it will teach more than pages of writing would do. I would advise the amateur to leave his daffodils undisturbed for two or three years—if they seem to be doing fairly well. At the end of that time they will need a change, for if doing well they will need dividing, and if not doing well they will benefit from a change. The bulbs should be lifted as the foliage turns yellow, taking the Poeticus section first, the Incomps. second and trumpet varieties last. As a rough guide I may say that here in the Midlands we begin lifting about the last week in June or first week in July.

ANEMONES, SNOWDROPS, SCILLAS, CHIONODOXAS AND MUSCARI are all useful plants for the garden. They may all be planted to remain for some years. Slugs are great enemies to anemones and will eat them off as fast as they grow if not attended to.

CHIONODOXAS, CLOSE ALLIES OF THE WILD HYACINTH.

GLADIOLI.—Both early and late sections are useful for the garden and for cutting. Of the early varieties Colvilei alba, The Bride, Blushing Bride and Peach Blossom are some of the best, and of the three The Bride is the strongest grower and freest to flower. The early gladioli flower in June and July. Plant in October or November 3ins. deep and about same distance apart.

The late section contains some gorgeous flowers, some of which attain a great size. They should be planted in April in well prepared soil. In mild winters they may be left in the ground, but from my experience I would advise that they be lifted when the tops turn yellow—about end of October—and stored in a frost-proof shed until the following April. Plant 3ins. or 4ins. deep and 6ins. apart.

LILIES are beautiful in the garden when well grown, but are not very easy to manage. Nothing is more important for this family of plants than shelter; if they can be placed in front of low-growing shrubs, or rhododendrons, azaleas, etc., they will succeed far better than if planted in the open garden. It is not shade they require so much as shelter from the wind. Lily bulbs should never be allowed to get really dry, so if received when the ground is unfit for planting, bury the bulbs in some fine soil quite 4ins. deep and keep out-of-doors exposed to all weathers rather than store them inside, then put them in the ground when it is fit for working. I think I have used up all the space allotted to me and hope that the brief notes on the various bulbous plants will be of benefit to some of the many readers of THE GARDEN.

CROCUSES IN A WOODLAND SETTING.

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BULBS TO BUY

THE FOLLOWING NOTES SHOULD SERVE AS A GUIDE TO THOSE WHO ARE IN DOUBT AS TO WHAT BULBS TO SELECT FOR FLOWERING IN THEIR GARDEN NEXT SPRING.

FOR several reasons, ordinary people with ordinary gardens must find it extremely difficult to know what to buy in the way of fresh varieties when the time comes round for them to send their requirements to the bulb dealer. They see, comparatively speaking, little that is new in their neighbours' gardens, and they have no opportunity of visiting large shows where the newer varieties are displayed. Perhaps, too, last year or the year before, some did take their courage into their hands and bought some unknowns, but those unknowns did not turn out the success that was anticipated, and when the time for ordering comes round again—what then? The catastrophe is too recent to be forgotten. "Once bitten, twice shy," "No more dark horses," "Old friends are best"—sentiments like these are very near the surface when the next order is made out. The result is, "I had better stick to what I have had before." This, of course, is very likely the wise and only thing to do under certain circumstances: as when, outside, a colour scheme has to be considered, or when, indoors, the drawing-room is all in all; but in an ordinary way among ordinary people who have ordinary gardens I would suggest that a trial be given every year to one or two novelties—something, that

A FINE BED OF HYACINTH GRAND MAITRE.

SCILLA HISPANICA IN AN IDEAL POSITION.

is to say, which they have never grown before. This means that my lists must contain at least a small proportion of things which are somewhat out of the common. Again, one never should take too much for granted. That it is never too late to learn, was once brought before me in a very striking way. I was talking tulips with a friend in the old Horticultural Club Room at the Hotel Windsor, and had just finished extolling to the skies that great early variety, Prince of Austria. It was in the small room on the ground floor, and Mr. William Marshall was sitting close to us. Presently he said to me, "What was that variety you were just now praising—Prince of Austria? I don't seem to know it. I will get some this autumn and try it." That this "grand old man," who had been Chairman of the Floral Committee of the Royal Horticultural Society for so many years, did not know such a famous and well known early tulip as Prince of Austria made as deep an impression on me as the vision of the sheet full of all manner of living creatures did upon Peter. I learnt the lesson that I must never consider any variety to be too well known to be mentioned. There may be someone who may be glad to know about it. Hence, no variety is too common to be excluded. This production of mine is intended to be a sort of horticultural cocktail made of bulbs. I hope I have so blended the contents that I have made a good one.

Here, then, follow my lists:

ALLIUM.

sphærocephalum. (Try a clump.)

ANEMONE.

The St. Bavo strain. Flowers from mid-March to mid-May. So bright and jolly. St. Brigid. Giant French.

CAMASSIA.

So easy to grow, so distinct, and so uncommon.

Cusickii (lavender) — esculenta Royal Purple (deep blue)
esculenta (rich blue)

CHIONODOXA (GLORY OF THE SNOW).

Luciliæ (blue with white centre) — sardensis (gentian-blue self)

CROCUS (SPECIES).

If these are strangers, try a few early-flowering ones, then next year speciosus and zonatus, which bloom in autumn.

Imperati (heliotrope and fawn) — Sieberi (mauve)
susianus (yellow) — Tomasinianus (lavender)
versicolor (white)

CROCUS (DUTCH VARIETIES).

Hero (dark purple) — May (white)
Maximilian or Dorothea (silvery mauve) — purpurea grandiflora (purple

ERYTHRONIUM.

American varieties which want shade and damp but well drained soil. Try them.

grandiflorum (yellow) — Hartwegi (buff)
Johnsoni (rose-pink)

GRAPE HYACINTH (MUSCARI).

Heavenly Blue (rich blue) — plumosum (for a cold house)

HYACINTHUS.

The species mentioned is truly a hardy gem.

amethystinus (a real pale blue)

HYACINTHS (DUTCH) FOR THE OPEN GROUND.

First sized bulbs are too heavy. I prefer *second* or even *third* sized bulbs.

General de Wet (pale pink) — General Pelissier (red)
Grand Maître (blue) — Innocence (white)
Lady Derby (rose pink) — Schotel (pale blue)

FOR POTS.

It is necessary to get *prepared* hyacinths to have flowers at Christmas. I prefer Cynthellas (miniature) to larger-sized bulbs. The same varieties do duty for both Cynthellas and also for larger bulbs.

Innocence (white) — Jacques (pale pink)
Queen of Pink. — *Menelik (darkest blue)
*Orange Boven (ruddy apricot) — King of the Blues.

(* Second sized bulbs recommended. Two or three first sized bulbs for those who like the old-fashioned big spikes.)

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Chestnut-flower (semi-double pink)
Distinction (not large, claret)
Corregio (white)
Johan (lavender)
Perle Brillante (pale blue)

TULIPS.

As in the case of daffodils, varieties are as the sand of the sea shore in number. To reduce these to tabloid form in a thoroughly satisfactory manner is beyond the power of man. The more you know, the more hopeless does it seem: yet this means that those who know but little, need all the more help. I hope my selections may be of some use. For detailed descriptions catalogues must be consulted. Thanks to the Royal Horticultural Society, both tulips and daffodils have been reduced to something like order.

THE BEAUTIFUL WATER-LILY TULIP (T. KAUFMANNIANA).

(1) DARWINS.

A FINE TWELVE FOR OUT OF DOORS.

Clara Butt (pink)
Eclipse (maroon)
Edmée (rose edged pink)
International (ruby-red)
Petrus Hondius (rose)
Suzon (pale pink)
Duchess of Hohenburg (lavender-mauve)
Faust (very dark)
Millet (rich crimson)
Pride of Haarlem (cerise)
Teddy (rich red)

(2) COTTAGE VARIETIES FOR OUT OF DOORS.

I hope yellow and brown shades are not overdone, but I think many people besides myself have a weakness this way.

Avis Kennicott or Mrs. Moon (deep yellow)
Boadicea (mahogany and orange)
Gesneriana major (bright crimson)
Marksman (scarlet)
Moonlight (pale primrose)
The Fawn (fawn and cream)
Bronze Queen (biscuit brown)
Ellen Willmott (primrose)
Goudvink (tortoiseshell)
Louis XIV (purple and bronze)
Prince Albert (copper-brown)

(3) FOR POTS (EARLY VARIETIES).

To get away from the beaten track, I suggest:

Brunhilde (white, yellow flamed)
De Wet (magnificent orange)
Jenny (rose)
Cardinal Rampollo (orange and yellow)
Max Havelaar (orange-rose)
Prince of Austria (sweet, orange-red)
Rising Sun (rich yellow)
Spaendonk (flesh and cream flamed)

(4) DARWINS FOR POTS IN MARCH.

Baronne de la Tonnaye (rose edged blush)
Le Nôtre (rosy pink)
Pride of Haarlem (cerise)
The Bishop (purple)
William Pitt (dark scarlet)
Erguste (lavender-mauve)
Farncombe Sanders (rosy scarlet)
Sweet Lavender (rosy-mauve
The International (ruby)

(5) SPECIES.

Dasystemon (white, large yellow centre)
linifolia (sealing-wax red)
Sprengeri (scarlet)
Kaufmanniana (palest primrose)
persica (yellow)

IRISES (BULBOUS).

There is a good deal of uncertainty about the names of the varieties in the different sections. The Dutch flower the first, then the Spanish and lastly the English. Dutch and Spanish need light ground; English, stiff ground.

(1) DUTCH.

Apol (lavender and white)
Hart Nibbrig (blue and mauve)
Rembrandt (blue and yellow)
Van Everdingen (yellow and cream)
David Bles (violet-blue)
Poggenbeeck (dark blue)
Van der Helst (pale yellow)
Voerman (white)

(2) SPANISH.

Cajanus (yellow)
Prince Henry (purple and bronze)
Rossini (lemon and white)
Souvenir (soft mauve)
W. T. Ware (primrose)
Flora (white and pale mauve)
Queen Wilhelmina (white)
Royal Blue (deep blue)
Thunderbolt (bronze)

(3) ENGLISH (names uncertain).

Amazone (white splashed claret)
La Marquise (purple)
Perle des Jardins (lavender)
Rosalie (rosy purple)
Duke of Clarence (blue shades)
Princess Juliana (best deep blue)

(4) SPECIES.

reticulata (blue-purple and orange)]

NARCISSI (DAFFODILS).

Daffodils for show are outside the purpose of these selections. Most red edges and red cups burn planted out of doors. Most varieties except the polyanthus-narcissus varieties and the small species do well in grass. In grass plant clumps or drifts with one variety only, never plant mixtures. See dealers' lists for detailed descriptions.

TWELVE VARIETIES FOR OUT OF DOORS.

Barrii conspicuus (red edge to cup)
Emperor (yellow)
Empress (white and yellow)
Mme. de Graaff (creamy white)
Norah Pearson (pale yellow and white)
Virgil (a poet)
*Whitewell (orange and white)
Blackwell (red cup)
Campanelle jonquils (rugulosus variety)
Lady Margaret Boscawen (white and yellow)
Olympia (yellow)
Sir Watkin (yellow)
*Lucifer (red cup)

(* If the soil is light.)

TWELVE VARIETIES FOR POTS.

Almira (improved ornatus)
Aspasia (bunch flowered)
Firebrand (red cup)
King Alfred (rich yellow)
Lucifer (red cup)
Weardale Perfection (yellow and white)
Admiration (bunch flowered)
Cervantes (pale yellow)
Golden Spur (deep yellow)
Lady Moore (red edge)
Orange Blossom (bunch-flowered)
W. P. Milner (nearly white under glass)

(*Note.*—Under glass, red cups and red edges do not burn, as a rule.)

ORNITHOGALUM (STAR OF BETHLEHEM).

nutans (silvery grey)
umbellatum (white)

SCILLA (SQUILL).

sibirica (blue)
Sibirica alba (white).

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SCILLA (WOOD HYACINTHS).

The nomenclature is confused. Some prefer the nutans—the shepherd's crook type of spike—others the hispanica, candelabra-shaped spike. Three of each type are given.

hispanica alba maxima (white)	nutans alba major (white)
hispanica Blue Queen (blue)	nutans major (blue)
hispanica Rose Queen (pink)	nutans rosea (pink)

IRRESISTIBLES.

Just in time for this article I had a private letter from Mrs. Frances King in which she mentioned a paper she had written for a recent Bulletin of the Garden Club of America, called "The 1924 Irresistibles." The "pretty title was not my own," she said, "but the invention of a friend." I hope that friend will not mind my borrowing it too. It expresses so well the idea which governs my selection of the following medley:

(A) FOR POTS.

Daffodil cyclamineus (yellow)
Daffodil Lady Moore (red edge to cup)
Early Tulip Cramoisi Royal (rosy carmine)
Late Tulip Zany (straw and carmine stripes)
Ixia viridiflora (pale green)

(B) FOR OUTSIDE.

Cottage Tulip Arethusa (THE yellow)
Parrot Tulip Fantasy (pink and green)
Double Tulip Rose la Reine (red shade of its own)
Dutch Crocus Maximilian (pale silvery mauve)
English Iris Princess Juliana (large rich blue)

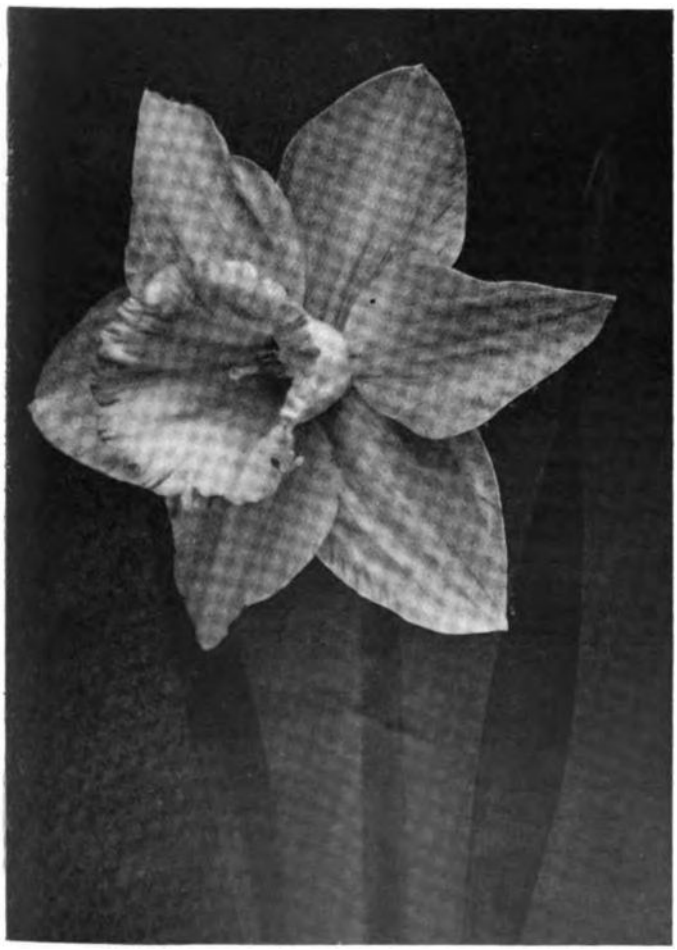
Mrs. King stated where her "Irresistibles" were to be bought. I again take a leaf out of her book and, to facilitate a purchase, state that the tulips Cramoisi Royal, Arethusa and Rose la Reine may be had from Tubergen of Haarlem, and Zany from Dobbies of Edinburgh. English Iris Princess Juliana from Barr of London. The others are "current coin" in the bulb world; most firms, such as Robert Sydenham, Limited, can supply them. Get all, and then, when you go into your houses and gardens next year, you will often be what Mrs. Fezziwig was at her husband's Christmas party, "one vast substantial smile." JOSEPH JACOB.

MODERN TREND OF NARCISSUS EVOLUTION

BY GUY L. WILSON.

AT THE MOMENT THIS IS IN THE DIRECTION OF LARGER FLOWERS OF INCREASED SUBSTANCE TOGETHER WITH STRIKING COLOUR.

IN spite of the fact that narcissi take from five to seven years to flower from seed, their more recent evolution has been rapid and striking. How striking could better be realised were it possible to stage some of the winning groups in the principal classes at say this year's Midland Daffodil Show side by side with the groups that won in the same classes twenty years ago. Eminent hybridists have been working steadily on the flower for many years, and others are taking up the entrancing pursuit of seedling raising, so that large numbers of new seedlings appear at our shows each spring, and older varieties are gradually superseded. Speaking generally, the trend of development is in the direction of much larger flowers, of increased substance and more massive build, with greater breadth and flatness of perianth segments, together with some striking developments in colour. Taller habits of growth and increased vigour of constitution have also been attained, and the various sections are becoming more and more merged into each other as a result of continued intercrossing of all classes.



BEERSHEBA, THE HIGH-WATER MARK IN WHITE TRUMPETS.

ONE OF THE GIANT WHITE LEEDSIIS.

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A brief review of the main sections may be of interest. In yellow trumpets it has been found easy to obtain flowers of great size, but very difficult to achieve refined quality and well balanced form in conjunction therewith. There are, of course, occasional exceptions, and there has been a marked advance in the depth and richness of colour of our yellow trumpets. At one time all our large broad-petalled yellow Ajaxes were of the Emperor type of colouring, but now one sees many large handsome flowers of deep self yellow comparable to that of Golden Spur and even Maximus. In white trumpets it is somewhat easier to obtain refined flowers, and there have been remarkable advances not only in size, quality and purity, but in vigour of constitution. In the 1887 edition of the late William Baylor Hartland's "Original Little Book of Daffodils," there is a beautiful illustration of nine varieties of white trumpet daffodils then known. They were of the moschatus and cernuus type, and were all small flowers having an exquisite grace and charm peculiar to themselves, but they were almost impossible to keep in health. With the advent of Madame de Graaff a new race of white trumpets was evolved which had larger and more upright flowers, and combined great beauty and refinement with vigour of constitution; these however nearly all had the fault of being too short stemmed, but this defect is being overcome in the newest varieties now appearing, some of which also show a remarkable advance in size and purity. In the Incomparabilis and Barrii sections there is at present a great vogue for varieties with highly coloured crowns; this phase of development is partly due to the large number of very remarkable flowers raised by the late Mrs. R. O. Backhouse which have made their appearance at recent shows; formerly bright colour was confined to the smaller flowers and generally to the rim of the corona, but Mrs. Backhouse has produced many large flowers with big wholly red crowns. Among the newest additions to this class some large-crowned flowers of splendid substance and quality are now appearing in self shades of deep rich yellow. The progress in the Leedsii section has been particularly striking. I read many years ago a paper by Mr. Engleheart entitled, if I remember rightly, "Prospect and Retrospect in Daffodils"; one of the tasks he then set himself was the achievement of a white Sir Watkin, but a Sir Watkin would be an insignificant dwarf compared with some of the astonishing and glorious great water-lily-like white flowers he has given us recently. The Brodie of Brodie and other raisers have also produced large pure white Leedsii forms of the utmost beauty and refinement; and of late occasional flowers have been exhibited showing enchanting tones of buff and delicate shell pink in the crown. A new family of very late-flowering flat-crowned Leedsiis that bloom along with the Poets have come into being; they are among the most refined of all narcissi, being of very beautiful quality; some are purest snow white throughout both perianth and eye, with only a touch of vivid green in the centre of the eye, while others are rimmed with delicate tints of orange or pinkish orange. In the hands of Mr. Engleheart the Poets have been developed to a point of perfection beyond which it is difficult to imagine much further improvement.

It is rash to forecast what developments may take place in the future, but some may be suggested as reasonably probable. By mating our best yellow trumpets with the finest deep yellow giant Incomps., or a flower such as the magnificent "Fortune," we shall probably get a vigorous race of rich yellow Ajax of fine form the trumpets of which do not overbalance the perianth in length. Unsuspected possibilities in the colour of yellow trumpets were indicated in a most beautiful flower called "Brimstone," shown in 1923; it is very large, of great substance and attractive form, while its colour is a wonderful clear luminous sulphur, quite distinct from anything seen hitherto. Apricot and buff yellows may also be possible, but from the æsthetic standpoint not so desirable as the clear golden and lemon tones peculiar to the daffodil. The high-water mark up to date in white trumpets has been attained in Beersheba, a flower of Mr. Engleheart's raising; it is of exceptional size and has all the qualities of a fine show flower, while its supreme beauty of line redeems it from any stiffness; it is also of a whiter quality than any white trumpet hitherto, it is a tall plant and in vigour of habit and rate of increase shows a marked advance; it will take a lot of beating, but it may be the forerunner of finer whites than we have had up to the present. Some of the Brodie of Brodie's newest seedlings in this class are wonderful flowers, combining immense size and substance with perfect refinement; and when such flowers as these are intercrossed with Mr. Engleheart's largest and tallest giant white Leedsiis—for example. "Tenedos"—we may expect pure whites of still more wonderful stature and size, so it is easy to imagine that in the future we shall have white daffodils that are noble indeed, rivalling the stateliest lilies. We may soon have some finer large short-crowned white Leedsiis than any yet seen, and it is quite likely that we shall see more pronounced examples of true pink colouring in the crowns of Leedsii forms, and even in white perianthed trumpets. Barrii seedlings have been exhibited of which the perianths showed a strong suffusion of buff pink; such colouring is probably capable of further development, but while very attractive as seen in faint tones in the crowns of otherwise white flowers, these pink-perianthed Barriis seem rather out of keeping with the rest of the family. Even more startling things among red-cupped flowers will doubtless be evolved; hitherto, however, these have all been found to fade badly in sunshine, and, unless sunproof varieties can be produced, their popularity in future is likely to be limited to exhibitors; except in the case of a few varieties such as that splendid Barrii "Firetail," which are admirable for cutting and market work. As I have already said, further development in Mr. Engleheart's best Poets is difficult to conceive, but he told me in a letter some weeks ago that he has indications of a remarkable break of all red eyes in some of his newest seedlings of the finest late blooming type.

The flowering season is still capable of extension at both ends. In time we shall almost certainly have not only yellow trumpets but whites, and Incomps. and Leedsii forms of fine size and quality contemporary with our present first earlies. The superb and gloriously-coloured giant Incomp. "Fortune" is an epoch-making advance in this direction. opening as it does practically along with Golden Spur, its future as a market flower is practically unlimited. It is equally probable that good examples of all sections will yet appear the flowering season of which will be contemporary with our late Poets; among my own seedlings there are one or two fine large golden trumpets which remain in good condition till Poeticus recurvus is fully out. Some of the big whites are very late, and it should not be difficult to breed still later ones which would be of great value in the garden as well as for cutting in hot May weather, as they develop particularly finely in such conditions, and suffer no disfigurement from the sun, the strong light of which enhances their purity.

Most leading hybridists make refinement their first consideration, so that we may expect still further improvement in the quality of flowers; this is all to the good. Of course the question as to whether the flower is being developed on the best lines is a debatable one; we raisers are perhaps too much inclined to work with a single eye to obtaining fine show flowers, judged by our present florists' standard. The point before my mind is more fully expressed in the following paragraph, which I quote from a letter written by Mr. Engleheart in 1918. "It is interesting and no doubt necessary to drive at the round broad petalled erect type of large flowers, but for myself I weary a little of it, and am a good deal refreshed by a bunch of some of my more starry and loose flowers with distinct qualities of colour and grace." It would be a great pity if flowers like such charming and graceful old varieties as Frank Miles and Mrs. Langtry were lost sight of; there is ample room for both types, and if our show committees would provide a class for decorative flowers to be judged as such they would render good service.

In conclusion, may I say that I do not presume to have dealt fully with this subject, the space at my disposal being too limited for anything further than the most superficial survey.

FORTHCOMING EVENTS.

August 20.—Henley Horticultural Society's Exhibition.

August 21.—Honiton Horticultural Society's Exhibition.

August 23.—Burnley Horticultural Society's Exhibition.

August 26.—Royal Horticultural Society's Fortnightly Meeting.

August 27.—Southport Floral Fête (3 days).

August 28.—Royal Botanic Society's Meeting.

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BULBS FOR LITTLE POTS

BULBS IN POTS HAVE A CHARM AND DECORATIVE VALUE ALL THEIR OWN. A FEW OF THE UNDERNOTED SPECIES SHOULD BE TRIED.

WE want plenty of handsome pots of tall-growing bulbs—daffodils, hyacinths, tulips, etc.—wherewith to brighten the early spring days in the greenhouse. That goes without saying, and is an aspect of the matter which is certain to receive attention. What is not so obvious is the charm of the smaller bulbs grown in little pots and used to decorate the front of the staging — or any other place to which they may be suited. One of the most delightful and enduring table decorations it has ever been my good fortune to meet consisted of nothing more elaborate than the common blue and white grape hyacinths, grown in small pots which, when they were brought into the greenhouse to force, had pieces of selaginella dibbled into the surface, so that the dainty flowers sprang from its emerald carpet. One may be forgiven this suggestive little digression from our subject, in view of its applicability also to so many other bulbs.

Cultural details do not differ from those usually employed, but it should be noted that one cannot anticipate the season too much and, for whatever purpose they may be required, the earliest flowering bulbs should be forced first, and later-flowering kinds brought in at a correspondingly later date. Only the mildest heat should be used, especially in the case of the hardier naturally early-flowering kinds, such as crocus. Any attempt to hustle these simply results in the buds drying up within those curious papery cases within which they are enfolded.

Speaking of the crocus brings to mind those many beautiful species that flower long before their larger showier Dutch-brethren that have so largely ousted them from their old-time position in our gardens. One of the best of these is Cloth of Gold, otherwise C. susianus. So early is this that we may justly term it a winter bloomer. Certainly, with plenty of roots and the gentlest persuasion in the form of heat, the lovely golden yellow flowers, striped with brown on their outer petals, may be obtained very early in the year. Much later, but equally charming, is Cloth of Silver—C. versicolor—with its white flowers so prettily feathered with deep purple. This should not be brought inside until the former has passed out of flower, otherwise it will go "blind." The corms of these are small, and five or six may readily be packed into a 3in. pot.

The Babiana, unfortunately, has no English name except "baboon root," which is nearly as bad; but if you are a lover of brilliant colour, this will certainly give it to you. It is a splendid plant for little pots, for it must be confessed that success in the open air is more or less of a gamble. Grow them in a cold frame through the winter and do not place them in heat until March is in. The foliage is deep green, compact and rather hairy, and the flowers blue, rose, pink, crimson, etc.—in some cases sweetly scented.

One of the most delightful little pot plants of all is a "star tulip," listed as Calochortus Benthami. This is the dwarfest of its family, not exceeding a height of 4ins. to 6ins., while the charming little open cup-like flowers are vivid yellow with a dark blotch at the base covered with yellow hairs. This is good in a cold house where no artificial heat at all is used, and, in this way, it flowers in late April or early May. Were it not for their high cost, many of the true tulip species would form ideal plants for our purpose, but this inhibition does not apply to Tulipa persica, a marvellously brilliant little gem that glows with the blaze of living gold. Its height is under 4ins. and it bears gentle forcing well. The flower stems are branched and bear several flowers on each, while these are deliciously fragrant. While closed, one has but little idea of their colour possibilities, for the outside is a golden bronze; but when fully open into star-like divisions, the interior makes the buttercup appear a pallid and anæmic-looking flower indeed.

Responsive to similar culture to the Babianas, the Sparaxis—African Harlequin Flower—is even more vivid, and it would be difficult to imagine a more striking sight than the combinations of scarlet, black, orange, etc., with which both petal and tube are decorated. The height is about 6ins., and bulbs are usually sold in mixture at cheap rates. No heat should be used if you grow Cyclamen Coum, for the plant will not stand this, although it is perfectly happy in a cold frame. For occasional use in the house it is a perfect miniature of the larger Persian forms, with round deep green foliage and tiny rose-hued flowers produced very early in spring. Grape hyacinths are many and varied, but for our purpose nothing excels those old favourites, Muscari botryoides cœrulea and alba. These begin flowering in the open ground at the end of March, so that it will be seen that a very little is required in the way of artificial heat to anticipate this by some weeks. If one begins carefully, these are among the easiest of bulbs to force, but heat should be moderate and the soil not allowed to become dry.

If you love curios, try some pots of the Plume hyacinth, Muscari plumosum; but do not crowd the bulbs of this, or failure will follow. One bulb in a 3in. pot is sufficient, and when this flowers you will obtain a fine violet feathery plume that, on the closest examination, is as little like a living flower as anything that you ever saw. Especially valuable for small pots is Milla uniflora, so happily named Spring Star Flower. This is pure white, star-shaped and shaded with blue lines, and is deliciously fragrant. The variety uniflora violaceæ differs only in its colour — a clear porcelain blue — while both produce their flowers in succession, so that they remain decorative over a long period. Its natural season may be anticipated by forcing, but too much heat is to be avoided.

Use them how you will, group them how you will, these little pot bulbs are going to be an enormous asset in the spring flower scheme, whether used in the house or the greenhouse.

H. W. CANNING-WRIGHT.

THE WHITE FLOWERS OF CROCUS VERSICOLOR, FEATHERED WITH DEEP PURPLE.

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THE UTILISATION OF BULB PLANTING

THE VALUE OF BULBS IN MEADOWS, IN WOODLAND AND BY THE LAKESIDE IS INESTIMABLE, GIVING AS THEY DO SOME OF THE FINEST SPRING SCENES THAT ONE CAN WISH TO SEE FROM SNOWDROP-TIME RIGHT ON TO TULIP-TIME.

ONE of the commonest mistakes made when naturalising bulbs is that of over-planting, *i.e.*, filling the whole ground so thickly that the relief, repose and charming simplicity which often come from the use of even a few thoughtfully placed flowers are totally lost. Once free of the garden proper our aim should be the production of picturesque and artistic effects, and therefore—if our efforts are to be successful—beds of any shape whatever must disappear from our mind. The beautiful effects arising from such planting are scarcely possible inside the garden proper for many reasons, hence the value of permanent planting in meadow, woodlands and by streams and lakes. In such places we can plant with a lavish hand many species of bulbous flowers and depend upon them for charming pictures over a period of years. Here it has been the practice to scatter the bulbs broadcast, each bulb being planted where it falls, and by this means a prettier outline is obtained than when setting out the bulbs one by one.

Another effective method from which happy results arise is that of placing the bulbs in lines along the margins of paths and streams as seen in the accompanying illustrations, narcissi and snakesheads revelling right down to the water's-edge. Narcissus Emperor reaches 3ft. 6ins. in height under these moist conditions and produces sheaves of handsome blooms, which improve in effect as the grass becomes greener each day, and in one instance where this streaming mass clothes the ground beneath a group of crimson ribes the effect is charming. Once established, narcissi are difficult to destroy for, when cleaning out the upper lake three years ago, those shown between the oak tree and the cottage were covered with 12ins. of mud and are now stronger than ever. This also assists in proving that the depth at which such bulbs should be planted is not a serious consideration.

Narcissi will grow in almost any soil, but they flourish best in a cool loam and prefer partial shade, such as that afforded by thin woodlands and orchards, where the apples are generally in bloom at the same time. Daffodils are undoubtedly the most popular flowers for planting of this nature, but there are many other species of bulbs which are of equal value for naturalising and these include:

SNOWDROPS, our earliest spring flowers and old favourites of English gardens, are undoubtedly seen at their best when carpeting the ground beneath thin woodland scrub. They have also a considerable attraction when grouped in meadows and on the banks of streams. One can have the choice of whites, yellows, greens, including the magnificent large-flowered kinds, with drops 2ins. long, from Asia Minor and the Caucasus, but the latter are somewhat difficult to obtain and therefore for our present requirements we should confine ourselves to Galanthus nivalis in its various double and single forms; G. Elwesii, of which many handsome forms exist, notably the var. globosus; and G. Imperati, all highly desirable for our purpose. It is a mistake to plant snowdrops under lawn trees as when it is raining the drip spoils the flowers.

SNOWFLAKES (Leucojum) are larger in all their parts, although closely allied to the snowdrops. They like a warm rich soil, in which they thrive and increase with the same rapidity

DAFFODILS BRAVING THE MARCH WIND[S] ... RAVETYE MANOR.

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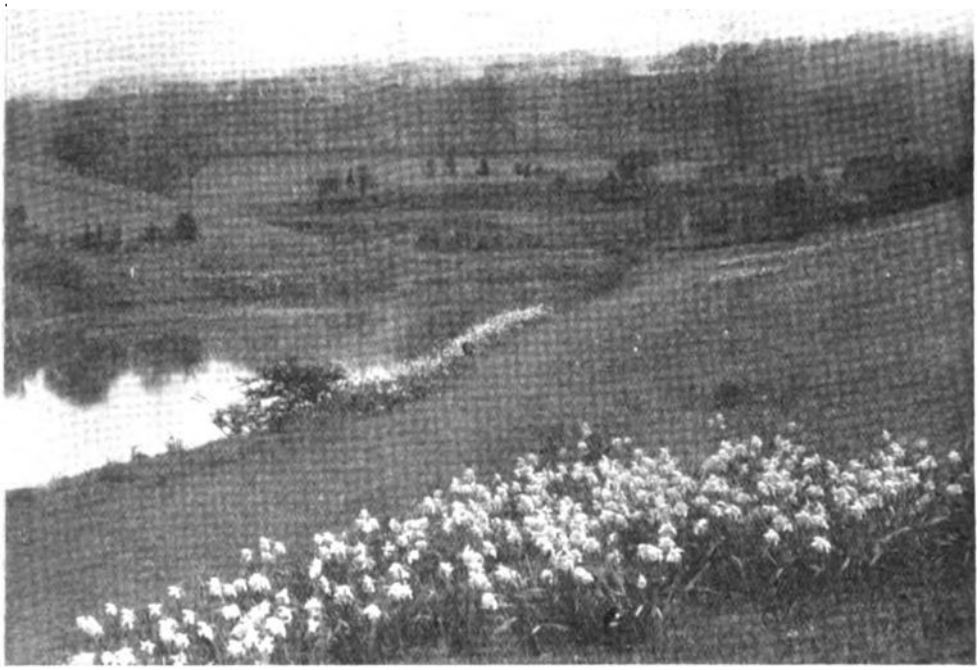


DRIFT PLANTING BY THE WATERSIDE.

as the daffodil. L. æsvitum grows about 18ins. high with daffodil-like leaves and from four to six white bell-like flowers are borne on spikes 18ins. in height.

There are other varieties of this species, but greatly in advance of any known to me is Gravetye Giant, a strikingly handsome plant which reaches 3ft. in height and carries stout spikes each with seven or eight fine blooms, which are larger and whiter than those of the type.

None should overlook the value of the Vernal snowflake (L. vernum) and its lovely varieties carpaticum and Vagneri, none of which exceeds 1ft. in height. From the tuft of polished strap-shaped leaves there arise the stout spikes carrying two pretty green or yellow tipped flowers. Little colonies of these plants in the grass are always a charming feature.

CROCUSES.—Few bulbous flowers naturalise more freely than these and none is capable of producing more brilliant effects so early in the year, and when planted in the vicinity of large trees the changing shadows enhance their charm at all hours of the day. These are in bloom long before the majority of spring bulbous flowers and therefore may be scattered over the surface and planted where they fall even though later flowering bulbs such as the Italian or Spanish squills may occupy the same ground to carry on the picture long after the crocuses are past.

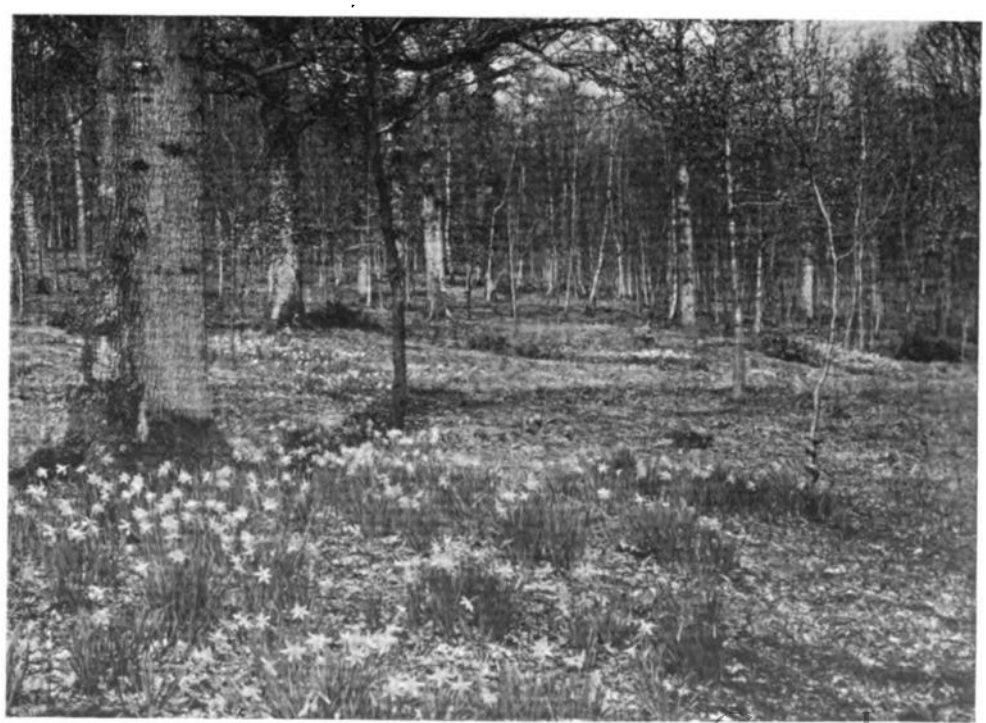
The varieties of crocus are so numerous that it becomes a question of choice what colours to plant. A few species, however, which produce lasting effects may be mentioned, including CC. vernus, Imperati (the earliest of this genus to bloom), susianus, biflorus (known as the Scotch crocus), etruscus, versicolor, Sieberi, chrysanthus, stellaris, and the lovely September-flowering C. speciosus. Crocuses do well in an upland soil where they become baked in summer and they never appear better in effect than when stretches of unplanted green sward divide the drifts of flowers.

ANEMONES.—Next to the glorious array of crocuses come the windflowers in their delightful forms and colours, the whole genus revelling both in sunshine and partial shade, developing picturesque features surpassed by no other plants. The first to bloom is the Greek Anemone blanda, a lovely large flower which may be obtained in white, blue and crimson shades of colour, all of which are remarkably effective both in grass and woodland.

Close upon its heels comes the scarlet windflower (Anemone fulgens) in its various forms and a more pretty effect when intermingling with grape hyacinths and golden daffodils could scarcely be desired. This brilliant flower dies out in rich ground with me, but flourishes from year to year in orchard meadow.

The snowdrop anemone (A. sylvestris) flowers late in the season and is partial to a little shade, it is a graceful flower and should not be omitted. A. nemorosa adorns our fields and hedgerows and therefore we have no reason to add to it, but of its fascinating varieties we would plant generously at the sides of orchard paths, by streams, meadow ridges, and indeed everywhere, by reason of their enhanced beauty in relation to other plants. Who would omit from their collection a colony of that precious windflower known as A. n. var. Robinsoniana, with its myriads of sky-blue flowers which close at the approach of storms and on sunny days follow the sun from east to west. I consider this the most beautiful windflower in cultivation and in heavy soils it increases like couch grass. Other lovely kinds exist, such as Allen's variety and cœrula; there is also the Appenine anemone, as free as a weed either in garden or meadow, where it gives one a picture of unusual charm and loveliness.

The cyclamen-leaved anemone (A. palmata) is a little more particular and requires a well drained soil in partial shade, whereas the yellow wood anemone (A. ranunculoides) will flourish almost anywhere. The star windflower (A. stellata) must have a high and dry sun-baked position, but is a less important plant.



BROADCAST PLANTING IN THE WOODLAND.

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BETWEEN LAKE AND PATH AT GRAVETYE.

TULIPS, so distinct and brilliant in the colour of their flowers, are responsible for striking effects, but less permanent than the foregoing and should be renewed from time to time. TT. macrospila and fulgens bloom with the moon daisies and are the most satisfactory of a number of varieties tried in the grass.

DOG'S-TOOTH VIOLETS (Erythronium) are fascinating plants for meadow and woodland and also along the fringes of carriage drives, where their pretty mottled leaves and elegant flowers are always a subject of admiration and charm.

SNAKESHEADS (Fritillaria) belong to the lily family and are among the most graceful flowers grown. F. Meleagris in all its varieties revels in the moist meadows near the waterside, where a few plants have increased to such an extent that they now cover a quarter of an acre. The delicately coloured bell-like flowers are poised on elegant stems about 18ins. high and there is a very choice white variety which planted in thin trails along the sides of grass paths is an object of singular beauty.

SCILLAS are decidedly effective in the grass and comprise some of our most exquisite blue flowers. S. taurica, from the Taurian mountains, is the first to bloom and is followed by SS. azurea, amœna, sibirica, in a variety of colours, including a choice white variety. The great Spanish squill (S. hispanica) is the largest of the group and an extremely handsome plant which loves a moist position such as obtains near the waterside and in low woodland places. S. italica, a charming pale blue flower revels on the higher grass slopes and with the exception of S. amethystinus, which blooms at the end of May and early June, is the last of the squills.

THE SNOW GLORIES (Chionodoxa) comprise CC. Alleni, cretica, the iridescent CC. gigantea, sardensis, Luciliæ, nana and Tmoli, all desirable plants for naturalising and much varied in colour, including blues, both deep and pale, whites and mauves.

THE SPRING STAR FLOWER (Triteleia uniflora), from South America, produces sheets of white and pale blue flowers when planted on warm slopes.

THE QUAMASH (Camassia) is a North American plant of the lily order which thrives luxuriantly at the waterside, where it attains from 4ft. to 5ft. in height. The principal kinds are CC. Cusickii, esculenta, Fraseri and Leichtlinii.

LILIUMS.—Two lilies at least thrive among the natural vegetation by the waterside, namely LL. umbellatum and pardalinum, the latter known as the Panther lily.

THE MEADOW SAFFRONS (Colchicum) are also desirable for autumn effect and naturalise freely. C. autumnale and its varieties are the first to bloom and are succeeded by the more handsome CC. speciosum, speciosum album, byzantinum, cilicicum and Bornmulleri, a fine species from Eastern Europe.

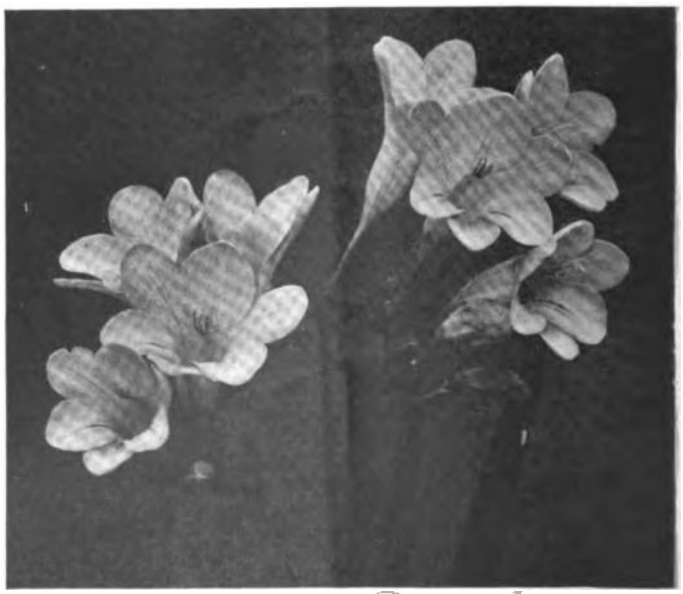
These notes would not be complete without reference to the SOUR BREADS (hardy cyclamen), most of which should now be planted. The shade and shelter such as a branched yew or other evergreen tree affords, and over the roots of which a fair quantity of decayed leaves has been strewn, are what these free-flowering plants enjoy and the pleasure a well flowered colony produces under such circumstances is a fitting reward for one's labour.

ERNEST MARKHAM.

THE CULTIVATION OF FREESIAS

OF FRAGRANT PLANTS NONE IS MORE WELCOME THAN THE FREESIA.

FREESIAS, "dear delightful Freesias the werry mention of whose name kivers me with the creeps and thrills me all over with joy." Had the celebrated John Jorrocks been an ardent freesia grower he would have expressed himself thus, and exhorted his boy, "Binjimin," to eschew tipcat and marbles and turn the maincock of his mind entirely to freesias, "and I make no doubt but what you'll rise to be a werry great man." To those who do grow freesias I say grow more, and to those who have never grown them I say try them. They are very easily grown, whether you have only a cold greenhouse, a frame or a heated greenhouse. They do not require more heat than is necessary to keep out frost. Coloured freesias originated, I believe, from a rosy pink, F. Armstrongi, found by Mr. Armstrong at Humansdorp in 1898. The first yellow was, probably, F. aurea, introduced by Messrs. Wallace. I think without doubt Messrs. Van Tubergen have done more work in raising coloured hybrids than anyone else, and most of the varieties in commerce which can be bought in quantity are of their raising. There are other raisers, like myself, who have many good varieties, but stocks are not yet large enough to be offered to the public. Mr. Chapman of Rye, who turns his hand so successfully to raising all sorts of new plants, brought out some fine hybrids of particularly good form, but I think daffodils now claim most of his time.



THE ESPECIALLY FRAGRANT LILAC FREESIA MOUETTE.

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FREESIA APOTHEOSE, ADMIRABLY SUITED AS A POT PLANT.

Messrs. Charles Smith of Guernsey have also dropped them to a great extent. Which is a pity, for both these raisers could do good work still. I had a very fine golden yellow seedling from Messrs. Smith this spring; but I think rare shrubs and rhododendrons claim their attention chiefly now. Mr. Joseph Jacob of Whitewell is going strong as a freesia champion, and I feel sure the word "freesia" thrills him all over with joy. He has raised a good many fine things and is very strong in good rich yellows; and then there is myself. Of all the seedlings I have raised—and, for that matter, anything that anyone else has raised, so far as I have seen or heard—nothing surpasses the variety Wistaria. It may sound like boasting and blowing one's own trumpet, but I stand by it, and the consequences. Everyone who has seen this variety growing here will bear this out. I hope it will be put into commerce next season.

Propagation of freesias is either by offsets or seeds. Seeds of the hybrids, of course, do not come true, but one never knows what one will get. Seed is easily raised, and I prefer sowing early in August and give the young seedlings all the benefit of the sun until the days get short. Some 50 per cent. or more, if grown well, will flower the following spring, but are never large enough to be judged, and should be grown on a second season. At one time there was a good deal of trouble with certain growers through the corms not growing after being potted. I always maintained it was due to insufficient ripening, and my theory has proved correct. I never get any trouble of this sort, as I always ripen the corms very thoroughly. The same result may be caused by the corms getting insufficient water after potting, but they form a new corm on top of the old one.

I presume they get drought conditions in their native land, and nature has arranged for reproduction in this way when roots would find insufficient moisture to carry on and make normal growth. Potting should, for preference, be done in August and never after September if good results are looked for.

I like a very porous compost, plenty of sharp sand, with some fine bone-meal. I do not use any manure. I think most of the goodness gets washed out every time the pot is watered, long before the roots get their full share.

In potting, select a deep pot rather than a wide one. Freesias make a long fleshy root, called a contractile root, which enables it to contract when growth is finished and draw the corm down into the soil. I find this big fleshy root likes to go down as straight as possible, and therefore a pot 6ins. deep is better than one 4ins. deep. Deep Long Toms are what I like. I grow seed in boxes as far as possible. I prefer this method, as the soil is kept in a more even condition, and I also prefer growing corms in beds for the same reason. The results when harvesting are very noticeable.

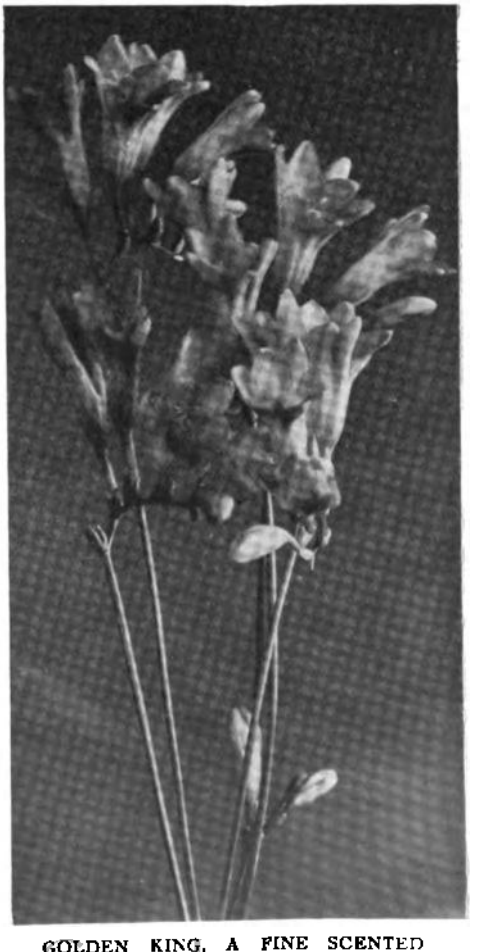
I prefer to feed them when the flower spikes are showing. If some corms are planted late, say at the end of September, in cold frames, the flowering period can be greatly extended. I had flowers until the end of June, but there are too many other flowers out at this time to make it worth while having freesias so late. February, March and April is a long enough period. Plants should be staked before they get too tall. I have no hesitation in saying Allwood's carnation supports are quite the best things to use. They are easily adjusted, are neat and tidy and last for years. I have some ten years old as good as new, and they are used every year.

I have often been asked if the coloured sorts are as sweet-scented as the old F. refracta alba. Strictly speaking, perhaps not; but no one would need to ask the question if they were here in April on a warm sunny morning. When the ventilators of the freesia house are opened, the scent is very noticeable a long way off. Pick some flowers and stand them in water in a cold dull room, and scent will probably be missing. Pack them in a box and post them, and there will be very little doubt as to their scent when the box is opened. I think the finest scented variety I grow is Golden King—not a large flower, but a grand stiff long stem and a delightful scent.

The ideal freesia should have large massive blooms, petals of good substance, standing at right angles to the tube; colour to be well into the throat, a tall stiff stem, broad massive foliage, free-flowering, and a well branched spike and a good scent. I give a list of the twelve best varieties. These are all in commerce and are grown in quantity. I leave out new and scarce sorts of which stocks are as yet small: Apogee, one of the best, of a very good shape and especially good for pots; Daffodil, new and very fine; Treasure, large and a real big grower; Buttercup, old but early and well worth growing for cutting or pots; Golden King, very late and especially good for cutting.

These are yellows; you can pick any four—they are all good.

Of mauves, La France comes first (La Frappante and Preciosa will be superseded shortly). Bluebeard (an old variety of Messrs. Van Tubergen, who have discarded it), though small, is very



GOLDEN KING, A FINE SCENTED VARIETY.

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rich in colour and a good little plant for pots. Merry Widow is very free flowering, but wants more colour and more flowers on a spike.

Conquest is the best of the pinks, Dainty being paler but a good cut flower. Robinetta, the nearest to red (Red Indian (Jacob's), though small, is a rich colour and, if obtainable, is worth growing). La Charmante is a mixture of pink, orange and copper, and very effective. Apothéose is better than Jubilee and Mouette (Jubilee for pots and Mouette for cutting). These are some of the best, though some of them are old. The best way to decide is to try them for yourself, and perhaps other readers will give their opinion of those varieties which they have grown, for my list is necessarily limited to those I have grown myself. G. H. DALRYMPLE.

NOTES FROM CONTRIBUTORS

WILD PLANTS AT MINEHEAD.

AS you walk from Minehead towards Dunster along the marshy land that lies by the sea shore, many rare wild plants are to be found—clumps of tall wild yellow sweet peas, achillea, mauve, white and yellow, growing to a great height; the beautiful blue and purple viper's bugloss, growing to a height of 3ft., a decoction of which, according to Dioscorides, was a protection from viper's bite; and the yellow-horned poppy, are a few of the many plants to be seen flowering now.

The hedges of yellow St. John's wort are in bloom, and the Dunkery Moors are now a mass of bell heather, yellow pimpernels and whortleberries, the leaves of which have a lovely rosy tint.—M. L. N.

PERNETTYA MUCRONATA.

THERE are few more striking dwarf evergreen shrubs, either for the rock garden or the front of the mixed shrubbery, than this and not the least among its charms is the variability in the colours of the berries upon which its autumn charms depend.

There are varieties with rose, white, pink, crimson, purple and black berries, and—in addition to these—one has the charm of the abundant display of white flowers which precedes them earlier in the year. A member of the heath family from South America, all that the plants require to ensure their complete happiness is a sandy peat soil that never becomes dust dry. Associated with rhododendrons and other peat-loving shrubs, their autumn effects are splendid and add just that touch of interest which is otherwise apt to be lacking.—HAVELOCK.

THE MAKING OF POTPOURRI.

POTPOURRI is of two kinds, the moist and the dry. The moist is the sweetest and most enduring, but requires some time and patience for the making. The main ingredients are rose petals, leaves of sweet geraniums and sweet verbena, bay leaves and lavender; but anything of sweet and lasting scent, such as shavings or sawdust of pencil cedar, can be added. The roses should be gathered when just full blown and only when quite dry; if rain has fallen upon them, even the day before, it is apt to hang in the middle of the flower and makes it unfit for drying. For the wet potpourri the petals must be half dried. They are picked off their bases as soon as they are brought in from gathering, and laid in clean dust sheets in some well aired room. As we make it in some quantity, a roomy studio is given up for the time being; for two large, long tables and a good part of the floor are occupied by the day's picking of two or three bushels of flowers. It is impossible to say exactly how long they are to dry, as it varies with atmospheric conditions; but the rose leaves should become tough and leathery and shrunk to about half their bulk. They then go into their preparative jars, tall cylinders of earthenware, about three handfuls of rose leaves at a time; they are rammed down close and sprinkled with a good handful of the salt mixture. This is equal parts of bay salt and common salt; the bay salt is sold in knobs which must be crushed so that the largest pieces left are about the size of a small hazel nut. So it goes on till the supply of rose leaves is exhausted. The leaves of sweet geraniums, which are not ready till August or September, are torn up, dried for one day and treated in the same way as the rose leaves. Sweet verbena and bay leaves are of a drier nature and can go in as they are—also lavender, which can be used either in whole heads or shaken out.

When all is ready, a space is cleared on the brick floor of the studio and the preparative jars are brought forward. The spice mixture is also in readiness and consists of the following: 1lb. ground allspice, 1lb. ground cloves, 1lb. ground mixed spice, ½lb. ground mace, 1lb. whole cloves, 1lb. pounded gum benzoin, 1lb. pounded gum storax and 5 large packets of Atkinson's violet powder. This is for the rather large quantity we make, the produce of some twelve or more bushels of rose leaves and sweet geranium, etc., but it may be a guide as to proportion.

The prepared material is now tight in the jars; it has to be loosened and then broken up by hand, thrown on to the floor, the spice mixture being sprinkled between. Finally, it is turned over several times with a shovel to make the mixture even and complete. It is then shovelled into a wide-mouthed tub and again rammed. It is better for being kept six months at least in the tub to mature, before being taken out for use and distribution.

When potpourri is made in much smaller quantities all the ingredients can be put into one jar as they come ready, they should be salted and rammed as described, and finally broken up and the spices added.

For dry potpourri the rose petals and other ingredients are dried thoroughly indoors, spread on sheets of paper. No salt is used, but the same spice mixture in the required proportion. This kind is suitable for sachets; the moist should go into bowls or wide-mouthed jars, with or without covers.—G. J.

RAVAGES OF THE VAPOURER MOTH

I HAVE noticed that many of the London squares are ravaged this year—especially the thorn trees—by the vapourer moth, a pest usually dealt with in towns by knapsack spraying, a method only partially successful.

On June 26th of this year I noticed a large swarm of the moth surrounding an oak tree here and realising that no spray would reach the tops of our tall trees, I tried to locate the breeding ground and found it (as I rather expected), in a short stretch of a euonymus hedge. The caterpillars were just on the move, but were, happily for us, still enveloped in their cocoons. We collected two large barrowfuls and burnt them.

Some years ago, so we are told, there was not an oak tree on the property with any leaves on it and the pest was deemed undefeatable, but I think we are safe now.—ELIZA H. COHEN, *Rickmansworth*.

THE PERSIAN TULIP.

MANY of the tulip species are extremely interesting little flowers, but their high cost places them beyond the reach of the average garden. This, however, is not the case with persica. A mere half-crown will purchase a dozen bulbs of this, and it is an investment that will be repaid a thousandfold. Persica is not a tulip of a year, but comes up again and again. In my rock garden I have a splendid clump which has been in the same pocket for many years, yet each spring its glory is undimmed and there seem to be more flowers than ever. "What is it like?" you say. Well, there I begin to be enthusiastic, for to me it possesses all the graces—colour, form, freedom of flower and fragrance. Let us begin with colour. In the bud stage it gives no hint of its brilliance, for the outer side of the petals are golden bronze. Wait until the sun shines, however, and you see the interior revealed. "Gleaming golden yellow" are but poor words with which to describe the brilliant varnished gold. Speaking of the opened flowers leads us to form—which is that of a perfect star, opening nearly as flat as a table. Finally, fragrance. This is distinct from all else, but really powerful and, to complete the picture, remember that the whole plant does not exceed 4ins. in height. No special care is needed save a really sunny and rather elevated spot, and each bulb should be surrounded by a little coarse sand. Planted thus—4ins. deep—Tulipa persica will grow for you not only next spring, but for many springs after that.—H. C.

PLANTS KNOW WHAT IS GOOD FOR THEM.

MISTAKES are often made in situations chosen for plants. We put them where we think they ought to be happy or sometimes only where we think they will look well. Their ideas on the subject differ from ours and sometimes they give up and die.

Some anemones have been giving us lessons on what positions suit them best. Anemone blanda cœrulea, given a semi-shady place near a hedge, sent its seedlings on voyages of discovery. They started some flourishing colonies at the very foot of the evergreen hedge and the original patch has nearly died out.

St. Brigid anemones in spite of preparation of the site, have almost failed in the herbaceous border. This has a raised edge of stones inhabited mostly by rock plants. This spring we became aware of several very strong anemones among the stones, maintaining their preference for growing on a bank.

The lesson has been accepted meekly and thankfully.—G. D.

DIASCIA BARBERÆ.

THIS is listed in many seedsmen's catalogues as a half-hardy annual. Our experience would lead us to class it as a hardy perennial and we wonder how it has behaved in other gardens. We grew it for the first time last summer from spring-sown seed, and it bloomed profusely. To our great surprise it showed no signs of dying off in winter. The foliage did not wither till the very trying weather of late spring. New growth soon appeared from the original roots and with few exceptions the plants survived and flourished. They have now been in bloom some weeks.

It is a very charming irregular flower, much like the colour of Begonia Gloire de Lorraine, but with a slightly salmon tone. The habit is neat; the stem creeps, but not aggressively; the height is about 9ins.—G. PRICE DAVIES.

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SIMPLE GARDENING

LIFTING AND STORING EARLY AND SECOND EARLY POTATOES.

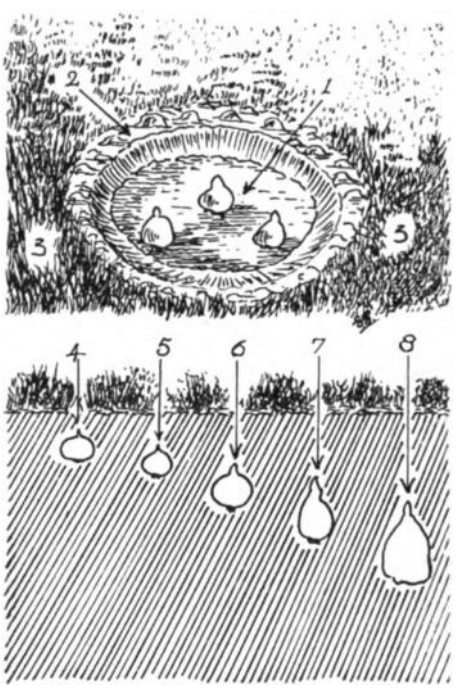
LAST year, owing to the long spell of dry weather, the second-early potatoes, in some districts, failed to reach maturity in the true sense, the tubers ripened prematurely. The tubers were undersized, but there was no disease. This year the crops are in splendid condition and there may be a risk of "growing-out" in wet ground, also of disease. Now the question is, what shall be done generally? Undoubtedly lifting and storing should be work closely attended to in favourable weather. I always try to avoid getting wet after they are lifted tubers that are to be stored. I believe in storing them with any soil adhering to the skins in a dry state in cases where the crop is grown in a heavy loam. When first lifted, the tubers should be very carefully examined for diseased ones. About ten days afterwards the tubers should again be examined prior to storing because any tubers that may be slightly diseased when lifted but not sufficiently to show clearly, will be easily observed at the second scrutiny. High, dry positions outside should be selected for the clamps and, indoors, the driest parts of dry, cool sheds. Ample protection must be provided against frosts, especially against outside walls. The seed tubers should be picked out when the crop is lifted and placed, forthwith, in single layers in boxes to become green and always exposed to the light except when frosts come.

FEEDING AND TOP DRESSING CHRYSANTHEMUMS.

Cultivators of these plants who wish to grow extra fine blooms for exhibition, are always anxious to use some stimulant that will assist in the production of such. Now, it is very important that feeding should not be general till after the buds are "taken." There are some exceptions, where plants are growing in small pots and have filled the latter with healthy roots and there is every appearance that the desired buds will be in good time. If feeding takes place too early the ends of the growing shoots become soft and pithy and the bud may not develop into a deep, full flower. The best time to begin feeding is when the buds after being taken, are swelling freely, then the stimulating foods help such buds to "plump up," as it were. I do not use nitrate of soda nor sulphate of ammonia, as both, unless used with utmost care, will kill the roots and all suckers that may be valuable later on as the basis of the season's cuttings. Concentrated manures are safe when applied with due care—in under, rather than over, full doses. But even these should not be applied if the stems of the plants soften unduly. Weak, clear soot water and liquid manures are safe, but cannot be applied often in dull, wet weather. Top-dressing is not advocated now as in days a generation and more ago, when thick layers were applied. Now, the best results follow thin layers of sifted soil and a good artificial mixed, several applications, fortnightly, being beneficial.

PLANTING BULBS IN THE WOODLAND GARDEN.

Even in many a town and its suburbs there are patches of ground which are termed wild or woodland gardens. In more open country such gardens are extensive and many of them very beautiful. Bluebells and narcissi are easily



established in some woods, but a variety adds to the general interest and enhances the beauty of the natural scenery. Suitable bulbs should be planted, of course; furthermore, they should be so treated that free growth will be the result. The soil should be well prepared and its surface kept free from grass and weeds till the plants are well established. No. 1 shows how to dispose the bulbs; No. 2, the soil to be placed on them; Nos. 3, 3, the surrounding grass. Approximate depth to plant. No. 4, snowdrops, crocuses, 2ins.; No. 5, scillas, 3ins.; No. 6, anemones, single sorts, 3½ins.; No. 7, Spanish iris, mixed; No. 8, narcissi. These are named as a guide to planting.

PROPAGATING PANSIES AND VIOLAS.

The propagation of pansies and violas from cuttings or "slips" is a very interesting work. With ordinary care taken the strains of real worth are kept up so that an annual improvement will take place and most of us know how easy it is for good strains to deteriorate. The parent plants, from which cuttings are to be taken, should be marked beforehand as it is unwise to use cuttings from old specimens straggling in growth. Those that are compact, short-jointed and healthy should be selected. Stocky plants usually possess a number of young shoots near the base and these are the right ones to take off, not the older, hollow-stemmed branches. Do not cut, but press them off with the thumb and finger, take these slips at once to a cool place and use a very sharp knife to trim off the two basal leaves and the stem below the bottom joint. Use a light compost, surfaced with coarse sand; insert the cuttings round the sides of flowerpots, where only a few are to be rooted, or in a frame turned to face the north. Failing frames, then make up a bed outside on the north side of a wall or fence. Apply water through a rose, shade from bright sunshine; firm the soil around the cuttings when they are loosened through frosts or the workings of earthworms and then there should not be many failures.

SHALLOTS AND ONIONS.

The former have not matured as early this year as they do in very warm summers, and, instead of mid-July harvesting, mid-August will be the rule. The very fine bulbs will require a little extra care in carrying out the harvesting operations. After they are lifted the bulbs should be placed where the rains will not reach them, but plenty of air, their surroundings being quite cool. The bulbs should be separated but not till they are fairly dry, this separating of the clusters taking place about a fortnight before the final storing is attended to.

Autumn-raised bulbs of onions, especially of such types as Ailsa Craig, Cranston's Excelsior, Giant Rocca, White Elephant and Leviathan, should also be harvested now. It is possible to keep the spring-raised plants growing till nearly as late as mid-October, but the autumn-raised ones would split if left in the ground after swelling ceases. The growing bulbs should be fed by boring holes 18ins. apart and 1ft. deep with an iron bar between the rows of plants. Into these holes pour the manure water twice weekly, it will reach the roots, which should be deep down at this date and not on the surface. GEORGE GARNER.

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CORRESPONDENCE

A SELECTION OF RAMBLER ROSES.

SIR,—As an old subscriber to THE GARDEN I should be much obliged if you or any of your readers would give me the names of six of the best rambler roses. In the gardens of a house I have lately bought there are masses of Crimson Rambler, which I propose to root out. There are a few fine specimens of the American Pillar Rose, which, of its type, is a beautiful rose. If you could give me the names of five or six rambler roses you can really recommend, I should be indebted to you.

May I congratulate you on your present paper—by far the finest gardening paper published either here or in the U.S.A.—H. E.

[We should recommend the following as being a very good selection of ramblers: (1) American Pillar, (2) Paul's Scarlet, (3) Blush Rambler, (4) Excelsa, (5) Lady Godiva, (6) Sander's White. The first three are excellent for growing up poles, while the last three, with plenty of lateral growths, are suitable for crawling over walls. As our correspondent suggests, we should welcome the opinions of our readers on this subject.—ED.]

ROSE-COLOURED VERONICAS.

IN the useful note by "Hortulanus" (page 538) he refers to Veronica spicata rosea, the most widely cultivated of the rose-coloured herbaceous veronicas, and suggests that it "may have arisen as a cross between the type and V. hybrida or V. longifolia."

Having last month observed this elegant rose-coloured plant at Wisley and gathered and dried specimens (which are very glandular) from a Somerset garden, I feel sure it has no longifolia in it and think it may have as much hybrida in its composition as spicata, which is a species little known in England save in its native state in Suffolk and Cambridge, though frequent on the Continent. Both V. spicata and V. hybrida (which may be regarded as a sub-species) have a characteristic rosette of leaves at the base, but hybrida is a stouter, taller plant with less serrated stem-leaves, which serrations do *not* extend "throughout" as Hooker said. Both are usually pubescent, the leaves and stems of hybrida especially are frequently dull green with short down, though spicata is often greyish with longer hair and more glandular.

V. hybrida is hardly recognised on the Continent, and in Britain confined as a rare plant to a few Welsh counties and to its classic station on the limestone close to Bristol. Plants of it from St. Vincent's Rocks, which I cultivated in 1888 in my father's garden at Bridgwater, completely lost all crenation and serration of their stem-leaves by June, 1898, as two specimens in my herbarium show.

I hope shortly to write a note on Veronica spicata, V. longifolia, and allied forms and hybrids in English gardens and nurseries; for, after twenty years' observation and collection of cultivated specimens, I find much that has been named V. spicata in gardens is something very different.

It would be interesting to know exactly what is V. rosea Desf.—H. S. THOMPSON.

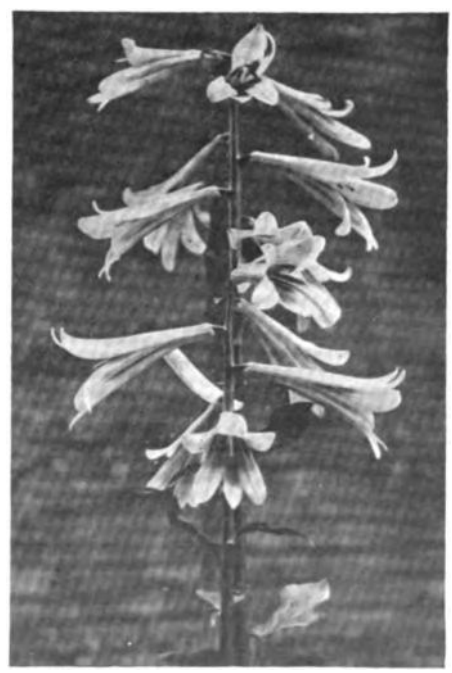
SAXIFRAGA CÆSIA.

SIR,—With reference to Dr. Wacher's queries in regard to S. cæsia on page 537, his first question, as to whether there are different forms of this saxifrage, may find its answer in the fact that Mr. Farrer recorded a major form as being prevalent at high altitudes twice the size of the type in leaf and flower in the Dolomites, and described it as being and as having the rosettes more loosely built This seems to agree with Dr. Wacher's description of the plants collected by him near Mürren.

With regard to his second question, viz., why cæsia is classed among the Kabschias, inasmuch as it seems to Dr. Wacher to be nearer to the dwarf Aizoons, valdensis and baldensis, an invitation to instruct a successful grower of cæsia and lilacina in the distinctions in type between the Euaizoon and Kabschia groups is one not lightly to be accepted. Whence I offer the following as suggestions only, and not as instruction. S. valdensis is a Kabschia, though confused (in gardens and by Mr. Farrer himself in 1913) with S. cochlearis minor. The Kabschias do not really form rosettes at all. The shoots are cylindrical or columnar in form with imbricate leaves, whereas those of the Aizoons tend to be naked with rosettes at the tip end. This main distinction, clear as it may be in the types, is not so easy as it reads in the miniatures. I have not seen S. A. baldensis—it is not when the heavens are let loose, as was the case when, in June last, I was on the highest rocks of Monte Baldo, that one chooses to peer about for miniatures—but I suggest that the shoots are so small as to lose the appearance of a naked runner with terminal rosette (Mr. Farrer stated that baldensis looks "from afar" like diapensioides), while those of the Kabschias (*e.g.*, Rocheliana) are so squeezed down like a closed concertina as to lose their columnar appearance and assume the general look of a full rosette. There are doubtless other distinguishing marks of cæsia—its more wiry stem, the purity of its whiteness, the nearness of its lower leaves to the general Kabschia spininess, its linear stem leaves, the absence of Aizoon's curved and saw-like teeth, and the tendency towards a corymbose rather than racemose cyme. But some or other of the usual Aizoon characteristics may be evanescent in so minute a species as baldensis.—E. ENEVER TODD.

A CHINESE LILY.

SIR,—I am enclosing a photograph of Lilium giganteum yunnanense in the hope that it will interest readers of THE GARDEN. It has flowered with us this year, and as one can gather from the illustration the blooms are shapely and of good size. It is very handsome with its tall erect spikes.—E. BERKELEY.



LILIUM GIGANTEUM YUNNANENSE.

A MAGENTA BORDER.

SIR,—I was interested to read in the number following that in which there was an appreciation of Gladiolus byzantinus (July 26th, page 520), an article on magenta flowers (August 2nd, page v). There is a very old clump of G. byzantinus in a sunny corner of our kitchen garden and I was wondering whether or not it would stand removal to a border facing north-west, when I read in THE GARDEN about its hardy constitution and decided to risk it. No two people agree as to what is magenta, but G. byzantinus seems to me a very good example of one tone of it, and it is going into what for two years I have called my magenta border. Here I segregate all those old-fashioned things which when mixed with warmer-blooded neighbours set them quarrelling at once. Agrostemma coronaria, sometimes so aggressive, is happy here, Dicentra spectabilis dangles its bleeding hearts, Lupinus roseus (which we like better than many new kinds, and which here can "blue" unresented), harmonises with irises Queen of May and Mme. Pacquitte, and with real magenta double pyrethrums with names unfortunately long lost. Following these come English irises of several tones of purple-red, galegas common and G. Hartlandii, Lavatera Olbia, which looks so out-of-sorts in other company, and a little old geranium which I suppose is Endressi and almost exactly matches the lavatera in a huge cushion of bloom at the other end in front. (This goes on from May to November. One is ungrateful enough to get tired of it.) Poterium obtusum is feathery and pretty. Phlox le Mahdi looks well behind P. Jules Sandeau and Armeria Bee's Ruby edges some bits, while there is a long drift of Sedum spectabile and another of S. spectabile atropurpureum which, tidy all summer, will soon be a sheet of colour. Seen altogether one wonders where magenta ends and rose begins. Across a low corner ramps Acanthus mollis, every chance-sown 1921 seedling full of exuberant life; handsome though it is, it must be reduced or it will possess the border. There will be a variety of Japanese anemones out before very long, Mont Rose, a semi-double dwarf, in the van, and later on Michaelmas Daisies Lil Fardell and Ethel Ballard and others and some hardy chrysanthemums left all winter and summer, too, but Senecio pulcher, a magenta beauty for the front row, I lost last winter and must try to replace. I do not know if it is best planted in autumn or spring. I also badly want a magenta single hollyhock. My border sounds duller than it looks—its prosaic inmates make fine masses. I am counting on the Burning Bush to make a real bush near the front in time; Achillea ptarmica and gypsophila form two or three clumps, and Hyacinthus candicans comes up late through the leaves of Lupinus roseus. I want much more: Incarvilleas, sidalceas, viscarias, lythrums, Erigeron Elsie and Papaver Mrs. Stobart (a piece of extravagance which will probably be its own punishment by not harmonising with the rest), are all to go in this autumn. But meantime I am delighted to see THE GARDEN championing the long-despised magenta.—(Lady) E. HUNTINGFIELD

TIGRIDIAS AND WATSONIAS.

SIR,—If "Fanham's" garden is situated in a reasonably mild district and on well drained soil he should find little difficulty in growing tigridias. In really favoured districts the bulbs may be left in the open ground, but in most places it is necessary to lift them about November and store them in sand in a frost-proof shed until planting time comes round again in March. I find they succeed much better when left in the ground and soon form large clumps, but I doubt if this method would

answer in the Midland or Home Counties —certainly not on heavy soils. I also find that bulbs raised from seed are much more vigorous and hardy than imported and dried bulbs; in fine autumns it is easy to gather a quantity of ripe seed, which should be sown in a cold frame early in spring. The little seedlings grow quickly and will flower in the second summer after seed sowing. If the seed has been saved from a mixed bed of tigridias, the resulting plants often show the result of cross-fertilisation between the scarlet and yellow varieties. Tigridias certainly enjoy plenty of moisture, while in full growth, but at the same time must have exposure to as much sunshine as possible in order to thoroughly ripen the bulbs. A light mulch of stable manure is appreciated after the foliage is well above the soil (about the end of May). The only watsonia I have tried so far is W. Arderneі, the white bugle lily of South Africa. In this mild district it is quite hardy and increases fairly rapidly at the root. In the hot summer of 1921 I saved ripe seeds and raised a number of young plants from them. As this watsonia is an evergreen plant, it naturally prefers to be left outdoors, but where severe frosts are experienced it must be lifted and treated like a gladiolus. As the foliage makes a good deal of growth very early in spring and the flower-stems appear in April, it should be given a sheltered situation; my plants are growing among Azalea mollis and seem to revel in the rich loam and peat of this bed. Plants which have been lifted and stored flower much later in the summer and do not grow so tall. If "Fanham" will send me his address I shall be glad to send him some tigridia seed when ripe in the autumn.—N. G. HADDEN, *West Porlock, Somerset.*

SUMMER BORDERS.

SIR,—When I read Miss Jekyll's article on "Summer Borders" in your issue of July 19th, I promptly wrote this criticism. But I hesitate to send it even now as I quite realise the impertinence of criticising such an authority. Miss Jekyll evidently has in mind a large garden—only a large garden can have "special borders for the various seasons." If that is admitted then there is room for various borders or beds—a flowering shrub bed, a herbaceous border, a rose garden, a wild garden. Take her May-June border. Peonies and columbines for the flower or herbaceous border surely—columbines are really alpines. Olearia and deutzia to the flowering shrubs, foxgloves to the wild garden. Iris, broom, and helianthemums admittedly are intermediate and interchangeable. But do they all flower in May-June? Our peonies and columbines are, of course, long since over, but the foxgloves and deutzia are now at their best and olearia has not yet flowered. Then her June border—Guelder rose, Heuchera Richardsoni and China rose in one border—privet and Nepeta Mussini, along with irises and more China roses. Nor would I mix delphinium and anchusa with Phlomis fruticosa if I could afford to keep them separate. I am quite sure Miss Jekyll would never mix old oak, Chippendale and Louis XIV, or, shall we say, Rembrandts, Zorn etchings and Hokusias, each beautiful in its proper place. If I had only one cupboard I would have to put Crown Derby along with Chinese porcelain—having two I prefer to show them separately.—D. DOUGLAS OGILVIE.

GOOSEBERRY SAW-FLY.

SIR,—I constantly see in THE GARDEN articles about destroying the gooseberry saw-fly. We never now have the gooseberry caterpillar in this garden, because my father, Mr. Spencer Bickham, always has three broad beans sown between each gooseberry bush, and apparently the saw-fly does not like the smell of the beans. Whatever the reason the fly never attacked our gooseberry bushes except one season, during the war, when the temporary gardener forgot to carry out my father's orders as to sowing the beans. The bushes were then stripped by the caterpillar. I think this very curious fact ought to be more widely known, hence this letter.—CONSTANCE BICKHAM, *Herefordshire.*

RHUS COTINUS.

SIR,—In writing to the Curator of Kew Gardens as to a rather fine shrub which I have in my garden at Lindfield, near Haywards Heath, Sussex, *i.e.*, Rhus Cotinus, (the Venetian Sumach), he advised me to have a photograph taken of it and send it to THE GARDEN, as it might be of interest to your readers. The shrub is nearly 9ft. high by about 12ft. across and until recently was in the most marvellous condition of bloom, the whole of the upper part being covered

THE VENETIAN SUMACH, RHUS COTINUS.

with a magnificent filigree red web; but, unfortunately, though still beautiful with the bloom, much of this has been washed off by the recent rains.—J. R. COOPER.

THE FLOWERING OF HOLLIES.

SIR,—As an old reader of THE GARDEN, I am always interested in all its correspondence. Therefore I am prompted to give a few thoughts on the subject mentioned. Very rarely during the past fifty years have I seen so much holly bloom as at the present season, both types being very abundant. In my garden and on all trees in hedgerows in the neighbourhood of Hurworth-on-Tees, there are twigs with full set berries from 8ins. to 10ins. in length, in a most vigorous and healthy condition, all seeming to bespeak a promise of winter colour. My apprenticeship was served in a garden where a very fine collection of all types of silver, golden and green-leaved hollies were a special feature. Each alternate year there were so many trees set apart to be mulched with the best material at disposal, and the thorough way in which the work was carried out made an impression on my mind, which, although it is fifty years ago, taught me that if culture is to be a success in any branch of gardening craft, unless it is thorough in every way, results are not seen which should mean satisfaction. The procedure was as follows; a circular space, as large as the nearness of other plants would allow, was taken out, then a thorough forking up as deep as possible given, and a great flood of liquid stimulant; then, after allowing for a perfect saturation, the mulch was put on and covered, and when each set of trees had been treated, the general putting in order of the surroundings was completed. The next set followed in succeeding years. As a youth, I used to await each week-end for my paper and although fifty years have passed since then, I still await with even greater interest THE GARDEN, which in its newer form is still of as much or even more interest.—VICTOR H. LUCAS.

NEW ZEALAND ALPINES.

SIR,—So many people have written to me showing kindly interest in my little notes on New Zealand alpines that perhaps a few more will be acceptable. Our southern alps, once past the foot hills, which are covered with yellow tussocks—beech bush (Nothofagus), scrub (Leptospermum scoparium), etc.—are mostly bare gaunt rocky giants, snowclad for eight months of the year. The taller ones farther back have perpetual snow and glaciers. The ones I am writing of are the bare steep ones covered in shingle slips and rocks. Anyone looking casually at these slips would say no vegetation grew there at all. On close examination and far apart from one another are quite a lot of plants and all of them of interest. Raoulia eximia (the vegetable sheep) has large cushions lying on the outskirts of the rocks, sheep colour and really like sheep lying down, some cushions as big as three sheep close together. Then Raoulia mammalaris, a near relation but which never grows into big sheep, seldom larger than a fair-sized old-fashioned pin cushion. This, too, prefers rocks to shingle. Again, another relation, though distant, our edelweiss (Helichrysum grandiceps), a beautiful species, also preferring rocks to shingle. Some of the celmisias like a bare mountain too, but not the large-flowered ones. They prefer a little soil and more company. Celmisia laricifolia is a tiny little grey plant (larch-like leaves, as the name suggests, and a neat little daisy to match), quite a gem to tiny plant lovers. Celmisia discolor and C. viscosa do grow in companies, gradually spreading into large patches of rosettes, and they are the exception in that they can be seen from a distance, as they have rather more colour in their stiff, broad-pointed yet stumpy leaves, as well as growing into quite large patches, daisy flowers, white. C. discolor has sticky stems and pretty sticky bracts under the sepals.

Then come the pure shingle lovers. I started this description at the top of a 6,000ft. mountain (Mt. Todesie, Canterbury, New Zealand) and am gradually coming down. We are now about 4,000ft. up. Ranunculus Haastii, a plant with one cut fleshy leaf, sometimes two, but not often, and a stem bearing one large yellow blossom. Then comes a cotula, C. pyrethrefolia. The flowers are like a red button with a few little red pins in it, a dull ugly red, and the leaves like a pyrethrum, as the name implies. Lobelia Moughii, a true lobelia, like our garden "Chystal Pallace," only looser and larger in foliage. The flowers I have never seen, and in my "Plants of New Zealand" it is only referred to as "remarkable." Lower still comes a tough little cress with erect heads of white blossom about the size of Cheiranthus Allioni, and Stellaria Moughii, a limp little grey plant belonging to the chickweed family. Again lower still, 3,000ft., come the curious penwiper plants (Notothlaspi rosolutum), with their fawn-coloured ultra sweet-scented blossoms; and the last a parsnip, Ligusticum camosulum. This is so particular about being sure of keeping its head above shingle that it creeps under the shingle and only allows its tuft of leaves to grow when a reasonably firm foundation of shingle is found. It will travel a yard underground to find a good place. All these plants are grey or stone colour, except for the two celmisias mentioned, and it is only anyone really interested that would find anything at all.—MARY POULTON.

THE LATE MR. ANTHONY WATERER

HORTICULTURE has lost a striking and in some ways unique figure by the death of Mr. Anthony Waterer, which took place on July 24th last. In these days rhododendrons loom somewhat largely in the public eye, chiefly through the exploration of the west of China and Tibet, which has brought into cultivation an enormous number of new species. But previous to the journeys of Wilson, Forrest, Farrer and Ward in those far-off lands, no name was more closely associated with the word rhododendron than that of Waterer. To the various members of this family gardens chiefly owe the wonderful race of hardy hybrids which long have filled, and long will continue to fill, a very important place in horticulture. Compared with many of the new species, the Waterer hybrids, especially the earlier ones, may lack distinction and refinement, but they are easily grown, very hardy, and scarcely ever fail to give gorgeous displays of colour in May and June. They never let one down, and except in the warmer parts of our islands, so much cannot be said of the others.

In the development of this race the late Anthony Waterer played a very worthy part. He was in his seventy-fourth year when he died, and except for a short period spent in France and Germany in his youth his life was passed in the Knaphill Nursery, near Woking. He was the second of the name, the first Anthony being a remarkable man, many of whose qualities and characteristics his son inherited. Indeed so alike were they, that, to one like myself who knew both of them well, it is difficult to dissociate them. Both were often blunt in manner, not excelling in the arts of politeness, but of sterling integrity. Before the war there was no nursery in existence from which one could rely on getting better stuff than from Knaphill. The elder Anthony acquired and left his son a very considerable fortune, but neither departed from the plain comfort and homely living of their early days. Both were keen sportsmen, lovers of horses and cattle, interested in cricket and racing. Sometimes the best new rhododendron of the year was named after the winner of the Derby, the race coinciding as a rule with the zenith of the rhododendron season.

Latterly, Mr. Waterer devoted more of his personal attention to hardy azaleas than to the evergreen rhododendrons, and he produced some very fine hybrids, especially in brilliant reds and yellows, which, when they get into general commerce, will add much to the beauty of the azalea season. So near were they to his heart that he did not care to part with them except to specially favourite customers. A story connected with these azaleas—which I know to be true, because an acquaintance of mine was, with Anthony, the chief actor—is perhaps worth telling. My friend was not quite one of the *personæ gratæ* just mentioned, but being of considerable importance in the gardening world was taken to the spot where were congregated the very cream of the Knaphill azaleas—the stud collection—in full blossom. After duly admiring them, he said: "I'll take two dozen of those, Mr. Waterer." I am not quite sure whether his idea was to give what he thought would be a welcome order or whether he was merely "trying it on," but he was rather taken aback by the reply: "I'm damned if you do." It certainly lacked nothing in the way of directness, but scarcely suggested the atmosphere and tone of—well, say, a draper's shop.

With all his bluffness, Mr. Waterer was somewhat shy and, except with his intimate acquaintances, retiring in manner. He was very rarely seen at exhibitions or horticultural meetings. And he never married. B.

GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Lettuce.—A liberal sowing of lettuce should be made during the present month, choosing such varieties as All the Year Round and black-seeded Bath Cos. Sow in lines 1ft. apart, and when the seedlings are large enough transfer a quantity to a sheltered border, leaving the remainder in the seed bed until the spring. By doing this a succession of fine lettuces will be maintained.

FRUITS UNDER GLASS.

Strawberries.—To be successful with strawberries in pots it is very necessary to have healthy, vigorous plants, and it pays to secure a new stock every few years. New runners should be planted in lines 2ft. apart in an open situation, and next year they will produce strong runners for pot work if the flowers are removed. In any case a small bed should be planted, and set aside for producing runners next year. After these are secured a fine crop of fruit will be gathered in the open the following season.

The Orchard House.—Trees in this house from which the fruit has been gathered may be placed in the open, but it will be necessary to well protect the roots by plunging the pots in ashes and affording copious supplies of water. A mulch of decayed manure will lessen the quantity of water required, and assist the roots of the trees. Where the trees are left in the house the roots should be fed with liquid manure and the ventilators opened to their fullest extent. Fruit trees occasionally cast or drop their buds later on, and this is often brought about by the roots being allowed to become dry at this period. Continue to syringe the foliage each afternoon when the weather is fine, and care should be taken to prevent dryness at the roots. The soil is often damp on the surface, but dry beneath, hence the necessity of close observation.

THE HARDY FRUIT GARDEN.

The Fruit Room.—It is advisable to give the fruit room a thorough cleansing at this season in readiness for the crops to be stored later on. Stages should be scrubbed, walls limewashed and afterwards plenty of air admitted for several days.

Young Trees.—Attention should be given to the training of young trees, especially espaliers and those on walls. At this season the work is more easily accomplished than when the wood is ripe.

FLOWER GARDEN.

Propagation.—Where zonal pelargoniums are used for bedding purposes, the time has arrived for taking cuttings to furnish plants for next season. Cuttings of the popular Paul Crampel are best rooted in pots 3ins. in diameter; the soil should contain a proportion of sand and four or five cuttings may be placed in each receptacle. When the cuttings have been trimmed, they should be allowed to dry for a few hours before being set in the soil. This applies to all the sappy varieties, but not the ivy-leaved section. Such as Mme. Crousse and C. Turner can be placed in boxes as they are not so liable to damp off during the winter months. The cuttings will readily form roots outside, or on a shelf in the greenhouse. Keep the soil just moist and remove flower buds and dead leaves as they appear.

Sweet Peas.—Unless it is intended to save seeds, the pods should be removed every two or three days. An occasional dose of weak liquid manure may be given, and the soil between the rows ought to be hoed at intervals to prevent the ground cracking.

T. W. BRISCOE
(Gardener to W. R. Lysaght Esq.),
Castleford, Chepstow, Gloucestershire

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Brassicas.—The time is near at hand when the seed of Brussels sprouts, borecole, cabbages, cauliflowers and savoys should be sown, so that early plants will be available for planting out in April of next year. It is always safe to follow this old rule as often—and we may take the present year as an example—vegetation is late; but when plants are set out in April they have a longer period in which to grow, and so have more chance of maturing than those raised from seed sown outside in spring.

THE FLOWER GARDEN.

Calceolaria amplexicaulis.—This old lemon-coloured calceolaria is still used for bedding, and those who require dot plants for next year should pot up now any spare plants which have been left in boxes or frames. Pinch out the growing point of each shoot so that bushy plants will be obtained.

Geraniums.—Those who still retain the bedding geranium should secure a few cuttings and insert them in boxes in sandy soil which has been made very firm. Cuttings taken at this time should be procured in such a way that the appearance of the plants and the beds from which they are taken is not destroyed.

Pentstemons.—There is no doubt that the best way to get a good display from pentstemons is to allow the plants to remain in the ground, as two year old plants are very effective when in flower. Cuttings may be inserted in cold frames from now onwards.

Roses.—All who wish to avoid being troubled with suckers and desire to increase their stock of climbing plants, should insert cuttings now in somewhat sandy soil out of doors. Rambler roses of the Wichuraiana section, such as Dorothy Perkins, Hiawatha and Lady Gay, can easily be propagated by cuttings.

THE HARDY FRUIT GARDEN.

Plums.—Where the fruits are showing signs of ripening on trees growing on walls, nets should be hung up in front of them. In the case of large standard trees bearing heavy crops, it may be found necessary to support the lower branches with props. As soon as the fruits show a little colour, quantities should be pulled. These fruits will ripen and colour splendidly if spread out in shallow trays and set on shelves in any of the glasshouses. This thinning will not only relieve the trees, but it will secure the fruits from being damaged by birds, as it is not always practical to try to place nets over large and spreading trees.

Raspberries.—As soon as the crops have been secured and the plants cleared, the old canes should be cut out, then collected into bundles and burned. In places where they are likely to get broken, the young growths should be loosely tied to the wires

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ar, Delightful Freesias'

upply small quantities of the following varieties:

	per doz. s. d.
e, a very strong grower, of good habit, not so ost, but is of sturdier and more compact growth. ers are very large, of good shape, and open well, of a soft primrose-yellow with a slightly darker e of the best varieties in commerce; nicely A.M., R.H.S.	7 6
eose, a very large, tall grower; white suffused the colour deepening with age..	7 6
eard, of a stiff, wiry growth, of medium his variety makes a very good pot plant. Flowers ate size, are of a blue-mauve shade with brown in the throat	7 6
rcup, a strong, tall grower, and one of the to open. Large flowers of good substance, primrose yellow with a deep orange lip; scented. H.S...	4 6
ncheese, a tall, pale yellow seedling from Kling, very late, a good variety for cutting ..	8 6
ado, a dwarf grower, large open flowers, mauve with yellow and a rich orange lip	7 6
n King, a very strong grower, flowers of medium ch golden yellow with an orange lip, very free , with extra strong, stiff stems, makes a very flower. Increases very rapidly, and has a ng scent, and is one of the last to flower. A.M., ...	7 6
e, of dwarf habit and a sturdy grower. Massive of great substance, creamy white, suffused mine outside, and broad dark green foliage. ent variety for pots	7 0
ppante, an early free-flowering variety, tall with well branched spikes carrying several mauve flowers with a white throat of good shape, and well open	7 6
nce, an early-flowering variety of good, robust broad, rich green foliage, free-flowering, large ped open flowers of a delicate mauve with a oat. A.M., R.H.S.	8 0
Widow, a fairly open flower of delightful colouring, very free flowering and easy to creases quickly and nicely scented. A.M., ...	5 0
te, a vigorous grower, fine broad foliage, s of stiff, upright growth, large open flowers y white suffused with pink, outside a deeper rose..	7 6
sa, of medium height and compact growth, flowers of lavender-blue with white throat, flowering	5 0
ure, the largest flower of all, bright yellow w dark lines in throat, and a slight shading of utside. The flowers are of long, tubular shape, size, a tall, robust grower and one of the first . A.M., R.H.S.	5 0

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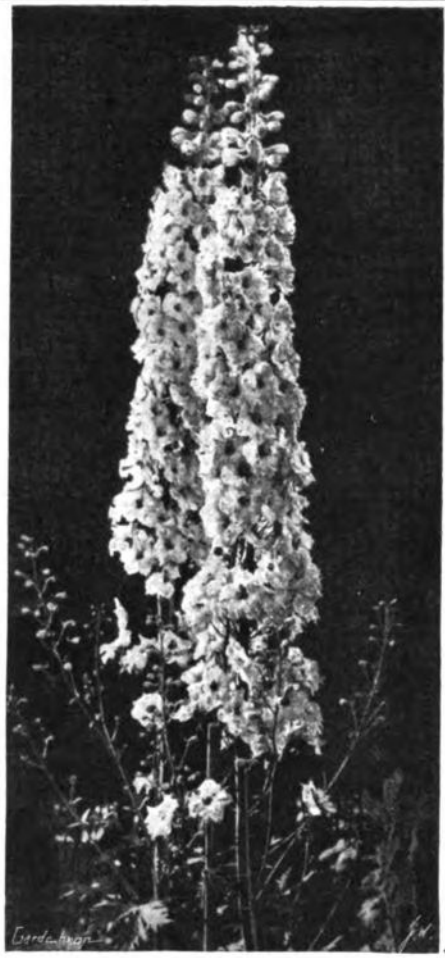

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FRUITS UNDER GLASS.

Vines.—When the bunches have been cut from the early house the vines should be half pruned; and if red spider shows anywhere about, spray the foliage, etc., with one or other of the approved insecticides. In the late house the soil moisture can be conserved by placing a good layer of clean straw all over the surface.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Bulbs for Forcing.—With bulbs used for forcing purposes it is important that they be potted early, for success depends very largely on their being well rooted before they are used for forcing. Roman hyacinths and paper white narcissi, so useful for flowering at Christmas, should be potted up during August. Also Dutch hyacinths that are now specially prepared for forcing. Roman hyacinths may be grown in pots or boxes, placing five bulbs in a 5in. pot; when grown in shallow seed boxes they are very useful, as they can be lifted from the boxes when in flower and used for making up bowls and other suitable receptacles. The early Duc van Thol tulips are very useful when grown in the same way. Paper white narcissi will require 7in. or 8in. pots, and four or five bulbs, according to size, may be placed in a pot; the same applies to other narcissi used for pot culture. The large-sized Dutch hyacinths should be grown singly in 48-sized pots, and the bulbs just covered, the tip of them showing through the soil. Early-flowering narcissi, such as Golden Spur and Henry Irving should be used for forcing purposes. N. Poeticus var. ornatus, is very useful for pot work and proves valuable at Easter when white flowers are in demand. After potting, the pots should be stood out in an open position, or at the foot of a wall, and then covered over with ashes or fibre. This conserves moisture and does away with the necessity of frequent watering. They may remain under the ashes until they are well rooted and growth is just showing on the top of the pots, when they should be removed from the ashes and placed in cold frames until such time as they are required for forcing purposes; a frame with a north exposure is very suitable for this purpose. When in the ashes or fibre they should be examined from time to time, and removed before they commence to grow up through the covering material; any that be neglected in this respect should be kept shaded for a few days until they are hardened to the light. The ordinary large-flowered crocuses, of which there are so many beautiful varieties, are very useful, especially for the small unheated greenhouse. It is very important for success with them that they be grown perfectly cool; any attempt to force them will result in failure, as they go blind and the flowers are aborted. They may be grown in 48-sized pots, shallow pans or in bowls of fibre, for which latter purpose they are very suitable. After potting they should be stood outdoors and be covered with ashes, as advised for the larger bulbs. All the spring-flowering species of crocus are very suitable for growing in small pots or pans in the small, unheated greenhouse. Some of them are, of course, scarce and expensive; there are, however, quite a number of species and varieties that are quite reasonable in price, such as CC. biflorus, etruscus, Imperati, Sieberi, Tomasinianus and versicolor. Lilium candidum is very suitable, and might be more frequently used, for pot culture. Where it is intended to grow this lily pots, it is important that the bulb should be potted during August, as L. candidum starts to grow early, and the longer the bulbs are kept dry the less chance they will have of succeeding. Three or four bulbs according to size may be placed in an 8in. pot. The potting compost should consist of a good medium loam, with enough sand to keep it open and porous, or old mortar rubble may be used instead as this lily is a lime lover. As this is not a stem-rooting lily it is unnecessary to cover the bulbs deeply, a covering of 2ins. being quite enough. As no top-dressing is necessary, the pots should be filled up when the bulbs are potted. After potting stand them out at the foot of a wall, but do not cover with ashes, though they may be plunged to the rim to conserve moisture and thus save watering. Success with this lily depends on giving it perfectly cool treatment at all times.

J. COUTTS.
Royal Botanic Gardens, Kew.

OBITUARY

R. A MALBY.

It is with regret that we announce the death of a talented contributor. Mr. Malby's fine and knowledgable photography gave delight and provoked admiration throughout the horticultural world. He journeyed to Manchester to attend the Lancashire Show, but he went there to die. He was stricken down with "flu" and pleurisy immediately on his arrival, and he passed away on the morning of August 7th. He was a splendid photographer. His black-and-white and his coloured pictures of flowers and gardens are world famous. He was a tireless worker and never spared himself. Often when many a man would have been in bed, or at any rate taking care of himself, "Father" was busy and at work. This was one part of the secret of his success. The other was his thoroughness, taught him by his father, to whom he dedicated his little book, "The Story of My Rock Garden." At his house at Woodford his ingenuity turned what might have been under many owners a humdrum back garden into a delightful home for alpine and rock plants. His Swiss journeys and his love of flowers brought this about. Our heartfelt sympathy goes out to his widow and her five young children. All must now be so different from what was anticipated: A move to Cuffley to get better light for his work in winter, and a new and larger house and appurtenances to suit the increasing volume of his orders. Cuffley was a milestone in his life and tells its tale. He will never pass another and horticulture will be the loser. *Hinc illæ lacrimæ!*

ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Lupins Unsatisfactory (B. T. D. S.).—Sometimes these plants are adversely affected, when newly planted, by severe frosts which stunt their growth during the following summer. When well established severe weather does not affect the plants so much. Evidently there is some ingredient in the border that the plants do not like and it would be more satisfactory to grow them in that part of the garden where the others do so well.

TREES AND SHRUBS

Hard-pruning Rhododendrons (R. G. B.).—The end of April is a good time for this work. If short spurs of the old wood are left, young shoots usually push out freely. Tar over the cut surfaces. Syringe the stems if the weather happens to be dry or spray with a garden engine.

Climbers for South-East Scotland (N. Y.).—Clematis Jackmani superba, darker than the type, and Gipsy Queen, dark velvety purple, should meet our correspondent's requirements. They would thrive on the west side of the house, and probably also on the north side. The Virginian creepers do well in all aspects. Jasminum nudiflorum will be found to flower even better facing west than south. Clematis montana and the var. rubens should succeed on the east side. Cydonia japonica would be better on the west side in preference to the east, as it blooms early in the year. As additional climbers with blue flowers try Ceanothus thrysoideus and C. Gloire de Versailles on a sheltered west wall. They might succeed, at least we suggest the experiment is worth while. Also try the tall, loose-growing form of Forsythia suspensa on a south or west wall. The golden-yellow flowers are delightful in early spring. A useful tall evergreen shrub for partial shade is Ligustrum lucidum.

THE GREENHOUSE.

Climber for Small Greenhouse (R. J. W.).—As the position for the climber seems to be up against the wall of the house, a camellia would be very suitable. Camellias are hardy and would stand the draught very well, and, of course, are evergreen. Preference should be given to some of the beautiful single varieties, such as Mrs. Saunders, white; magnoliæflora, shell pink and very distinct; or Lady Clare, salmon rose. Rhyncospermum (Trachelospermum) jasminoides is a neat evergreen climber with small sweet-scented flowers. Hibbertia dentata is also a beautiful evergreen climber with yellow flowers which are produced over a long period.

THE ROSE GARDEN.

About Roses and Romneya Coulteri (Miss B. B. R.).—The following would be suitable roses for the position, the lightness of the soil can be improved by surface dressings of heavy loam. Caroline Testout, Covent Garden, J. B. Clark, Mrs. J. Laing, General McArthur, La Tosca, Mrs. Millar, Ophelia, Snow Queen, Pharisaer, Hugh Dickson and Lady Hillingdon. Without seeing the insects referred to, we can only suggest that the holes in the leaves of Romneya Coulteri were made by the shot beetle, not for food for itself, but for storing in the tunnels of the harder wood of trees to coagulate for food for their maggots.

MISCELLANEOUS.

About Mice (E. H. P.).—The bulbs may be moistened and then covered with red lead, dusting on the red powder thinly. To trap the mice smear some fat—mutton-fat for preference—inside some glass jam jars, just under the shoulder of each jar and about one and a half inches from the top. Bury the jars in the soil, level with the surface, the mice will try to reach the fat, overbalance, and fall into the water which should rather more than half fill the jar.

Names of Plants.—(A. F. N.).—Platycodon grandiflorum, a hardy perennial which will thrive in any border.——(J. M. B.).—Trachelium cœruleum.——(X. Y. Z., Birmingham).—1, Artemisia pontica; 2, Poterium officinale; 3, Asplenium Felix-fœmina congestum; 4, Asplenium Filix-fœmina cristatum.——(W. McN.).—1, Pseudotsuga Douglasii; 2, Abies pectinata; 3, Abies Nordmanniana; 4, Lactuca macrophylla: 5, Thalictrum minus; 6, Potentilla argyrophylla atrosanguinea; 7, Spiræa kamtschatica: 8, Serratula coronata.——(J. R.).—Eucalyptus Muelleri.——(G. A.).—Probably Hemerocallis fulva. Flowers withered on arrival; please send another specimen.——W. W.—Jacobinia carnea.

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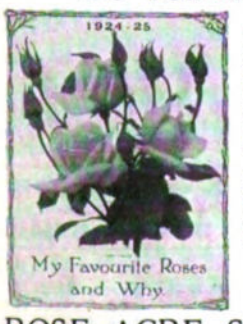

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THE GARDEN

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AN OLD ENGLISH BORDER.

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AUGUST 23, 1924

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THE SIX BEST HYBRID TEA ROSES?

NO doubt this is a question which puzzles everybody who has a garden; it is also one which THE GARDEN is frequently asked, and which is exceedingly difficult to answer. In order to give a satisfactory list of the most popular Six Hybrid Teas, it would be necessary to travel the length and breadth of the British Isles and to enquire of every gardener. This is obviously an impossibility, so we are asking our readers to vote on this most important subject, so that they may choose by popular vote what are the six best varieties. Roses, like many other plants, increase in the number of varieties year by year, and this naturally makes the selection of three or four kinds for a rose bed rather a problem. It is to help our readers that this competition is being held. One individual's judgment may not always be correct, but the preference of the readers of THE GARDEN will carry great weight. It may also occasion readers to discuss the matter with their gardening friends, and in many cases their friends' replies may surprise them, for opinions on the merits of roses are as divided as upon many other garden flowers.

RULES.

¶ A list of six (only) hybrid tea roses to be sent in in order of preference on a separate sheet of paper, with name and address of sender clearly written on the top. NO ALTERNATIVES WILL BE ALLOWED, but readers may send in any number of lists, provided that a coupon (see next paragraph) is sent in with each list.

¶ Lists must reach this office not later than Saturday, September 20th (after that date no lists will be accepted) and must be accompanied by a coupon, which will be found on page v. of this issue. Coupons will also be found in the issues of August 30th, September 6th and September 13th.

¶ The popular vote will be final, and no correspondence will be entered into over this competition.

¶ Envelopes must be marked COMPETITION and addressed to THE GARDEN, 20, Tavistock Street, Covent Garden, W.C.2.

¶ The Editor will not be held responsible for letters missing in the post.

¶ The First Prize will be an order for £3 on any advertiser to be found in the pages of THE GARDEN.
The Second Prize will be an order for £2 on any advertiser to be found in the pages of THE GARDEN.
The Third Prize will be a book, or books, from the *Country Life* Library to the value of £1.

¶ The result will be announced in THE GARDEN in the issue of October 11th.

¶ The Editor's decision on all points will be final.

Readers of THE GARDEN should make a point when visiting London of looking at the books published by *Country Life*, which are on view at their showrooms at 20, Tavistock Street, Covent Garden, W.C.2.

In addition to their well known volumes dealing with gardening and horticulture, *Country Life* publish numerous books on Architecture, Furniture, Decoration, Housing, Sport, and Natural History.

IN OUR NEXT ISSUE WILL BE FOUND:

THE POSSIBILITIES OF GARDENING IN SCOTLAND, by Sir John Stirling Maxwell, Bt.

THE GARDEN AT LOGAN, WIGTOWNSHIRE.

ROSES FOR LATE SUMMER, by Laurence Cook.

THE CULTIVATION OF MUSHROOMS.

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SOME OF THE BEST OF THE SAXIFRAGES

THE ROCKFOILS, AS A GENUS, ARE EXTENSIVE, AND THEY EASILY SURPASS ALL OTHER FAMILIES IN THEIR VALUE FOR THE ADORNMENT OF THE ROCK GARDEN.

THIS extensive genus contains so many species and varied forms that to a beginner making a selection it may appear a most difficult task. The object of the following notes is to suggest such a selection, and enumerate the best kinds for growing. The various members are adapted for many and diverse conditions, ranging from bog plants to those that will flourish in the smallest crevice in a rocky wall. For intermediate positions in the rock garden the beautiful kinds are numerous and generally are easy to grow, while others are ornamental plants for the border or spring bedding.

Commencing with the earlier flowering kinds, we naturally begin with Burser's saxifrage, S. Burseriana, a member of the cushion, or Kabschia section. This charming species is probably one of the most popular kinds in this group, opening its beautiful flowers in early spring when planted in a sheltered spot. It is an extremely variable plant both in foliage and flowers, and many so-called varieties have been given fancy names. For practical purposes the varieties may be reduced to three, the typical plant with tufts of spiny glaucous foliage, bearing single white flowers on stems 2ins. high in March. With broader leaves, var. major (which includes Gloria, magna, grandiflora and others), produces its much larger flowers often in February. Later on in April comes var. macrantha with pretty white flowers on red-tinged stems. In addition to the above there is a beautiful yellow-flowered form now in cultivation. Others of this group worth growing include S. cæsia, one of the smallest kinds with tufts of silvery leaves and creamy white flowers in June. A rich yellow flower is produced by S. Ferdinandi Coburgi, a Macedonian plant, while in S. marginata we have one of the best of the early-flowering white kinds. It is an Italian plant with small oblong leaves dotted on the margin with a series of lime pits which gives the whole plant a grey appearance. Closely allied is the smaller S. Rocheliana, with white flowers, two to four in a head in April. One of the most useful in the rock garden is S. sancta, with its broad carpets of dark green foliage, studded in early spring with rich orange flowers. There are numerous hybrids in this section, many of great beauty, among which may be mentioned the yellow-flowered apiculata, Boydii, Faldonside, Haagei and Paulinæ, and the white-flowered bursiculata, Jenksinii (S. Boydii alba), Obristii, Petraschii and Sundermanni. A pretty rose tinted form is S. Irvingii, of very neat habit and a good grower, while later productions with deeper coloured flowers are Mira, Mrs. H. Mosshall and Jenkinsiæ, among others.

A most important group is known as the encrusted or silvery rockfoils, consisting of over a dozen species and very numerous varieties, as the various kinds hybridise very freely. These form the summer-flowering section of the family and for bold effect are very valuable in the rock garden. One of the most variable species is S. Aizoon, due partly to its wide distribution over the mountains of Europe and elsewhere. There are some forms with very small rosettes like var. baldensis, while others approach in size those of S. Hostii, with strap-shaped leaves and much taller sprays of white flowers. In colour the flowers vary from pure white, var. Rex, to yellow, var. flavescens, while in var. balcana the white petals are heavily spotted with pink. A choice species is S. catalaunica, with recurved leaves having a broad silvery margin, the white flowers of which are produced in loose elegant panicles in May. There is no more graceful plant than S. cochlearis, which may be described as one of the neatest of this group. It has small rosettes of silvery spoon-shaped leaves, packed closely together, and forming a dense cushion. The pure white flowers in elegant panicles are produced freely in early summer. Known by its rosettes of broad green leaves, S. Cotyledon is one of the most distinct as well as one of the most varied. It is found widely distributed over the mountain chains of Europe, always growing on granite. The largest form is known as S. Cotyledon var. icelandica. The type has short, broad leaves, and the panicles of white flowers only occupy the upper half of the stem. In var. pyramidalis the stem is branched to the base and the white flowers are spotted with pink. With pink flowers is the distinct S. Kolenatiana from Asia Minor, one of the best forms of which is known as S. Sendtneri. Very handsome plants are S. lingulata and its various forms, of which three may be mentioned here, var. Bellardii has long, linear leaves, more or less erect and produces a very handsome inflorescence of white flowers in May. Var. lantoscana, like the above is found in the Maritime Alps, and is known by its short and blunt reflexed leaves, more or less convex on the upper surface. It has an arching inflorescence with all the flowers crowded on the upper surface. Var. australis from Italy has longer and broader leaves, with longer sprays of flowers. The most striking member of this group is S. longifolia from the Pyreenes, with large rosettes of silver-edged leaves and handsome pyramids of white flowers, often two feet or more in length. The beautiful rosettes are often many years in attaining the flowering stage, but after flowering and producing seed the plant dies. A distinct biennial is S. mutata with rosettes of broad leaves, and copper coloured flowers in July. It does best in half shade.

SAXIFRAGA LONGIFOLIA WITH ITS SILVER-EDGED ROSETTES AND HANDSOME PYRAMIDS OF WHITE FLOWERS.

The Mossy section contains many useful plants, suitable for the rock garden, spring bedding, and for the front of the herbaceous border. The beautiful green carpets of the Dovedale Moss (S. hypnoides), are very attractive at all times, with the additional feature that they are covered in spring with white flowers. One of the best and most useful of this group is S. Wallacei, with distinct foliage of a light green

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SAXIFRAGES OF THE MOSSY SECTION FORM BEAUTIFUL GREEN CARPETS WHICH ARE ATTRACTIVE THROUGHOUT THE YEAR.

colour and large white flowers that are sweetly scented. S. trifurcata is an elegant plant from Northern Spain, with stiff three to five parted leaves of a glaucous hue, and graceful sprays of white flowers. One of the most varied is S. cæspitosa, which is found over the whole of the Northern and Arctic regions. It forms dense tufts of deep green foliage that spread rapidly and soon form large groups under favourable conditions. A very distinct form is var. hirta with hairy leaves, giving it a white, woolly appearance. S. decipiens is a strong-growing kind, in some forms of which the flowers are rich red, fading to pink. A very dwarf dense-growing kind is S. muscoides, with yellowish flowers, which forms a moss-like tuft only an inch or so in height. S. muscoides var. atropurpurea has bright red flowers, while there are many hybrids in this section with rich red flowers, including Guildford Seedling and S. decipiens var. sanguinea among others.

The Megasea section are remarkable for their handsome foliage and large trusses of beautiful flowers, S. cordifolia having large cordate leaves and rosy red flowers in April. S. ligulata is one of the earliest with pink flowers in March, while S. purpurascens and the closely allied S. Delavayi have deep purple flowers in May. They are all excellent for parts of the rock garden where their evergreen leaves are of much value in furnishing during the winter months.

We next come to the so-called Porphyrion group of which the best known member is S. oppositifolia. They are among the most beautiful of alpine plants and those who have seen them growing in their native habitats will not soon forget the sheets of colour they produce. S. oppositifolia is a native of this country, being found in Yorkshire and parts of Scotland. The flowers vary considerably in size, the finest and largest forms being found on the western Alps and Pyrenees. The type of this plant has bright purple flowers, and is of prostrate creeping habit, with long, wiry, leafy evergreen stems. The brightest form is var. splendens with purplish crimson flowers, while the largest is var. grandiflora. There are many other named varieties well worth growing including var. speciosa, var. latina and var. alba, with white flowers. S. retusa is a pretty, minute species with the habit of the above, and deep, rich ruby coloured flowers several in a head.

For the bog there is the yellow-flowered S. Hirculus and the prostrate-growing aizoides, in addition to the giant S. peltata, with its peltate leaves and large flat cymes of pink flowers on stems 3ft. to 4ft. high. The well known London Pride (S. umbrosa) with its rosettes of thick leathery leaves and light graceful sprays of pink-spotted flowers is very useful as an edging for the border and very attractive in the summer months, a closely allied species being S. Geum with more rounded leaves.

For flowering in the autumn we have the Japanese S. Fortunei, with large dark green leaves that are rounded in general outline, but lobed and toothed on the margins. The white flowers, having unequal petals, are borne in panicles on stems that reach to a height of 1ft. or more. It does best in a sheltered half-shady position, where it is protected from frost. One of the most distinct members of the family is S. Grisebachii, belonging to the Engleria group, with silvery leaves produced in handsome rosettes and stems rising to a height of 9ins. or more. At the top is a nodding inflorescence of purplish crimson flowers having yellow stamens. Other members of the red-flowered group are S. media, S. thessalica and S. Stribrnyi.

Hybrids are numerous, one of the most remarkable being one called "Tumbling Waters," a hybrid of S. longifolia and S. lantoscana, with long sprays of white flowers on stems up to 20ins. long. Dr. Ramsay is another beautiful plant with silver grey rosettes and plume-like arching sprays of white, pink-spotted flowers. In addition there are many others worth growing, but these are enough for a start.

CULTIVATION.

Included in the large saxifrage family are plants which may be grown in any position to be found in the garden. For the bog there is the giant Californian S. peltata, with its peltate leaves, as well as the low-growing S. Hirculus and S. aizoides. For moist, shady and half-shady places we have all those included in the Mossy section, such as S. muscoides, S. hypnoides, and the various forms of S. decipiens. S. Burseriana also is partial to shade, and frequently suffers through being planted in a sunny position. Other shade-loving plants are those of the London Pride group of which S. umbrosa is typical. For sunnier positions on rocky ledges there are many members of the Aizoon group, represented by S. lantoscana, S. Hostii and S. Cotyledon among others. S. apiculata, S. sancta and S. marginata may also be grown in open situations. For all the latter a well drained gritty soil is essential with plenty of lime rubble for the lime-loving kinds. Among those that resent lime are S. Burseriana, S. Grisebachii and S. florulenta. Seeds of all saxifrages should be sown as soon as ripe, in pots of gritty soil, and these should be placed in a shady frame or border with protection in the shape of glass against heavy rain. Cuttings may also be taken now, although

ONE OF THE NUMEROUS HYBRIDS IN THE KABSCHIIA SECTION. S. IRVINGII.

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somewhat late. These may be inserted in almost pure sand and kept in a close frame till rooted. As there is no nutriment in the sand the rooted cuttings must be potted off as soon as possible.

LIST OF SAXIFRAGES FOR GENERAL USE.

YELLOW.—SS. aizoides, Aizoon lutea, apiculata, aspera bryoides, Borisii, Boydii, Elizabethæ, Faldonside, Ferdinandi Coburgi, Haagei, Hirculus, Kyrillii, muscoides, mutata, Paulinæ, sancta, Sibthorpii.

WHITE.—SS. Aizoon, Burseriana, cæsia, cæspitosa, catalaunica, cochlearis, Cotyledon, crustata, Dr. Ramsey, Fortunei, Geum, Hostii, hypnoides, Jenkinsii (Boydii alba), lingulata, lantoscana, longifolia, marginata, oppositifolia alba, Obristii, Petraschii, Rocheliana, rotundifolia, scardica obtusa, Stracheyi, Sundermanni, tricuspidata, trifurcata, Wallacei, Tumbling Waters.

RED, PURPLE OR PINK.—SS. aizoides atrorubens, Aizoon balcana, Aizoon rosea, Bertoloni, cartilaginea, Clarkei, cordifolia, crassifolia, decipiens grandiflora, d. sanguinea, Grisebachii, Kellereri, Irvingii, Kolenatiana, lilacina, Mira, ligulata, muscoides atropurpurea, Guildford Seedling, oppositifolia vars., peltata, purpurascens, umbrosa. W. I.

AMONG THE MOST BEAUTIFUL OF OUR ALPINE PLANTS IS S. OPPOSITIFOLIA.

GARDENING LAW

BY CHARLES GREENWOOD.

POISONOUS SPRAYS.

ONLY a few days ago a case was brought to my notice regarding the danger that might arise from the use of sprays containing poison. A man possessed a small garden bordered by fruit trees and adjoining a grass field. He sprayed his trees with a mixture containing a very small quantity of arsenic and a little of the spray blew over into the grass field. Three days later two of his neighbour's cows—which grazed in the field—were dead, and the unfortunate owner of the garden will be compelled to pay his neighbour about sixty pounds as compensation for the loss of the cows.

The lesson to be learnt from this is: Be very careful when using poison in gardens or orchards, for you are liable for any damage that may be caused by your carelessness.

ALLOTMENTS.

There must be hundreds of thousands of allotments in Britain at the present day, and allotment-holders will be interested to know that special laws have been passed to protect them.

For instance, if your landlord wants to obtain possession of your allotment, which is not *more* than forty poles in extent, and is cultivated mainly by yourself for the production of crops for your family, then he must give you at least six months' notice to quit. He cannot, at any time, turn you out between April 6th and September 29th.

A lot of tenancy agreements contain clauses which give the landlord power to get possession of the allotment if he wants it, for instance, for building purposes. Generally speaking, he must give you at least three months' notice to quit in these cases.

COMPENSATION.

If you have to leave your allotment because your landlord has given you notice to quit, whether the notice has been the ordinary six months' or the special three months' sort, then you are entitled to compensation.

This compensation is paid according to the value of the crops growing on the land when it is being cultivated in the ordinary way that an allotment usually is. It is also given for manure that has been applied to the land.

If you cannot agree with your landlord as to the amount of the compensation that should be paid, then you can apply to the judge of your County Court to appoint a valuator who will estimate what the compensation should be.

REMOVING TREES AND BUSHES.

As the tenant of an allotment you have the right, when your tenancy ends in the ordinary way, to remove any fruit trees and bushes and any fencing and other improvement that you have put up at your own expense.

This must be done before the notice to quit expires.

Care must be taken when you are doing this not to injure the allotment in any way, as you will be required to make good any damage that may be caused by the removal.

FLOWERS STOLEN OR DAMAGED.

There seems to be rather a general impression that it is not really theft to take flowers or fruit from somebody's garden.

It is true that special laws had to be passed to provide for such thefts, as it was once held that growing things were part of the land itself and were not capable of being stolen.

It is now, however, an offence to steal flowers or fruit under any circumstances, provided that they are of some value and cultivated.

Heavy punishments await hooligans who are caught while maliciously damaging flowers, plants or trees—a thing that some of these gentry seem to take a delight in doing.

OVERHANGING TREES.

There have been quite a lot of cases decided about overhanging trees.

You should be very careful not to plant yew or other trees which are poisonous where they are likely to overhang a garden or field belonging to someone else, as cows and horses seem to be attracted to their deadly leaves and eat them with fatal results—and you are held liable for the damage that has been caused.

There is another rather general impression that fruit hanging on branches that jut over property belonging to someone else belong to that person. That is not so, but if branches from somebody's trees overhang your garden, then you are entitled to cut them off yourself without giving any notice to the owner of the tree, no matter if the trees have been overhanging for twenty or thirty years.

If any damage has been done to your garden by the trees overhanging, then you have the right to sue the owner of the trees for the amount of damage caused by them.

The fact that the roots of a tree standing on other land have spread into your property does not give you a share in the tree, but you have the right to cut off those roots which are actually in your land.

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SOME RECENT DEVELOPMENTS OF THE BEARDED IRIS

BY SIR ARTHUR HORT, BT.

(*Continued from page* 550.)

IT will be seen that such success as I have had in raising new forms has been due partly to design, but quite as often to the chance action of the bees. Other hybridisers, such as Mr. Bliss, have worked systematically on Mendelian lines, aiming at a definite result. Far be it from me to depreciate such scientific work: in my own case leisure has generally been wanting, but I fear that I have also enjoyed a more gambling method. During the war I had no time to pollinate flowers, but contented myself with sowing seed fertilised by my neighbours' bees; and, as I never can bring myself to protect buds from the bees with muslin bags, I cannot always be certain that the result obtained even from flowers artificially pollinated is what I intended. At all events, I can heartily recommend to anyone who has not time or inclination to make deliberate crosses the pastime of raising plants from seed of kinds recognised as good seed-bearers. If to start with you have a fair variety of kinds growing together, the bees may be trusted to mix them up. The seed of a garden hybrid may give a more robust, or otherwise improved, form of the parent. Thus, I have seedlings, children and grandchildren, of Queen of May, in favour of which I have discarded the old Queen herself; and Alcazar is producing notable seedlings in several gardens known to me.

If one grows irises of this class from seed, it becomes before long a problem what to do with all the seedlings. Supposing there are twenty seeds in a pod and they all germinate, you will have twenty distinct plants, no two of them quite alike in flower. I divide them into three classes—those worthy of a name as distinctly new forms, those worth keeping but not distinct enough to name, and those which had better be destroyed. It is, of course, the second class which gives the trouble, especially if one has but limited space and labour at command. If space can be found, a patch of seedling-forms much alike in general character, but showing the sort of gradation which you see (say) in a wood of wild daffodils, has a charm of its own. Moreover, such things make useful presents to people who have just heard about irises, but are not so particular as to "points" as those who have been in the habit of looking at them with a raiser's eye. You can tell them to assign what names they please, and flatter them with the assurance that they have got what no one else possesses!

I have spoken of "points," and so had better say what are the points which I specially look out for in a new plant. As to colour, nothing muddy or muddly will do: I like *either* a self-coloured flower, or *else* a strong contrast between standard and fall. As to shape, I find I get increasingly particular. Some wild flowers with standards which readily flop or break, such as Amas and Kharput, are nevertheless indispensable; but in a hybrid I incline to insist on standards which hold themselves erect, whether meeting at the points or standing up well apart, and falls which do not "buckle" round the stem. Thus I have many seedlings of Amas which have improved on its standards.

Then there is *habit*: even if the individual blooms are not first-rate, a stem which branches freely, so as to show off the flowers on a sort of candelabrum, is highly desirable. I may instance the variety known as Porcelain, the spike of which has great architectural beauty. Not that I would discard such forms as some of the best wild pallidas, because their flowers sit close to an unbranched stem, but I dream of an ideal pallida which should have the flowers of the form called dalmatica set out on the branching candelabrum of Trojana. I have many charming branched pallida seedlings, but I have not yet seen the pallida of my dreams.

Let me mention, in passing, that, as pallida reminds me, a poor form may turn out a good seed-parent. One year, before consigning to the bonfire an extremely poor form of pallida, I gathered its seed. Thence came a race called Proteus, one of which has the largest flowers I have seen in any bearded iris: I have measured one 7ins. from the tip of the standard to the tip of the fall, and the extreme width of the standard was 3ins.

The last essential point is a good constitution; but a weakling generally saves trouble by committing suicide. I had once a Caterina seedling with light blue-purple falls and pure white standards, but I only saw it once. It is probably wise to see a seedling in flower at least twice before deciding on its merit—that is, of course, if it has good points on its first appearance, as these good points may tend to disappear the second year.

NEW AND RARE CHINESE SHRUBS

DEUTZIA LONGIFOLIA.

IN its best forms I should place this deutzia among the first half-dozen for border and pleasure ground planting. Vigorous and free in habit, it is later in growth than the forms of D. gracilis, thus escaping frosts, which damage the young growths of this species.

D. longifolia is an attractive deciduous shrub with arching branches of purplish rose blossoms abundantly produced in June. The individual flowers are ¾in. to 1in. across. The ultimate height of the bushes, according to Mr. Wilson, being 4ft. to 6ft.

The deutzias are readily increased by cuttings made of the half-ripened wood placed in a heated propagating frame from the middle of July onwards. Few shrubs give better results when the ground is liberally trenched and manured.

D. longifolia was originally collected by the Abbé David in Moupin, being described and named by

ONE OF THE FINEST OF CHINESE DEUTZIAS, D. LONGIFOLIA.

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ONE OF THE MANY NOTEWORTHY HARDY SHRUBS INTRODUCED FROM CHINA. DIPELTA FLORIBUNDA.

Franchet in 1885. No seeds were, apparently, included, as the first plants introduced appear to be those raised from seeds collected in western China by Mr. Wilson in 1903.

The variety Veitchii was the name originally intended for a form with open flowers of a rich purplish rose tint, but seedlings vary so much in colour, as do plants growing in sun or partial shade, that it is difficult to define the difference or draw a definite line between the two.

DIPELTA FLORIBUNDA.

Among the many new hardy shrubs introduced from China during recent years, Dipelta floribunda is one of the most distinct and valuable acquisitions. A deciduous shrub of vigorous habit, Mr. Wilson records it occurring as bushes ranging from 4ft. to 15ft. in height. The dipeltas are allied to the diervillas and thrive under similar cultural conditions. The blossoms are very freely produced towards the end of May and early in June. They are pleasingly fragrant with a funnel-shaped corolla, the exterior rose-pink, white inside with a yellow throat. A feature of the bushes is the bracts at the base of the ovary which form thin disc-like wings developing with the fruits. The dipeltas are easily increased by cuttings, which root readily in a close frame towards the end of July and during August.

D. floribunda was first discovered in Shensi by a Russian surgeon, Dr. Piatsetski, in 1874 or 1875, Maximowicz's description being made from his specimens. The first living plants were sent home by Mr. Wilson in 1902, seeds following in 1904. Mr. Wilson also collected this dipelta again during 1907 and 1910 in western Hupeh, as it is a native of both central and western China. Two other species are in cultivation, D. ventricosa and D. yunnanense.

STYRAX HEMSLEYANUM.

A native of central and western China, specimens of this beautiful styrax were collected by Professor Augustine Henry during the year 1888 in Hupeh. For its first introduction to our gardens we are indebted to Mr. E. H. Wilson when collecting on behalf of Messrs. James Veitch in 1900. The first seeds were collected in western Hupeh, the subsequent plants flowering for the first time during 1909 in the Coombe Wood Nursery and providing material for the *Botanical Magazine*, Tab. 8339, of 1910. Mr. Wilson found the plant again during 1908 in western Szechuan.

S. Hemsleyanum is a large deciduous bush or small tree 20ft. to 30ft. high, with large nut-like leaves. During June the pure white flowers are freely borne in terminal and axillary racemes or panicles. There are from about eight to twenty blossoms in an inflorescence, each about 1in. across and pleasingly fragrant.

In common with all the species of styrax, the subject of this note should be given preferential treatment. Shelter from the north and east is important. The best specimen at Kew is growing in a large bed of Erica mediterranea. This provides protection in the early years of growth and permanent shelter for the lower parts of the tree and shades the ground from the drying sun, which is by no means the least important. Previous to planting, prepare a good station of well drained light loamy compost, adding a little leaf-mould and peat if available.

Cuttings may be rooted, though layering provides the best means of increase. As the young trees grow there should be plenty of home-saved seeds, but so far we have had little success with Kew and Cornish harvested seeds. A. O.

THE PURE WHITE FLOWERS OF STYRAX HEMSLEYANUM FREELY BORNE IN LONG TERMINAL RACEMES.

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PLANTS FOR THE HOUSE

ONLY WHEN IT IS TOO LATE TO PUT THINGS RIGHT MANY CULTIVATORS REALISE THAT TIMELY ATTENTION TO WINTER-FLOWERING PLANTS WAS NOT GIVEN, AND THAT, IN CONSEQUENCE, THE HOUSE IS NOT SO GAY AS IT MIGHT HAVE BEEN. THE FOLLOWING ARTICLE GIVES SOME HELPFUL SUGGESTIONS ON HOW TO UTILISE ALL SPACE TO ADVANTAGE WITHIN A SMALL GREENHOUSE.

ALMOST before the summer flowers are in their full beauty, we get through the post numerous bulb catalogues to remind us of winter and dark days, when border and rose garden will delight our eyes no longer until summer comes again. To those who hate to be without flowers at any time, the following description of what a small greenhouse can supply may be of interest. It is not intended to apply to those fortunate people who can enjoy the contents of several greenhouses; but, to be definite, all the plants mentioned come from a lean-to greenhouse 15ft. by 12ft., heated by a small boiler which gives just sufficient heat to keep out the frost when severe. This house has to suffice for winter shelter for all cuttings and bedding plants, and (against all the canons of gardening) it harbours a vine and supplies the house with tomatoes. By the aid of impromptu staging and extra shelves, it is surprising what a number of pots can find a resting place in such a small space.

The requirements of the house are that two fairly large rooms should be kept bright for at least ten months of the year. Naturally, after May, the demand for pot plants is not so great; but when the out-of-door chrysanthemums and Michaelmas daisies are almost the only flowers left for cutting, the strain on the pot plants begins. October brings in the first pots of chrysanthemums. Between fifty and sixty of these are grown in various sized pots, chiefly Japanese varieties and singles, with a few incurved varieties. These are not, as a rule, severely disbudded, but are allowed to carry six to eight blooms, while some of the singles are allowed to grow quite naturally. It is convenient to have a few plants in quite small pots carrying one or two blooms. These fit into odd spaces and small receptacles that will not take a larger pot. Through October and November and well into December the chrysanthemums bring colour into the house without being reinforced by other plants, and they continue to add their quota until well into January.

With December on us the bulbs begin. Roman hyacinths or (these having become expensive luxuries) the Dutch miniature hyacinths (now christened "Cynthella") and paper white narcissi are the first comers.

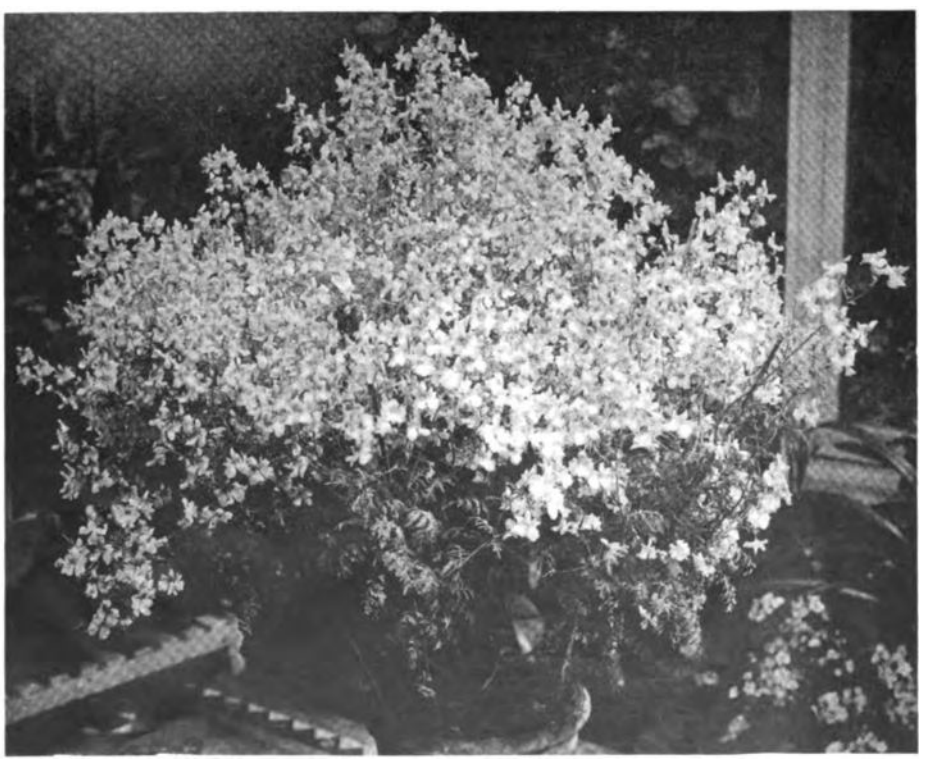
January increases the variety of bulbs. Freesias, with their pleasing scent, are always great favourites in the house, and Golden Spur daffodils—to my mind still unbeaten in colour by any other daffodil—bring us the first promise of spring. Then the polyanthus daffodils, Poeticus ornatus, and the larger hyacinths come in. Of the last, my favourite is the white L'Innocence, but there are so many good varieties that it is difficult to praise one kind more than another. White and blue seem to brighten a room more than the other colours. The pink is not sufficiently brilliant for the dark days. A room is so different from the open garden or the conservatory, for there are so few positions in it that are in full light. This makes it desirable to choose colours that stand out clearly and will brighten dim corners.

During February the hyacinths, daffodils and narcissi carry on. King Alfred is an invaluable daffodil for indoors for form, colour and endurance.

Primulas and cyclamens are brought in to take the place of the freesias, which are losing their first beauty. Then white and pink azaleas, which are coming out at the end of the month, take most kindly to the living-room.

March brings schizanthuses, cinerarias, geraniums and Emperor and Empress daffodils. April ends the indoor bulbs, for their unprotected brethren in the open garden are beginning to assert themselves; but schizanthuses and geraniums continue, and the white hydrangeas—of which there are such beautiful varieties now—fill up the spaces left by the retreating bulbs.

And now colour begins out-of-doors, and the need of the house is not so great. However, through May and June hydrangeas, geraniums and pelargoniums are required, and they go on throughout the summer.



THE PROFUSE-FLOWERING SCHIZANTHUS, WHICH RETAINS ITS BEAUTY AND FRESHNESS FOR A CONSIDERABLE TIME IN A LIVING-ROOM.

I should like to say a word regarding the best "stayers" in the house. The atmosphere and light of a living-room are not very healthy for a plant. I have noticed, too, that plants in a room heated night and day with hot pipes have a shorter period of health and strength than those in a room heated by the ordinary fireplace. Evaporation is much greater, and it may be that, unless care is taken, the roots may get dry. When the staff is small, the watering of the plants in the house

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passes from the gardener to the lady or daughter of the house. The plants are frequently in ornamental tubs and vases, where the pots cannot be tapped to test whether they are dry or wet; the earth surface is often covered with moss, so that the first intimation of lack of water may be the wilting of the plant; or else "little and often" may be the rule for watering. This means that the surface is always damp and the earth beneath dry—very unfair treatment to give the plant. Where there is a conservatory attached to a room, the plants can be carried out and thoroughly watered at proper intervals; but to take them out-of-doors in frosty or windy weather for watering may do more harm than good.

The flower that preserves its freshness for the longest time in a room is the hydrangea, and, if well grown, it is most effective. You may put it in a hall with no direct light and it will remain cheerful for weeks, though most other plants wilt and grow sickly under the same conditions in a very short time. In an ordinary postion in a room, it will be still a thing of beauty after six weeks or two months of indoor life.

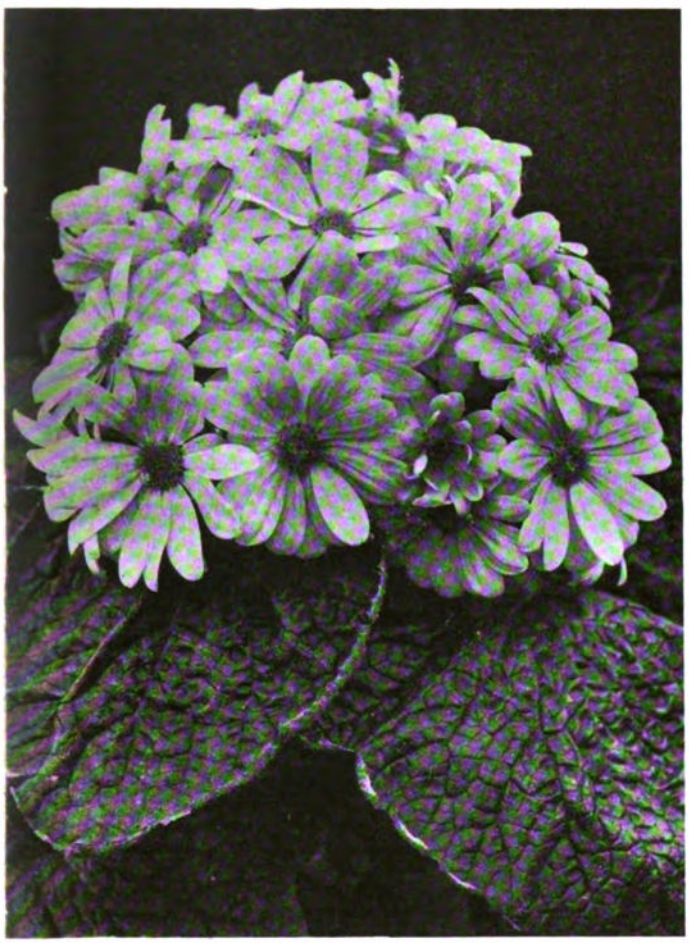
Next to the hydrangea, the ordinary indoor azalea will stand and remain bright for more than a month. After six weeks I have had them removed more from consideration of their constitutions than from lack of beauty. Cyclamens have remained throwing up their flowers from January to April.

Of daffodils, King Alfred is, with me, the longest stayer, though after three weeks it gets rather too long in the stalk. Chrysanthemums are always good in the house, unless fed too generously beforehand. Tulips, crocuses and scillas have been discarded, not because of their lack of beauty, but because, in the house, their period of beauty is a short one, and with such a small space at my disposal this is a serious consideration.

This is not, by any means, intended to be a list of the best plants for adorning a house. A number of these occur to me that it would be very pleasant to possess. Carnations, gloxinias, the sweet-scented cytisus and many others. It is merely intended to show that with limited space and small heating power, the darker and flowerless months of the year may be lightened, and that a small greenhouse can give a continuous supply of two or three dozen plants for the house for at least seven months of the year. The following table will show at a glance what can be reasonably expected under the conditions above described:

October-November	Chrysanthemums.
December	Chrysanthemums, Roman hyacinths, paper white narcissi.
January	Chrysanthemums, freesias, daffodils (Golden Spur).
February	Polyanthuses, Narcissus Poeticus ornatus, hyacinths, daffodils (King Alfred), primulas, cyclamens.
March	Daffodils (Emperor and Empress), schizanthuses, cinerarias.
April	Hydrangeas, geraniums, cinerarias, schizanthuses, azaleas.
May, June, July ..	Hydrangeas, geraniums, pelargoniums.

N. J. N. VICARS-MILES.



A FINE TYPE OF THE FLORIST'S CINERARIA.
These old-fashioned flowers add a decided charm to the house.

HYDRANGEAS ARE VERY EFFECTIVE PLANTS IN THE HOUSE.
Their massive trusses of bloom do not scatter their florets.

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GLADIOLI AT VINCENT SQUARE

ONE could not but be surprised on entaring the Royal Horticultural Society's Hall, Vincent Square, on Tuesday, August 12th—the occasion of the fortnightly meeting—to see the fine collections of gladioli, phloxes, zinnias, etc., which were on view, having regard to the fact that it was marked down specially as a show for peaches, nectarines and apricots in addition to the flowers of the season.

One would have imagined it to be principally a show of gladioli backed up by roses, sweet peas and general herbaceous plants, the fruit being markedly conspicuous by its absence. However, it's an ill wind that blows nobody good, and one could at least feel thankful to the exhibitors for maintaining the usual high standard of excellence. The attendance, unfortunately, was below the average, but no doubt the time of year and the nature of the Show as printed accounted for that to a large extent.

A large collection of large-flowered hybrid gladioli was shown by Messrs. Sutton and Sons. The blooms were in excellent condition and exceptionally well staged. Here were to be seen such well known sorts as America, Odin, White City, Red Emperor, White Giant and Marechal Foch.

In another part of the hall the Reading firm had a large collection of double-flowered zinnias. The range of colours in these flowers was really wonderful.

Messrs. R. H. Bath, Limited, had a fine lot of gladioli. The following sorts were conspicuous: Lene Graetz, Thibet, La Savière, Souvenir and White Giant.

Messrs. Kelway showed their famous "Langprim" hybrids. Of outstanding merit were Field Mouse of a wonderful colour; Topaz, salmon pink, suffused buff; Firefly, deep scarlet; Master Weitse, violet blue; and John Churchill Cragie, salmon, with yellow blotch.

Mr. Alfred Edwards showed a batch of primulinus hybrids.

Messrs. Lowe and Gibson showed a unique collection of seedlings which had originated from seed sown in 1923. There were some wonderful shades in some of the flowers shown. This exhibit was an object-lesson. It proved that wonderful results can be obtained by sowing seed one year and obtaining excellent blooms the next.

Major Churcher staged a very good exhibit. The following sorts strongly appealed to us: Diana, deep scarlet; Scarlet Princeps; Nightingale, rosy pink; Salmon Plume.

Messrs. Bunyard and Co. showed a very representative collection of gooseberries. The fruits were in excellent condition. Besides gooseberries they showed apples and gages.

Messrs. Daniels Brothers, Limited, showed their new September Black Currant. There were fruiting sprays on view laden with the large luscious black fruits. This currant appears to keep up its reputation as a heavy cropper and vigorous grower. The fruits are of enormous size.

Mr. H. J. Jones had a large ground exhibit of herbaceous phloxes in the centre of the hall. The plants were shown in baskets. Unfortunately, some of the blooms showed traces of the recent wet weather. Here were such sorts as F. A. Buchner, pure white; Mrs. Jeans, pink, shaded mauve; Dr. Charcot, parma violet; Eugene Danzanvilliers, heliotrope, white centre.

It was a great pleasure to see Messrs. Vert's hollyhocks. There is no firm which has done so much to improve this stately border plant as Messrs. Vert and Sons. The exhibit under review was an "eye opener" to those who were fortunate enough to see it. The magnificent blooms borne on stiff stems were of every conceivable colour. It is not possible to mention all the varieties shown but here are some that especially appealed to us: Lord Kitchener, deep crimson; Lilacina, lilac mauve; Alba superba, white; Queen of Yellows; Lady Bailey, flesh pink; Black Knight, exceptionally dark.

The Donard Nursery Company had an interesting exhibit of Dierama pulcherrima hybrids which showed a wide diversion from the type plant, especially as regards the length of the spikes.

A comprehensive collection of dahlias was staged by Messrs. Joseph Cheal and Sons. To enable visitors to study the many sections of this flower Messrs. Cheal and Sons arranged them in their respective sections. This firm also showed peony-flowered dahlias on boards.

In a miscellaneous collection of plants Messrs. B. Ladhams, Limited, had a very fine bloom of Romneya Coulteri and showy blooms of Lavatera Olbia rosea.

The only exhibit of sweet peas was staged by Messrs. Robert Bolton and Son. Three outstanding sorts were Empire, Wembley and Powerscourt.

A large exhibit of violas was put up by Mr. Wm. Yandell of Maidenhead. Outstanding sorts were Mrs. Chichester, white, edged and flaked mauve; Moseley Perfection, yellow; Klondyke, yellow; J. V. Macdonald, pure white, yellow eye.

Herbaceous plants, including phloxes, were shown by Mr. W. Wells, jun. Here, too, was the quaint Netera depressa.

Giant streptocarpuses were exhibited by Messrs. R. and G. Cuthbert. Two outstanding sorts were Giant Mauve and Southgate White.

There were two or three exhibits of roses. Messrs. W. Easlea and Son had a very well arranged group in which the following sorts were noteworthy: Margaret D. Hamil, Lamia, Golden Ophelia and Mme. Butterfly.

Messrs. Chaplin Brothers showed such good sorts as Innocence, Mrs. Charles Lamplough, Maud and Los Angeles.

Messrs. D. Prior and Son and the Rev. J. H. Pemberton also showed good groups of roses.

Perennial scabious were shown by Messrs. Isaac House and Son.

Greenhouse plants, including many fine cannas, were staged by Messrs. L. R. Russell, Limited.

Hardy plants were shown by Messrs. Amos Perry, Messrs. M. Prichard and Sons, the Misses K. and E. Hopkins.

Perpetual-flowering carnations were staged by Messrs. Allwood Brothers and Mr. C. Engelmann. The former staged such well known sorts as George Allwood, White Pearl and the brilliant Scarlet Edward Allwood, and also showed their famous Dianthus Allwoodii, including many new sorts. In Mr. Engelmann's exhibit we noted the well known Laddie, light salmon pink and Topsy, deep crimson.

A miniature rock garden was shown by Mr. H. H. Claydon of Bishop's Stortford. It certainly was very original, and was complete even to steps and waterfall.

NEW AND RARE PLANTS.

BOMAREA CANTABRIGIENSIS.—A very effective hardy hybrid, with its broad lanceolate leaves, with their well known twisted petioles and their umbels made up of numerous flowers, the corollas of which were, as usual, waxy, wavy and rather dull in colour, of a yellow to pink tinged with spots of brown red. Award of merit. Shown by the Director, Botanic Gardens, Cambridge.

CLETHRA FARGESII.—A native of central China and one of the most ornamental shrub species on account of its very long racemes of white flowers showing up to advantage against the oblong ovate dark green leaves which are pointed at the tip and nearly glabrous. Award of merit. Shown by Colonel Stephenson R. Clarke, Sussex.

DIERAMA PULCHERRIMA "KINGFISHER."—A plant which looks specially well as a background with its long, narrow, sword-shaped leaves, slightly shorter than the type, and its flowers bell-shaped, pinky mauve in colour, borne in a long woody panicled spike, and pendulous. The flowers of this form are much lighter than those of the type, which are blood-red purple. Award of merit. Shown by the Donard Nursery Company.

EUSTOMIA RUSSELLIANUM.—This representative of the gentianaceæ bears most of the characteristics of the order, with its pale to glaucous opposite green leaves and pleasing blue flowers more or less paniculate. The corollas were of a good bell shape. The lobes were more or less oblong, and whitish at the base. The whole plant had a graceful habit. Cultural commendation. Shown by the Director, Botanic Gardens, Cambridge.

GLADIOLUS E. H. LIDDELL.—This is an excellent specimen of the large-flowered section of gladioli for which Messrs. Kelway and Son have already made a name for themselves throughout these isles and beyond. In colour it is a shade of magenta, the lower petal with a whitish base and centre. It appears soft and delicate. If the name implies anything it should go far, as it is called after one of our recent Olympic victors. Award of merit. Shown by Messrs. Kelway and Sons.

HOHERIA POPULNEA VAR. LANCEOLATA.—A representative from New Zealand with a peculiar name, no doubt taken from the vernacular. It is a small but handsome tree, reaching 20–30ft. in its native habitat. The leaves, as the varietal name implies, are lanceolate, though somewhat variable. The flowers are snow-white and are produced in great profusion, the plants being literally covered with blossom. For ornamental purposes it should be especially valuable, although, unfortunately, it may not take to all soils and localities. First-class certificate. Shown by Mr. G. W. E. Loder, Sussex.

HYDRANGEA OPULOIDES, VAR. CŒRULESCENS.—This was a beautiful specimen of one of these highly prized ornamental plants, with its light green opposite leaves and large, dense, roundish cymes of blue flowers. The marginal or neuter flowers, with their expanded white to pink calyx, stood out in strong contrast to the blue of the fertile flowers. It probably is related to H. Hortensia, if not a form of it, where such variation often occurs. Award of merit. Shown by Mr. G. W. E. Loder, Sussex.

HYDRANGEA OPULOIDES ALBO-ROSEA.—Another handsome plant of the same genus. Here the leaves varied somewhat from the type, being much smaller—broad ovate to ovate. The inflorescences were rounded with the flowers in whitish to yellow trusses, the outer flowers round the margin with their conspicuous deep pink bracts making a very charming picture which was worthy of the award. Award of merit. Shown by Mr. G. W. E. Loder, Sussex.

ODONTONIA JOICEYI (Odontonia Pittie × Odontoglossum Tityus).—This young seedling bore a single flower, the sepals and petals effectively marked with rose-purple, the expansive labellum rose-flushed and with purplish marking, the yellowish crest lined with bright red. Award of merit. Shown by Messrs. Charlesworth and Co.

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PATHS IN GARDEN DESIGN

PATHS play a very important part in the design of a garden, and serious mistakes often occur if they are not given the attention due to them in the initial planning. Much care should, therefore, be taken to consider very carefully the value of their proportions in relation to the rest of the garden and to each other.

The chief objects to bear in mind when first deciding the positions of garden paths are beauty, comfort and the efficient working of the garden. They should be placed where they are most needed to serve the various parts of the garden, such as the kitchen and flower gardens and tennis court. Where possible they should follow the line of least resistance and by so doing give a sense of "decided direction" and purpose—a quality which affords great rest—as opposed to the restlessness created by the purposeless paths of the naturalistic school of gardening. This line of least resistance will usually mean a straight course from point to point when the ground is moderately level. If variety is needed it should be provided by supplying an obvious reason for the detour, such as a clump of trees, a sundial or some other definite object: otherwise the design will at once become aimless and indefinite.

Broad straight paths give a sense of spaciousness even in a small garden, whereas the effect of perspective on a long narrow path is to render it insignificant and to convey a feeling of scampiness to the general effect.

The comfort of a dry walk around a house cannot be over-estimated, but it is well to shrink from the use of ugly barren gravel, as it is most uninviting to walk upon and is very rarely in harmony with the architectural material of the house. It is better to look with favour on the careful use of paved walks, which have all the advantages of gravel with none of its ugliness, and they also make a splendid setting for both flowers and grass. It is usually on grounds of expense that gravel is used. Where possible, the same material should be used as that with which the house is built, whether it be tile, brick or Yorkshire stone. Old London stone, owing to its delightfully neutral colour, will be found most pleasing in combination with almost any other stone. Paving flags are often shamefully misused, but if they are treated in a purely formal way most interesting and varied designs can be made. The extensive use of crazy paving near the building is incompatible with the formality it is so important to preserve round the precincts of the house. Out of sight of the house crazy paving can be used with great effect in the making of dry walks.

The combination of a dry walk with the freshness and beauty of close-cut grass can be obtained by sinking flagstones just below the level of the turf at convenient distances when walking at a slow pace. Where the path diverges, a specially selected large stone should be used at the juncture. Each stone should be firmly blocked underneath to prevent sinkage, more especially when the soil is of light nature, and great care should be taken in placing the stones, both to produce a pleasing effect when all is finished and also in such a way as to allow the mowing machine to pass quite freely above, without damaging the blades.

Difficulty is so often experienced in trimming the edges of grass paths, and even with the mowing itself, when the low-growing plants on the border's edge bulge forward on to the path in their healthy and natural growth. A simple and very attractive way to combat this is to place a single line of flagstones on the edge of the grass path, keeping the straight face of the stone towards the centre of the path. The plants can then grow freely over the stone and show their beauty of form with no fear of being ruthlessly chopped away, a pitiable sight too often seen.

Grass paths, if kept well, make one of the best settings for flowers, but they have many grave disadvantages. They will not stand much wear and tear and at the same time keep their beauty; it is, therefore, as well to avoid using them in the kitchen garden or where there is much continual traffic. In any case, reserve them for that part of the garden most used in the summer months, where a cool green path is a comfort and a hard dry path is not essential. They must be kept perfectly soft and springy, fresh and of a deep green colour, with the straightness of their edges above criticism, otherwise their restfulness and sense of order and cleanliness will be immediately lost.

GRASS WALKS, IF WELL KEPT, MAKE ONE OF THE BEST SETTINGS FOR FLOWERS.

Formality, which should be the motive of the garden design round the house, is out of place in the wild garden, where the paths should be made to look as natural as possible, like woodland tracks, both in the direction and method of their making. Where the growth is open enough the path should first be cut with a machine, and then the hard edge on either side cut away slantingly with a bagging hook; this will soften any hard effect caused by the track of the machine.

Well kept paths do much to make even a poorly designed garden attractive, but where the design is good they are the keynote of its success, and greatly assist in lending enchantment to the surroundings. It is well, then, to aim at formality in the design, and simplicity combined with usefulness in their construction.

MARJORY ALLEN.

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LILIUM CANDIDUM.

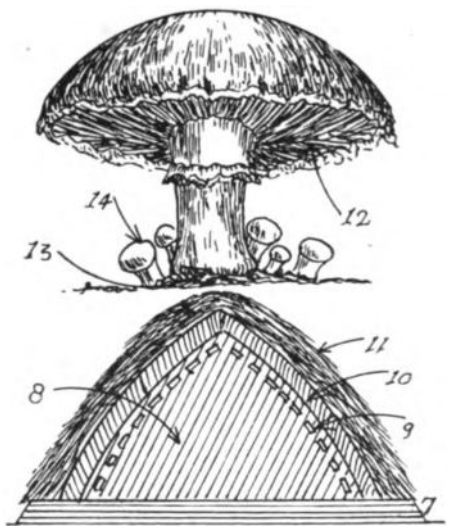
IN many cottage gardens these lilies thrive and flower freely, often retaining their leaves till the last flower has faded. In hundreds of other gardens the plants are partly, if not quite, a total failure. The question is often asked why is this the case, and why cannot more cultivators grow this lovely lily really well? In the first place the bulbs do not like being disturbed when once they are well established in a border; in the second, re-planting should be done quickly, before the bulbs get dry; in the third, only sound bulbs should be planted. Of course, many lovers of these lilies are obliged to take up and re-plant the bulbs. Where this work must be done for various reasons, preparations for carrying it out satisfactorily should be made before the end of August so that all of it may be completed before the end of September. Good open loam is the best; if poor, it should be well enriched with rotted manure. Even the best soil should have rotted manure mixed with it freely. Good drainage is essential; sites should be chosen with this end in view. The bulbs increase in number so we need not plant more than three in one position. Having made the hole and added the manure to the soil, place the bulbs 9ins. apart and bury them with soil, free from manure, several inches deep. If these precautions are taken there will not be much risk from canker and fungus.

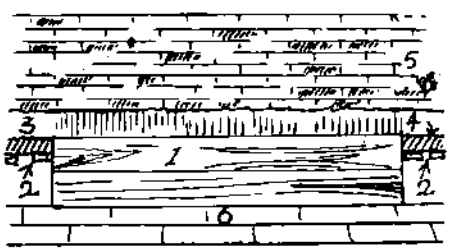
WINTER LETTUCE AND ENDIVE.

There are many very successful cultivators of these plants throughout the autumn and winter time, and some of them may think that others cannot fail to grow them well, too. But, alas! there are many dismal failures; certainly soil and situation count. In a low-lying district and where a clayey soil obtains, there is a disadvantage to begin with and special means should be taken to encourage early, healthy growth. The plants should be raised a fortnight earlier than in gardens where the soil is light and the situation naturally dry. For the winter supply the young plants should be well forward now; for the spring supply seeds may be sown forthwith. In every instance transplant the young seedlings twice, first time when quite tiny in a nursery bed 3ins. apart, second time in their permanent quarters 9ins. apart each way. Endive, 1ft. apart and 16ins. asunder in the rows. Of course, rough frames are ideal for lettuce and endive in the winter, but such cannot always be spared for the purpose. In very clayey soils in the open I like to form tiny ridges about 3ins. high and 7ins. wide and to plant the lettuce on the west, or south side, not exactly on the ridge, the plants thus receive some protection from wind and moisture. Slugs are very troublesome and to combat them strew the surface of the soil with dust lime prior to planting and with finely sifted ashes after. Early endive is readily blanched by laying old pea sticks on the plants and mats on the sticks.

HOW TO GROW MUSHROOMS

Mushrooms may be grown in sheds, cellars, under stages in greenhouses or in the open air and the present is a suitable time to make up such beds. Only the essential points can be given in this short note, but the sketches will help considerably. Fresh horse-droppings and a





small proportion of short litter, should be collected daily, placed in a thin layer in an open shed and turned daily to expel the rank gases. The beds should be very firmly made, inside ones 15ins. deep, outside ridge-shaped, 3ft. at the base, 2ft. 6ins. high to the ridge. The spawning should take place when the temperature is declining and registers 85°. No. 1, front boards supporting bed against a wall. Nos. 2, 2, lumps of spawn. No. 3, surface of bed. No. 4, soil covering 2ins. deep. No. 5, wall. Straw is placed on the bed. No. 6, floor. No. 7, raised ground for outside bed. No. 8, the bed. No. 9, spawn. No. 10, soil. No. 11, straw covering. No. 12, stage at which the mushroom should be pulled up. No. 13, No. 14, young mushrooms.

ANNUALS FOR THE GREENHOUSE.

All who have seen well grown annuals in a greenhouse in spring will be anxious to have some in their own structure. The plants are not difficult to grow, but the raiser should give them close attention from the seedling to the flowering stage. He should avoid overcrowding at each re-potting, even if this means that only a few plants of each kind can be accommodated. I do not refer to hardy annuals solely, but to tender and half-hardy ones and also to a few biennials, such as stocks of the Brompton type. The best way to grow these annuals is to wash and dry some 3½in. pots, to place one crock in each, nearly fill with a good compost of loam, leaf-soil and sand or old mortar rubble and to water prior to dropping a few seeds in the centre of each pot, lightly covering with sifted soil, but not watering afterwards till necessary. The resultant seedlings should be thinned to one specimen in each pot and the plants given frame treatment till Christmas. Earlier-raised seedlings should be thinned without delay now. The necessary repotting should be done in October.

MIGNONETTE IN POTS.

These charming little plants, with their spikes of fragrant flowers, are greatly appreciated in the early springtime. Except in favoured localities where odd plants will flower modestly outside, having survived the winter, the only satisfactory way to obtain a batch of plants in flower early in the year is to grow them in pots. Seeds should be sown now. If plants are raised too early they flower too soon and so spoil their chance of blooming profusely just when wanted. First, procure some 3½in. flower-pots, wash them well and dry thoroughly before putting in the single crock and compost. This cleanliness is necessary to enable the workman to turn out the ball of soil neatly, without roots clinging to the sides of the pots, when re-potting is done. Good fibrous loam, two-thirds; leaf-soil, one-third, with the addition of a small quantity of old mortar rubble, will form a suitable compost for the plants. Three-parts fill the pots, sow several seeds of mignonette in each one and lightly cover with fine soil; water, and place the pots in a cold frame or on a bed of ashes outside. Shade till the young seedlings appear. When the latter possess two rough leaves, thin to one plant in each pot. Grow on shelves in the greenhouse; re-pot in January into 6in. pots, and take off the tip of each plant if many spikes are required. GEORGE GARNER.

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NOTES FROM CONTRIBUTORS

SOME NEW ZEALAND PLANTS.

DWELLERS in maritime districts are giving more attention than of yore to the rich flora of New Zealand. It was long before many of us realised that it was not in Devon and Cornwall alone that plants tender or half hardy in midland Britain would flourish along the whole western seaboard as far north as Cape Wrath, and on many parts of the East Coast also, wherever shelter from violent winds can be given them. We are learning something about the capabilities of our climate at last, and are taking advantage of the experience of a few amateur pioneers. Some of the shrubs of New Zealand are at their best in late summer and autumn after the flush of spring and early summer is past.

The numerous species of olearia, for instance, provide a long and lavish succession of bloom, beginning with OO. nitida and stellulata in May, followed by OO. semidentata, macrodonta and ilicifolia in June,

VERONICA SALICIFOLIA, ONE OF THE MOST HANDSOME OF THE GENUS.

and finishing with OO. avicenniæfolia and Haastii in August. O. Traversii may be mentioned only for avoidance, for its dingy flowers, though borne in great profusion, are quite devoid of beauty.

The lace-bark—Gaya (Plagianthus) Lyalli—is perfectly hardy near the sea, attaining the stature of a moderate-sized tree. Mr. Bean records that it was killed to the ground at Kew in the winter of 1908–9, but grew afresh from the base. Even so, it is well worth persevering with it in inland districts for the sake of the profusion of large, milk-white blossoms with which it wreathes its branches in late summer. There are two forms of this tree, one with greyish, downy foliage, the other and finer variety with almost glabrous grass-green leaves, borne on 2in. petioles with a blade 5ins. to 6ins. long and 3ins. to 4ins. wide. (Such are the dimensions in our plants, though Cheeseman in his "Flora of New Zealand" makes the leaf-blades only 2ins. to 4ins. long.) It is worth while to hold one of these leaves against the light and observe the beautiful venation through a lens. The foliage of gaya looks so soft as to suggest giving the plant a very sheltered place; but, in fact, it stands with impunity very severe buffeting from wind, the long, flexible foot-stalks serving to protect the leaves.

The bottle-brush plant—Callistemon speciosus—here got cut to the ground last winter in the open border, but it is perfectly safe when trained against a wall, where it makes a brilliant display from midsummer onward. Clianthus puniceus is more sensitive to cold; we had a large plant killed outright last winter, owing to its inveterate habit of starting growth about Christmas; but it is well worth persevering with this splendid shrub, which must have the protection of a wall. If that wall be part of a low building the clianthus will spread its scarlet and green drapery over the whole roof.

The genus Senecio is of ignoble repute in this country owing to our native irrepressibles—groundsel and ragwort; but there are many fine members of the family in New Zealand. Senecio Greyii and S. laxifolius (I confess to uncertainty as to which is which) cover themselves with golden flowers in many parts of Great Britain; but S. Huntii, which rises to a height of 20ft. in the Chatham Islands, is seldom seen. It is more tender than S. Greyii, but thrives vigorously on our West Coast, and provides a brilliant display in August. The white-rayed S. Hectori generally survives the winter, but gets too badly cut to give us any bloom, though it does well in some Irish gardens. S. elæagnifolius var. Buchanani is hardy enough to flourish in the Edinburgh Botanic Garden, but its merit as a garden plant consists only in the broad, leathery, shining leaves, densely clad with buff tomentum on their undersides, the rayless flowers having no decorative quality.

The genus Veronica outnumbers all others in species native to New Zealand, and many of them present so many varieties as to puzzle the most erudite botanist. Even the late Mr. Cheeseman, the most comprehensive authority on the flora of those islands, owned that he was baffled in attempting to classify the species, owing to the multitude of intermediate forms and natural hybrids. Certainly I cannot pretend to distinguish between such nearly allied species as VV. salicifolia, parviflora, angustifolia, etc.; but the handsomest of the family known to me is the form of V. salicifolia shown in the illustration herewith. It never fails in profusion of flower season after season, the crowd of long white racemes giving the impression of a rippling fountain. Propagation is most easily effected either by cuttings or seeds, and, to prolong the period of bloom, plants should be placed under varying conditions of light and exposure.

No collection of New Zealand plants can be considered truly representative without a group or isolated specimens of Cordyline australis (formerly known as dracæna), which, however, is only hardy in our milder maritime districts. The huge mass of flowers furnishes a sure attraction for bees, but unluckily is carried at such a height above the ground—15ft. to 30ft.—that one cannot often get a whiff of its peculiar fragrance.

At the risk of taking up too much of your valuable space, I cannot refrain from mentioning that most desirable evergreen for maritime exposure, to wit, Griselinia littoralis. The male and female flowers are inconspicuous and are borne on separate plants: the merit of this small tree consisting in its broad shining green leaves. It forms an admirable wind-break, but is not hardy except near the sea.

It may be worth noting that, whereas the same species of plant may be found in both the North and South Islands of New Zealand, it is desirable to obtain plants from the South Island for introducing to British gardens, the climate of that island resembling our own more nearly than that of the North Island.—HERBERT MAXWELL, *Monreith*.

LILIUM PHILIPPINENSE FORMOSANUM PRICE'S VARIETY.

IT is to be hoped that the somewhat formidable title of this delightful plant will not deter gardeners from acquiring it. Among the hundreds of fine plants which have been introduced to cultivation in recent years, this alpine lily stands out as among the very choicest. The typical Lilium philippinense has been grown in greenhouses for many years, but coming from such a warm climate is, of course, too delicate for outdoor culture. The present variety was found in Formosa at a considerable elevation by Mr. Price (who collected it); consequently it is far better suited to the British climate. An established bulb sends up a sturdy flower stem 18ins. high, on which one to four long trumpet-shaped blooms are gracefully poised. The long narrow tube is characteristic of this lily and measures 6ins. from the base to tip of the petal. The flower is pure white, of great substance, emerald green in the throat; the outside of the petals is stained with purplish crimson, sometimes giving a delicate pink flush to the recurved petal tips.

The readiness with which this lily comes from seed is one of its great attractions, and should lead to its becoming as popular as L. regale. I sowed ten seeds in a pot in a cold frame in March, 1922, and now rejoice in the possession of seven strong-flowering bulbs. Two of these actually flowered last summer, eighteen months after seed-sowing, while at present they are carrying respectively four, three, three, three, two, one and one flowers apiece. They were planted out in the late autumn of 1922 in peaty loam on a bank sloping gently to the north, well sheltered by dwarf Japanese azaleas. A plant of Gentiana lagodechiana has now spread itself over the bulbs and makes a beautiful carpet for the lilies with its rich blue flowers, and doubtless helps to keep the soil cool in dry weather. I understand that this lily

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is not a success at Kew, but that it thrives in the Edinburgh Botanic Garden. It is certainly well worth a trial in any garden where choice plants are appreciated, and those who succeed with it will feel truly grateful to Mr. Price for its introduction.—N. G. HADDEN. *West Porlock, Somerset.*

ROSA WICHURAIANA.

IF this rose has been eclipsed from an ornamental point of view by the many fine hybrids raised from it, there are several reasons why it will always be cherished by some of us. In the first place, the fact that it is a species will always accord it a place of distinction. Then, it is one if not the last of all the wild roses to flower, its snow white trusses seldom being much in evidence until August. Its habit is also distinct, for it is a quite prostrate grower, its long, slender branches, which may travel a dozen feet in a season, creeping along the surface of the soil, a feature which has been inherited to some extent by not a few roses of the class that bears its name.

R. Wichuraiana is, moreover, a most adaptable plant. Though a sun-lover, it is not averse to considerable shade, and it will prosper exceedingly in any poor, light soil. Indeed, we have used it for covering sun-beaten, rocky banks where few things of the kind would grow; but it is, I think, most attractive when planted among some of the dwarf heaths. Through these latter it threads its long branches, and it has never yet shown any tendency to become too dense and heavy for its companions, nor is it ever pruned or attended to in any way. In addition to the white-flowered type, there is var. rubra, with the same procumbent habit and larger flowers of a rich crimson with a white base. This rose, which some consider a hybrid between the above and Crimson Rambler, does not appear to be so vigorous as the type, but it begins to flower rather earlier, and both will continue in blossom until late autumn. If one has any choice in the matter, the hybrid should be given the better place, since it is not only less robust than the species but a little inclined to mildew. —A. T. J.

MEDICINAL VALUE OF THE ONION.

NO plant in the kitchen garden gives such a delicate and delicious flavour to meat dishes as the onion, and someone has said that of a hundred recipes destined to allay the hunger of our long-suffering army, ninety-nine contained onions as an ingredient. Why there should be a foolish prejudice against the vegetable because of its somewhat pungent odour is rather hard to account for, but if properly cooked, it has an imperceptible effect on the breath. It is the raw onion that gives the breath the objectionable odour, though a little parsley eaten will quickly remove this. But the raw onion is not without its good properties, and those who relish such will find in it a tonic of much virtue. An onion eaten raw or stewed is a homely remedy for a cold, while as a nervine there is no better vegetable. The onion is also credited with being one of the best blood purifiers in the vegetable kingdom. The Greeks held it in the highest esteem, both as a medicine and a food, and invariably dosed their criminals with a mixture of onions and sulphur as a purifactory process.

Among the Romans, Nero was an absolute devotee to onion worship, and sundry days in each month were solemnly set apart on which he feasted exclusively on this unimperial diet, being impelled thereto by considerations of vanity rather than health, as he had a firm conviction that onions improved the voice. Onions are certainly excellent for the complexion, and their juice was an invariable ingredient in old cosmetics, its value being, of course, dependent on the sulphur it contains. Country children probably owe much of the clearness of their skins to the liberal use of onions in their diet.

Many of the old herbalists used to recommend onions as an infallible cure for baldness! They were also applied to wounds to stop the bleeding, and to burns to allay the inflammation, but no herbalist, after dilating upon their many "virtues," failed solemnly to warn his readers that being a herb of Mars, no one with a horoscope in which Mars is unfavourably aspected should venture on their use in any form.

Pliny ascribes to the onion twenty-seven remedies. The Greek physicians used onions in wine in catamenia. The Chinese seem to have learned the value of the onion, for next to rice probably no other vegetable is more largely used. In France pneumonia is now being treated by medical practitioners by the use of onion poultices, and it may be used with success in bronchial conditions.

Were the virtues of the onion better known the vegetable would undoubtedly occupy a larger space in the kitchen garden and allotment than is now allocated to its cultivation, with the result that a larger, sounder crop of onions would be secured for use in the dietary to the benefit of the community. Unlike other vegetables, however, it must be remembered that the onion has an extremely sensitive organism, so much so that it attracts to itself any morbid matter in its immediate and surrounding vicinity. Consequently it is unwise to eat onions that have been stored in a badly ventilated room, or in any place where sickness is prevalent.—R. D.

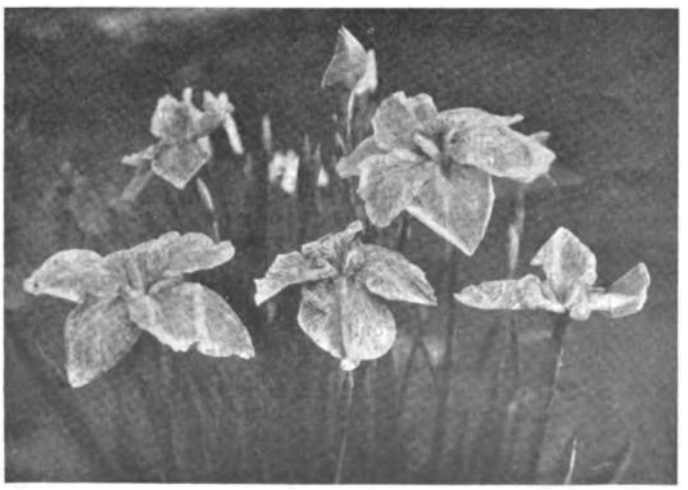
CORRESPONDENCE

SAXIFRAGA CÆSIA.

SIR,—In the illustration on page 537, the saxifraga beside S. cæsia, referred to by Dr. H. Stewart Wacher, seems, as far as I can see with a magnifying glass, to be S. cochlearis minor, which I called S. Probyni (*Gardeners' Chronicle*, 1910, and "Flore des Alpes Maritimes of Burnat, Vol. V, page 83). Of course, it is not cæsia; perhaps it is S. valdensis, which seems often to be called cæsia major but is quite another thing. Grenier and Gordon, in "Flore de France" (Vol. I, page 658), say: "S. valdensis is very near to cæsia, from which it differs by its much bigger size; its leaves are like those of cæsia, triquetres but straighter and only slightly recurved near to the end, where they are almost spathulate. The flowering stems are covered with glandulous hairs and the flowers form a corymb of 6-10 flowers." The stems and calyces are dark and hairy-glandulous, these being its most easily recognised characteristics. It is a rare plant, growing in the high summits of the Queyras at the foot of the Monte-Viso; I found it in the high Maurienne at Bessans, and it has been brought from Mont Cenis by Dr. Jenkin, I think. Your correspondent may identify his plants by the pubescence or smoothness of the stems.—H. CORREVON, *Geneva.*

IRIS KÆMPFERI.

SIR,—I enclose a photograph of Iris Kæmpferi which I trust may prove of interest to your readers. The bloom measured 8ins. across. I hoped to have sent you a good photograph of Campanula Zoysii, but slugs decreed otherwise. I find your paper the greatest help and interest.—L. S. DRURY.



THE FINE BLOOMS OF IRIS KÆMPFERI.

MAGENTA.

SIR,—I was much interested in Dr. Hampton's article on magenta flowers in THE GARDEN, August 2nd, page v, as I discovered by accident how effective they can be, rightly used. A plant of honesty sowed itself under a wall on which hung drifts of purple aubrietia (both were of very deep colouring), and the sight of these two together was a joy for many days. Then by accident some of the old magenta gladioli (Colvilei, I think, got into a grey border among some catmint) and the result was so effective that I am now collecting plants of those hues for the same border, which faces south in front of the house. Some seedlings of a giant thrift, which are a "barbaric" crimson, also look lovely with catmint and mauve Spanish irises; while the crimson lychnis (I think it is called) and a velvety grey plant with crimson flowers, in bloom now, the name of which I do not know, carry on the colour scheme. I wonder if any of your readers could suggest other plants to supplement these (I have a good many grey things—Cineraria maritima, santolina, stachys, Artemisia frigida, raoulia, Tenacetum argenteum and, of course, the lovely catmint; and on the wall behind are Ceanothus Gloire de Versailles, C. rigidus and Brilliant, with Rose Zépherine Drouhin and R. Lady Waterlow. I fill up gaps and keep the colour scheme going by relays of Antirrhinum Nelrose and a bright crimson snapdragon; and there is a little pink erigeron which flowers continuously through the early summer. I should be so grateful if anyone could tell me of other effective combinations in these colours. I got the idea of the grey border from Miss Jekyll's delightful book, and I pore over catalogues (one especially fascinating, from Six Hills Nursery), and dream of colour schemes before going to sleep at night! There is nothing in the world which satisfies one like a garden; although one is never

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satisfied—and I look forward every week to the appearance of your paper, which is certainly more helpful now than ever.—M. H. W.

PINUS INSIGNIS.

SIR,—In a fairly recent issue of THE GARDEN (April 19th, 1924) I saw an illustration of a Pinus insignis at Dropmore. Without any desire to compete with the beautiful trees at Dropmore, it may interest you to see a photograph of a tree of the same species at Knowle, which enjoys, at any rate, a great local reputation as a fine specimen. Age, eighty-four to eighty-five years; height, 78ft. to 80ft.; spread (between perpendiculars), 84ft.; circumference 6ft. above ground, 17ft. The tree is curious on account of its huge lower limbs stretching out almost touching the ground and then rising to a point: in fact, these lower limbs make it impossible to take measurements of the trunk at ground level.—A. S. DUNLOP.

A HANDSOME SPECIMEN OF PINUS INSIGNIS.

VACCINIUM GLAUCO-ALBUM.

SIR,—To gardeners and any readers of THE GARDEN who are fond of ericaceous plants this cranberry should make a strong appeal. True it may not be hardy everywhere, but it has withstood up to 16° of frost here for several successive nights without protection, and its native home in the Himalayas is at an altitude of about 10,000ft. Growing here in ordinary cool woodland loam and leaf-mould, it is a shrub of about 2ft. in height and promises to grow taller. The foliage is evergreen and the pointed, oval leaves of leathery texture are a pale emerald green above with undersides of a vivid bluish white. This colour also pervades the conspicuous bracts of the flower racemes which latter, appearing in late June, produce pendent cylindrical blossoms very constricted at the mouth and of a delicate blush pink to almost white. In some districts this cranberry is said to fruit freely, the round berries being black with a silvery white bloom.—N. WALES.

ORNITHOGALUM THYRSOIDES.

SIR.—Nicholson says the flowers of Ornithogalum thyrsoides are of a yellow colour, but that there is a white variety with a dark centre. I got some bulbs labelled as above from Holland last autumn, and I might have supposed I had got the white, only the shape of the flower-spike does not coincide with the picture (Fig. 778) which is given in Nicholson's dictionary. It is much more like the inflorescence of arabicum in shape. The individual flowers, too, feature to some extent those of that variety, but they are more open and have pale brown markings at the bases of the petals. In a cold-house it has flowered here in the last week of May, growing from 11ins. to 15ins. high and bearing, in corymb fashion, a number of sweet-scented flowers, which remind me very much of hawthorn. It is a splendid laster when cut and put into vases, for the individual blooms open in succession as if they were on the plant. Would someone who is familiar with thyrsoides tell us more about it? Is it, for example, a less shy bloomer than arabicum? In Bailey's American Cyclopedia, thyrsoides is referred to Plate 1164 of the *Botanical Magazine*, which is a picture of lacteum and very different from what I have as thyrsoides, although Bailey's description, "white with a brown eye," tallies with mine. —JOSEPH JACOB, *Salop*.

CROCUS HYEMALIS.

SIR,—This winter-flowering crocus, which has white flowers, is a source of some temptation to many lovers of hardy flowers who wish to have something in bloom all the year round. Unfortunately, it blooms too late for our climate, and unless we can grow it in pots under glass or shelter it with a hand-light or bell-glass, we are usually doomed to disappointment. I have tried it in the open in a sheltered rock garden without protection, and always the flowers were scarcely ever open owing to the absence of sun in our winter days, or were so sodden by rain that they were reduced to pulp if they escaped the hardships of the frost or the smothering with snow which so often descends on our gardens at that time. It is well, I think, to give this word of warning. It is otherwise if an alpine house is available with slight heat in winter, when a pot or a pan full of this charming white-flowered crocus is lovely when it opens under its sheltering roof. Corms are not too expensive and should be planted as soon as they can be supplied by the dealer.—S. ARNOTT.

ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Rose Leaves Curled Up (F. W. B.).—The leaves sent for inspection are slightly mildewed. The youngest leaves, so affected, curl more than the matured ones. The extreme ends of the young shoots should be cut off. Growth has been checked by the recent cold weather. The specimen leaves sent indicate a lack of vigour in the plant. Apply several moderately strong doses of manure water. It will not be necessary for our correspondent to do more to them this summer.

Roses and Humea elegans (C. M.).—The leaves are attacked by a beetle called Anisopia horticola. It does most harm, however, to the buds. The maggots exist under the soil and do much harm to the roots of the rose bushes. Apply a good soaking of moderately strong soot water to the roots of each tree—half a gallon to each one twice in one week. The scent of the flowers of Humea elegans will not do any harm to persons near; it is the very fine spear-like hairs that pierce the skin and cause the intense irritation. The fine hairs on the leaves and stems of Primula obconica sometimes have the same effect on some people. The watery blisters follow in mild or severe form.

Some Choice Perennials (C. M. W.).—Anemone japonica, tritomas in variety, helianthus, rudbeckia, solidago (the dwarf variety), doronicum, centaurea, gaillardias, geums, anthemis, coreopsis, montbretias, Alyssum saxatile, auriculas, violas, polyanthuses and primroses. There are several varieties of most of the above possessing the shades required (yellow to deep orange). The flowering season would be from early spring to the end of the summer. The height of the plants will vary according to the richness of the soil.

Failure of Lilliums (A. H. F.).—All the liliums grown by our correspondent (LL. testaceum, candidum, tigrinum and chalcedonium) are loam-lovers, and failure is probably due to the fact that they have been planted in leaf-soil and sand; all the wet from the surrounding heavy soil will almost certainly drain into the prepared holes of lighter material. The holes should be drained with a good layer of clinkers and filled with a compost of good medium loam, with the addition of a little well decayed leaf-soil, and sand or some gritty material to keep the whole open and porous. Two of them at least are lime-lovers—viz., LL. candidum and chalcedonium; L. testaceum is supposed to be a hybrid between these two species, and succeeds under the same treatment. Old mortar rubble is excellent for supplying the necessary lime, as it may be used instead of sand to mix with the compost. A dressing of basic slag, 4 oz. per square yard, applied during the autumn, is excellent for the lime-loving lilies. The fresh compost should be trod fairly firm; when planting, plenty of coarse clean sand should be placed round the bulbs. Lilium candidum should not be planted too deep: if they are covered with about 2ins. of soil it is quite enough, and they should be replanted some time during August. The other three may be planted deeper, from 4ins. to 6ins. Our correspondent's lilies, from his description, are attacked by Botrytis cinerea, a fungus which attacks many lilies, especially L. candidum; before replanting, the bulbs should be dried for a few days and be well dressed with flowers of sulphur. When growing, they should be sprayed with liver of sulphur, using 1 oz. to 3 gallons of water; this should prevent the attacks from fungus.

Lilliums (E. M. C.).—Most lilies thrive best in partially sheltered positions. The best species for an exposed garden are LL. candidum, testaceum, chalcedonicum, umbellatum, croceum, Hansoni, Martagon, pyrenaicum and tigrinum.

THE ROCK GARDEN.

100 Selected Rock Plants (J. M.).—Acæna microphylla; Acantholimon glumaceum, A. venustum; Achillea conjuncta, A. tomentosa; Æthionema pulchellum; Alchemilla alpina; Alyssum saxatile, A. s. citrinum; Androsace lanuginosa, A. sarmentosa, A. villosa; Anemone alpina, A. sulphurea, A. narcissiflora, A. patens, A. sylvestris; Anthemis Biebersteiniana; Aquilegia cœrulea; Arabis albida; Arenaria balearica; Armeria cæspitosa; Arnica montana; Artemisia lanata; Aster alpinus, A. Farreri; Astilbe simplicifolia; Aubrietias

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in variety; Campanula carpatica, C. Portenschlagiana, C. pulla, C. pusilla, C. Waldsteiniana, C. excisa, C. Raineri; Cerastium Biebersteinii; Chrysanthemum sibiricum; Cyananthus lobatus; Daphne petræa; Dianthus alpinus, D. neglectus, D. callizonus, D. cæsius, D. sylvestris; Douglasiana Vitaliana; Draba aizoides, D. imbricata; Dryas octopetala; Epimedium rubrum; Erinus alpinus; Eriogonum umbellatum; Erodium chrysanthum; Gentiana acaulis, G. asclepiadea, G. septemfida, G. verna; Geranium argenteum; Geum reptans; Gypsophila repens; Haberlea rhodopensis; Hieracium villosum; Hypericum polyphyllum, H. reptans; Iberis semperflorens; Leontopodium alpinum; Linum salsoloides; Lithospermum prostratum; Macrotomia echioides; Myosotis rupicola; Omphalodes Luciliæ; Onosma echioides; Oxalis enneaphylla; Phlox subulata and varieties; Phyteuma comosum; Potentilla nitida; Primula Auricula, P. marginata, P. rosea, P. viscosa; Ramondia pyrenaica; Saxifraga Burseriana, S. lantoscana, S. cochlearis, S. Cotyledon, S. hypnoides, S. apiculata, S. oppositifolia, S. Wallacei; Sedum spathulifolium; Sempervivum arachnoideum; Silene acaulis; Soldanella alpina; Veronica prostrata; Viola calcarata; Wahlenbergia Pumilio, W. serpyllifolia; Papaver alpinum; Waldsteinia fragarioides; Trollius pumilus.

THE ROSE GARDEN.

Rose Moyesii Not Setting its Hips (Mrs. J. P. B.).—As the plant is such a fine specimen, the hips, in the ordinary way, should form freely. The seeds in the berries sent for examination are sterile. Next November, or about the middle of December, remove the surface soil deep enough to bare the roots, and replace it with fibrous loam and rotted manure, mixed. In the meantime, make a garden fire strong enough to burn the soil as well as wood and coal ashes. Procure a barrow-load or so of this burnt mixture and apply it as a surface dressing next February. When the flowers are opening, and throughout the flowering time apply clear water freely and the berries should swell normally.

THE FRUIT GARDEN.

Apple-tree Leaves Turning Brown (A. C. B.).—The cause may be found at the roots of the tree if the branches are not cankered. It comes from some weakness of the tree and deficiency in the flow of sap to the leaves. The remedy is to surface-dress the trees with loam and rotted manure and to apply several doses, at fortnightly intervals, of weak manure water. The young shoots will be induced to continue a more healthy growth of shoots and leaves; the roots, also, becoming more active.

Fig Trees not Fruiting (J. H. H.).—Undoubtedly the soil is too rich for the fig trees. When the young fruits are just formed the ends of the shoots should be pinched off; this will cause the fruits to swell. Hard pruning must not be done, but young, very strong shoots should be rubbed off when quite small. To each square yard of surface soil, covering the main roots, apply a spadeful of old mortar rubbie or 6oz. of lime in the autumn every year, and fork in the material. It is usual to hard-prune the tamarisk in February; flowering follows in some cases and not in others. Unpruned plants grow lanky and also flower. The hard-pruning keeps the specimens compact.

Fruit Trees Dying Back (F. B. H.).—The trees are badly cankered, the young shoots being affected first, which fact indicates that the disease was in the trees some time back, when they were quite young. The young specimens if not infected when planted, would become so soon after. The roots are at fault and spraying would not do any good. We strongly advise our correspondent to clear away all the trees, as they die, from that quarter and plant shrubs, roses, etc., making a new fruit plantation in another part of the garden. They will not be a success in the present plot—at least not for many years after the soil has been well broken up and cultivated.

Strawberry Plants Failing (F. B.).—The young plants, specimens of which are sent for inspection, are lacking in vigour, and were evidently layered from plants equally unsatisfactory in this respect. The young plants are too hard and stunted to emit roots freely, and our correspondent will do right in making a new plantation. The foliage, even of healthy plants, assumes a bronzy-yellow appearance at this season. Trench the soil 2ft. deep in the new quarters, add half-rotted manure freely, and in the top 6ins. mix with the soil 8 oz. of basic slag per square yard. The ground should be prepared and the strawberries planted as soon as possible. Procure young plants from a healthy, fruitful stock.

Figs Unsatisfactory ("Beechwood").—Early in the growing season all sappy shoots should be pinched out, and this ought to be done till the middle of August, leaving only main branches, most of which will bear young fruits. At the end of July the tips of the shoots bearing figs should be pinched off. In our correspondent's case, judging from the appearance of the fruits sent, this has not been done, and the figs have been overcome by the growth this wet, dull summer. The cherry is the Morello.

Red Currants Unsatisfactory (Miss E. W., Hereford).—The bushes have suffered from an attack of aphides earlier in the season and, being inside a wire cage, birds were not able to assist in the destruction of them. The aphides infest the undersides of the leaves and the latter curl as a result. There is no disease present, but the bushes have suffered a severe check. Apply a good surface dressing of rotted manure in the autumn and lightly fork it in.

MISCELLANEOUS.

Heating Greenhouses (E. P.).—The suggested arrangement of the hot-water pipes should be a very satisfactory one. At the point where the pipes pass from one house to the other they need not be exposed to the weather. Brickbats and mortar built on both sides and a tile or piece of slate on the top would enclose the pipes. The average night temperature in the large house could be maintained at 58° Fahr. in the winter and in the small house at 60° Fahr.; but several degrees lower would do for greenhouse plants in severe weather.

How to Construct Violet Frames (Lancashire).—Taking the surface of the soil as the normal level, the back wall of the frame should be 2ft. high, the front wall 18ins. high, the width, approximately, 4ft. Single brick (4½ins.), will be strong enough for the walls, wood wall plates screwed together and lights about 4ft. 6ins. in width. A hot-bed is not necessary, so soil need not be taken out, but compost put in so that its surface will be 1ft. from the glass. The leaves of the plants almost touch the glass.

Peas, Parsley and Clarkia Unsatisfactory (Mrs. G. S. B.).—The clarkias are attacked by the fungus Pythium de Baryanum. It is present in the soil and affects the roots sooner or later: later when the plants are kept growing early in the season. Apply 6 oz. of lime per square yard in the autumn and leave the soil lumpy or ridged through the winter. Owing to the continuous wet weather the haulm of the peas at the soil level has been attacked by a fungus, Erysiphe Martii. This mildew is very deadly; destroy the plants, burn haulm and roots, lime the ground in the autumn and grow peas in another quarter next year. The parsley is healthy, but suffering from lack of stimulating food. Manure the soil for this crop in future.

Various Questions (D. McC.).—The auriculas thrive in a mixture of fibrous loam, rotted leaf-soil, sharp sand and a small quantity of charcoal dust. They do best in an open position, especially in a border facing north. The border soil or soil in pots or frames should never be allowed to become dry, but in the winter excess of moisture should be guarded against. If given good treatment and sweet soil this should prevent decay at the collar and roots. Do not use the methylated spirit, but an insecticide from a firm advertising in this journal. The spirit would injure the plants. Plants for the rockery: Alyssum saxatile compactum, Arabis albida, Arenaria montana, Aubrietia in variety, campanula, Draba Gigas, Iberis Little Gem, Linum flavum, dwarf phlox, primulas in variety, sedums, Silene alpestris, Statice incana nana, thyme, and Veronica repens. Greenhouse plants: Zonal Pelargoniums, primulas, cinerarias, chrysanthemums and various bulbs for winter and spring; pelargoniums, begonias, fuchsias, achimenes, liliums, petunias, salvias and gesneras for summer and autumn.

Renovating an Old Garden (W. T. W.).—As the garden has been neglected and weeds have become established, there is no more satisfactory way of freeing the soil from them than the one described by our correspondent. Digging deeply not only enables one to get rid of the weeds, but it improves the soil, too. The latter should be left in a lumpy state throughout the winter to mellow and sweeten. The most satisfactory way of treating the sunk portion of the lawn is to remove the turf, fill up and returf. This work should be done as soon as possible if the ground is soft enough. Retain the raspberry canes of medium strength, prune back to 1ft. from the base and re-plant, this autumn, in rows, allowing a space of 9ins. between the canes and at least 4ft. between the rows.

American Cress (L. S. S.).—The young plants of American cress should be thinned to 4ins. apart in the summer and to 6ins. in the autumn. A last sowing may be made early in September. For the benefit of late sowings, an open position is best and the drills should be 1ft. apart. A light shelter of branches in the winter is beneficial. Seeds of nemesia and schizanthus should be sown now.

Roses for Large Bushes in Meadow Grass (E. F.).—The species will be the best for positions described. We suggest that our correspondent plants Rosa Hugonis, RR. Webbiana, multiflora, rugosa, Willmottiæ, sericea, omeiensis and var. pteracantha, macrophylla and spinosissima. A few hybrid bush roses to try would be the Lord Penzance briars, Fellenberg, Homère, Grüss an Teplitz, Lady Waterlow, Blush Rambler, Conrad F. Meyer and Mrs. Anthony Waterer. Unless our correspondent cultivates rings round the bushes and applies an occasional mulch of manure the results will be very poor.

Names of Plants.—(J. M.).—Roses: 1 and 5 had fallen to pieces on arrival; 2, Jessie; 3, Marie Verdier; 4, Mme. A. Chatenay; 6, Pink Provence.——(Miss G.).—Amelanchier canadensis, the Service berry or June berry.

FORTHCOMING EVENTS.

August 26th.—Royal Horticultural Society's Fortnightly Meeting.

August 27th.—Southport Floral Fête (three days).

August 28th.—Sandy Horticultural Society's Show.——Royal Botanic Society's Meeting.——The Ruthin Show Society's Flower Show.

September 2nd.—Croydon Horticultural Society's Meeting.——Royal Caledonian Horticultural Society's Meeting.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Onions.—The bulbs from the seed sown early in the year will soon show signs of maturity, and those that still possess strong green tops may have these bent over to encourage the ripening of the bulbs. When the crop is lifted it should be thoroughly ripened before being placed in store. The best way to keep them is in a cool, dry shed, damp being the chief enemy of the onion after it is stored.

Beet.—The roots should be lifted directly they have attained a suitable size, and stored in ashes in a cool shed. Break the leaves off, not too near the crown, or bleeding will follow and the roots be thereby robbed of their goodness, while they will also be pale in colour when cooked.

FRUITS UNDER GLASS.

Melons.—Plants that are making plenty of headway, and bearing a crop of fruit, should have all useless growths removed, but this should be done gradually or the plants will receive a check. Other plants not so vigorous or that have become slightly starved may be given liquid manure, and the later crop just swelling their fruits will benefit by a light top-dressing of soil, and a sprinkling of fertiliser. Melons approaching the ripening stage will need less moisture both in the atmosphere and at the roots, but sufficient water must be afforded to maintain the foliage in a healthy condition. More ventilation is allowed, and during a cold, wet spell of weather a temperature of 60° to 65° Fahr. is kept up by warmth from the hot-water pipes.

Peaches.—It is sometimes necessary to root-prune a tree, and if this is required in the early house such work may now be carried out. The tree should be lifted carefully and damaged roots cut back by a clean cut. When replanting add fresh soil such as good loam to which is added a fair sprinkling of lime rubble, lime being very necessary to all stone fruits. Spread out the roots, and make the soil firm, afterwards giving a thorough watering. Keep the trees well syringed with clear water when the weather is fine, and if the sun is hot a little shade will be an advantage until the roots are re-established.

THE FLOWER GARDEN.

Annuals.—The sowing of these useful plants is usually associated with the spring, but excellent results are obtained by sowing a number during the next few weeks. A warm, dry border is most suitable, but they will succeed in all districts except where it is very wet and cold during the winter months. Sow in lines 1ft. apart and when the seedlings are large enough thinning must be resorted to or the plants will be weak and spindly. Among the plants suitable are coreopsis, eschscholtzia, Shirley poppies, cornflower, candytuft, phacelia and numerous others.

Eremuri.—These stately plants are best left undisturbed for several years, but where they have formed a number of crowns, now is a suitable time to divide them. A well drained position should be chosen, and the crowns placed several inches below the surface.

Lilium candidum.—The present is a good time to plant fresh bulbs of this chaste old lily, or to lift and divide existing clumps. Deep planting is not recommended, and where the soil is of a heavy nature plenty of sharp sand should be added. Bold groups are the most effective.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Cabbages.—Plants raised from seed sown early in July should be sufficiently advanced to plant out now. Ground from which early or second early potatoes have been cleared is the right place on which to set out the young plants. Cabbages following potatoes, or *vice versa*, is correct rotation and, indeed, works splendidly in practice. It is said that potatoes are greedy for potash and do not take up quite so much phosphate, and so the ground is left in a most suitable condition for cabbages, as they draw to a greater extent on phosphates. Drills should be drawn 18ins. apart with a triangle hoe, and the plants set out in these at 12ins. to 15ins. distance from each other.

Celery.—The early set out plants should have grown quite tall, and the tying should be taken in hand forthwith. Care should be taken when doing the work to leave all top ties or bands somewhat loose, so that space is allowed for further growth and expansion. As soon as the tying is done and all surplus growths and leaf-stalks cleared away, the plants, if at all dry, should be well watered at the roots, then the earth from the sides of the trenches filled in and around each plant when the stems are perfectly dry.

THE FLOWER GARDEN.

Anchusa Italica Dropmore, raised from seed sown in boxes some time ago, should now be transferred singly into 4in. pots, then set in a cold frame. Before winter sets in the pots should be sunk to the rim in coal ashes, so that the roots of the plants and the pots will be safe in severe weather.

Carnations.—This has been a fine season for good clean carnation growths, and no difficulty should be experienced in selecting shoots for layering. Where the work has not been done or is yet to be completed, it should be forwarded without further delay.

Stocks.—The seedlings of All The Year Round, Brompton and East Lothian stocks raised from seed sown last month should be set out in cold frames or boxes filled with good soil. The compost, when placed in boxes or frames, should be made firm, so that the young plants are prevented from making soft or rapid growth. When once established, keep the frame lights off, so that the young stocks are kept hardy. It is somewhat disconcerting to find that self or home saved seed of East Lothian stocks produces such a large percentage of single-flowered plants. However, if anyone harvests seed from the type known as All The Year Round, they will be charmed with the results, as this kind produces many fine double-flowered plants.

THE HARDY FRUIT GARDEN.

Apricots.—The young shoots to be retained should be tied in so that the trees will present a neat and well kept appearance. This work should be done in such a way that the greatest amount of light and sunshine is allowed to reach the fruits.

Apples.—The plentiful blossom which we were privileged to see on nearly every tree has not given us the gifts we anticipated. Trees such as James Grieve, Mr. Gladstone, Lord Suffield and White Transparent, grown against walls, should now have fruits almost ready for culinary and dessert purposes. The practised eye can tell when the fruits are ready for pulling; but a sure, safe and simple guide is to grip each fruit gently and then slightly raise it upwards: if the stalk parts readily from the spur, then the fruit is ripe.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Malmaison Carnations that have been layered in frames should now be ready for lifting and potting. According to their size and quantity of roots they will require either large sixties or 48-sized pots. The potting compost should consist of a good medium loam that has been stacked for twelve months, and old mortar rubble may be used instead of sand, as lime in some form is essential for all carnations. Unless the loam is heavy I do not advise the use of leaf-soil in the potting compost. The plants should be firmly potted, afterwards standing them in cold frames. If the weather is bright, it will be necessary to keep the frames closed and shaded for a few days until the roots of the plants get a hold of the fresh compost. Afterwards the plants should be given plenty of air on all favourable occasions. Where it is desired to grow on some plants as specimens, good plants should be selected from young plants layered last season. If they are in 6in. pots they will require a shift into 8in. pots. Use the same compost as advised for the young plants. A 6in. potful of fine bone meal may be added to each bushel of soil. After re-potting, the plants should be neatly re-staked and tied.

Hard-wooded Plants, such as greenhouse heaths, may be successfully propagated by means of cuttings at this time. According to the quantity required, small sixties or 48-sized pots may be used. The pots should be nearly half filled with crocks, placing some rough material on the top of them. The pots should then be filled with fine sandy peat rammed very firm, and finished off with some clean silver sand. In selecting cuttings, most beginners make the mistake of using too large cuttings. Very small, half-ripened twiggy side shoots should be selected for this purpose. Trim off the base with a sharp knife; the small leaves are best pulled off, taking care not to tear the bark. With a little practice one soon becomes quite expert at this part of the operation. The small cuttings should then be carefully dibbled into the prepared pots of compost. They should then be well watered in with a fine-rosed watering can. Afterwards stand them under bell-glasses in a cool greenhouse. Although not really essential, a propagating case with slight bottom heat is an advantage. Under perfectly cool treatment they will take a little longer to root. The glasses should be removed for a short time every morning, wiping them dry with a washleather. Most of the hard-wooded greenhouse plants may be successfully propagated by this method. In preparing epacris cuttings the leaves should be carefully trimmed off with a sharp knife, for, unlike ericas, they cannot be pulled off without tearing the bark. The same remark, of course, applies to nearly all other hard-wooded plants. When propagating plants of this class it is a great advantage if stock plants can be kept in the propagating house for some time before the cuttings are required. This applies especially to many plants that are difficult to propagate.

Correa cardinalis.—This beautiful Australian plant, with its drooping, tubular-shaped scarlet flowers, is at present somewhat scarce in cultivation. It is propagated by grafting it on young stocks of Correa alba, a species which roots and grows readily from cuttings. C. ventricosa and its varieties are grafted on the same stock. However, C. pulchella and C. Harrisii can be readily increased by means of cuttings.

J. COUTTS.
Royal Botanic Gardens, Kew.

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THE ARRANGEMENT OF CUT FLOWERS

WHEN arranging flowers for table decoration or to adorn the house, the choice of vases or bowls in which to place the blooms is of great importance. Their size, form and colour should be taken into account. Nothing surpasses crystal receptacles, though those made of ordinary glass please the eye. In both the water should be kept absolutely clean—*bien entendu*. If coloured pottery or china is used, green, orange and yellow go best with flowers, and simple designs in blue and pink on a white ground are not amiss. Green is the colour, *par excellence*, for vases, bowls or pots, especially the pale shade one gets in some Dresden china. Bowls of that colour filled with yellow roses, marigolds, orange Californian poppies and Cheiranthus Allionii (the small stock-scented wallflower), are most alluring. In high vases of the same colour lilies, irises and single chrysanthemums are charming, but roses and sweet peas look their best in bowls of all sizes and colours.

Violets and primroses should be placed in shallow bowls or large glass or crystal ones with mirrors beneath them so that the lovely shape and colour of the under part of the flowers may be reflected. Snowdrops are delightful if arranged lightly on moss in soup plates.

High-growing blooms, such as delphiniums, phloxes and giant daisies should always be put in the tallest available vases, their stems being kept as long as possible since height enhances their slim beauty. At the same time each stem should vary in length from its companions and should be put separately into its place. The chief rule with regard to flower arrangement is "to set up the blooms" (as our grandmothers used to say), as nearly as possible as they grow. This implies that tall flowers should never be overcrowded. As lilies, foxgloves, snapdragons and delphiniums expand, their stately stems rise proudly aloof at a reserved distance from their fellows. The small flowers may be massed together with good effect for so they grow. Generally speaking flowers should be "set up" with their own kind only, a mixture of cut flowers being inartistic.

The Japanese, who are flower worshippers and whose educational curriculum always includes flower study (not botany, but the contemplation of flowers as creatures of exquisite beauty of form and colour), and for whom floral decoration is a fine art, always arrange each cut blossom separately in a position which shows off its especial beauty.

Doubtless there *is* great beauty in masses of bloom, but it is less perfect and subtle than that of the single flower. Nature dots violets, primroses, snowdrops and lilies of the valley about promiscuously and we can imitate her. Such flowers and also scillas, crocuses, anemones and hepaticas are charming when grouped together in wide bowls. Strong-scented flowers if placed too near to others cause them to fade quickly, so it is best to have them as far apart as possible in a room. Violet leaves have a curious faculty of nullifying the scent of their flowers if they are placed together, these should therefore be arranged without their foliage. Roses, lilacs and the blooms of flowering shrubs in general, can often be gathered in sprays and arranged as they grow, excessive shortening of the stems being avoided.

The foliage of the flowers themselves is the best to use in almost every case; a notable exception being that of wallflowers, which is insignificant. These should be placed in bowls, their glorious colouring needing no green to enhance it. If, however, they are gathered with long stems, wallflowers may have sprays of dark-leaved maple or copper beech to keep them company. Daffodils are daintily beautiful with their own sword-like leaves, but if they are dotted in among sprays of bog-myrtle they are equally entrancing.

Quality should always take precedence of quantity and a room should never be overflowered. Two beautiful arrangements of cut flowers are often quite enough. No regularity should be observed in the placing of flower receptacles. One high vase on a writing table, a low bowl on a small table, one medium sized vase and one large bowl on the chimneypiece, a tall vase on a shelf corner and a wide low bowl on a table near by: these things give diversity in the room which arrests the attention and satisfies the eye. Like an ill-kept bed or a weedy path in an otherwise tidy garden, one faded flower or leaf spoils the whole harmony of a pretty room, therefore all such should be at once removed.

VICTORIA SLADE.

BOOK REVIEW

SIR JAMES COTTER, BT., has chosen a most ambitious title, "All About the Rose in Simple Language" (Andrew Melrose, London, price 6s.), for his book of 214 pages, and while we cannot say that he has literally carried out his avowed intention, he has given a vast amount of information in a very pleasant and chatty manner. Although Sir James Cotter ventures to express the hope that his book may "help the seasoned rosarian," it is essentially a book for the amateur and, perhaps most of all, for the novice. Throughout the book it is evident that the advice and much of the information freely given is the result of personal experience, and this adds greatly to its value.

Commencing with a brief history of the rose, the author gives very readable descriptions of the different types, with which he includes some of the species. Amateurs, especially those who are young in rose growing, will find the chapter on "Rose Terms" especially useful. Then comes "Rose Gardens," in which it is laid down that three essentials to successful rose growing are: (1) Immunity as far as possible from frosts. (2) Shelter from cold winds. (3) Abundance of fresh air and sunlight. We cannot imagine anyone failing to agree with 2 and 3, but the first is very debatable. If frosts were qualified with "severe" then all would be in agreement, but there be those who, out of their experience, have formed the decided opinion that moderate frosts in winter are beneficial to the rose. If Sir James were right, we should find the best roses in the Riviera districts and the worst in the Midlands and the North. Whereas, generally, the reverse is the case.

While we are at one with the author's insistence on deep digging when making rose-beds, we should like to point out a slight inconsistency. On page 43 we read that "three feet is none too much, four is even better," but the chapter closes with a lucid description of bastard trenching two spits, which are feet, deep.

Sir James is a whole-hearted advocate for roses only in rose beds, and when first-rate blooms are desired this, of course, is the way to obtain them; but quite a number of garden lovers prefer general effect and are content with, perhaps, smaller blooms.

For the winter protection of tea roses in cold gardens a mulching of leaves is recommended. In this there is a danger of harbouring slugs and also, long before spring, the leaves become "soggy" and airtight, so that many prefer to cover the stems with cinders or small coke.

Writing on manures is nearly always treading on dangerous ground, particularly when treating with chemicals. We are inclined to feel that the author over-values manures for roses, especially when he recommends the application of liquid manure "once a week from the time the buds commence forming until the end of the first week in July." Manures and soil are too intimately related to dogmatise. Later in the book we are told that "watering outdoor roses is a thing to avoid as much as possible."

Apart from these details the reader will find much of interest and, as we have previously remarked, the novice will derive a deal of useful information from this book. The paper and type are good, but the illustrations are capable of considerable improvement. The few colour plates are travesties of beautiful roses, and nearly all the line drawings are badly drawn, though they express the author's meaning.

A. C. B.

General Bulb-Growers' Society of Haarlem, Holland.—The different floral committees have made the following awards to herbaceous plants at their sessions from May 26th to July 14th, 1924:

FIRST-CLASS CERTIFICATES.—Delphinium hybrid Dina, single, unicoloured sky blue, eye striking creamy white coloured, spike formed like a pyramid. Iris (Holl) David Bles, unicoloured deep blue, falls in the centre pearl blue, with small yellow spot. Exceedingly stout variety, with big flowers. Iris (hispanica) Golden Lion, dark yellow, falls and standards elegantly waved. Ixiolirion Ledebouri, dark blue, the variety is a fortnight earlier than others, petals are shorter. Pyrethrum hybrid Eileen May Robinson, soft pure pink, large flowers, single.

AWARDS OF MERIT.—Delphinium hybrid Empress Queen, mauve with blue, large spike, semi-double flowers. From seeds by the Nursery Rijnstroom v/h F. Koppius at Alphen o/Rijn. Delphinium hybrid Hortulanus E. Th. Witte, unicoloured mauve with white eye on base of sky blue. From seeds by the late Mr. F. Koppius. Delphinium hybrid Ivorine, ivory white to soft sulphur yellow, large stout spike with soft yellow eye. Delphinium hybrid King George V, violet on a dark blue base, with little black eye. From seeds by the late Mr. F. Koppius. Delphinium hybrid Tutankhamen, mauve on striking blue base and a white eye. From seeds by the Nursery Rijnstroom v/h F. Koppius at Alphen o/Rijn. Delphinium hybrid Princess Elisabeth, light violet with striking bright white eye, middle-sized flower, half filled. From seeds by the Nursery Rijnstroom at Alphen o/Rijn. Iris (Holl.) Heemskerk, unicoloured golden yellow, standards passing into sulphur yellow. From seeds by Messrs. C. G. van Tubergen, jun., at Haarlem. Iris (Holl.) Josselin de Jong, standards white, falls golden yellow with orange blot. From seeds by Messrs. C. G. van Tubergen, jun., at Haarlem. Iris (pallida) Goldcrest, unicoloured deep blue with striking yellow beard. From seeds in England. Iris (Regelio-cyclus) Lucia, violet-red, with striking blue beard. From seeds by Messrs. C. G. van Tubergen, jun., at Haarlem. Lupinus polyphyllus Pink Pearls, warm salmon pink, mild flowering. From seeds in England. Lupinus polyphyllus Tunic, very soft pink, long stem, to be considered as an improvement of L. p. Princess Juliana. From seeds in England. Pyrethrum hybrid Dr. Bosch, colour salmon rose, long stem, free-flowering, little flower. From seeds in Germany. Sedum elegans, leaves grey, on the rockery (dry) grey with brown shades. Resembles Sedum reflexum, aureum and others. Stem does not stoop before flowering. Explorated in Austria. Tritonia crocata Hogarth, soft Isabella colour. Tritonia crocata le Printemps, orange. Tritonia crocata Nectar, creamy coloured, pink shaded. Tritonia crocata Rosalie, bright orange red.

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THE GARDEN

ORCHARD GARDEN WOODLAND

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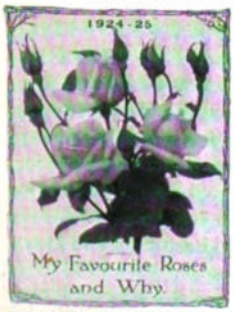

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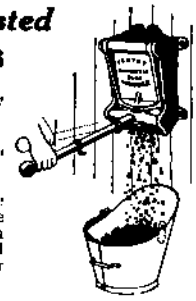

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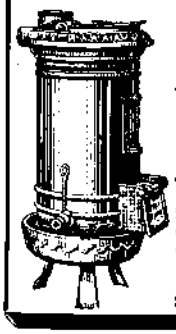

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See page 612

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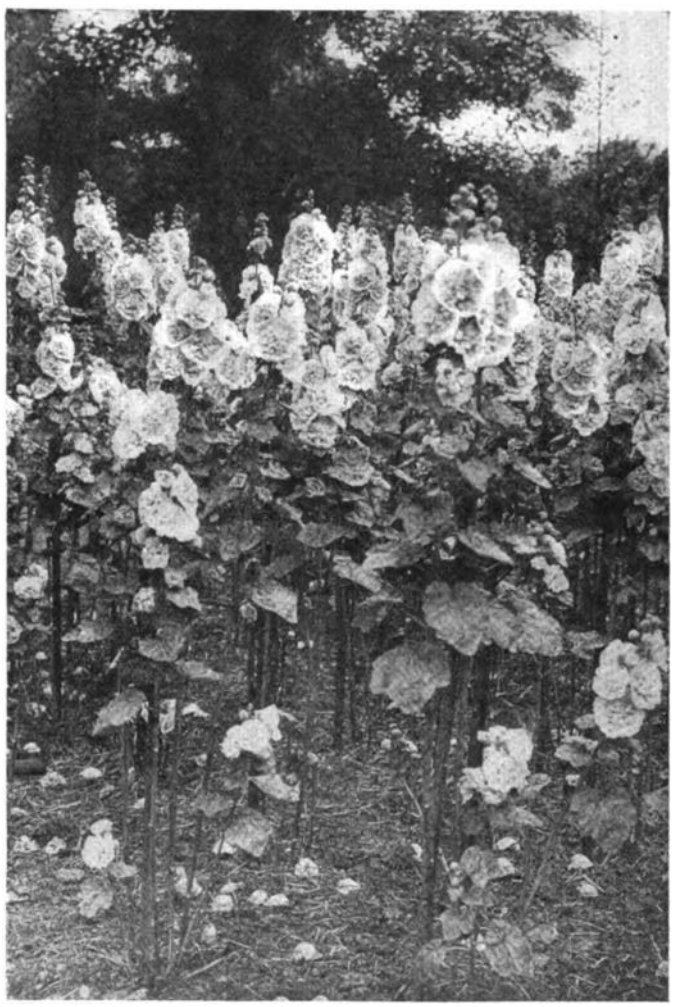
THE GARDEN

VOL. LXXXVIII.—NO. 2754. AUGUST 30, 1924

We would ask our readers to remember that "The Garden" is produced for the benefit of all gardeners. We are always pleased to consider articles or notes on any horticultural subject. We are also here to answer questions. Below will be found details of our Service Bureau which has been instituted to help gardeners in everything appertaining to gardening.



The hollyhock is one of the oldest of cultivated flowers, and, like many old flowers, it is frequently mentioned in poetry and folklore. The strains found in our gardens at the present time are vastly different from the original wild form, the double-flowered and typical garden forms having been acquired under intense cultivation.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

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there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

All communications should be addressed to the Service Department, THE GARDEN, 20, Tavistock Street, Covent Garden, London, W.C.2.

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THE GARDEN

AUGUST 30, 1924

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SEEDTIME

IN a vague way my mind has been rambling on for the last hour or so thinking about seeds. My thoughts run like this:

What a good thing that all seeds are not like the ordinary Brazil nuts, which recline in a case so hard that the entire working equipment of a carpenter is blunted in breaking the case open. Botanists tell us that this case is a safeguard against the attacks of insects. *Ergo*, are the mandibles of Brazilian insects less easily blunted than carpenter's tools?

Again, what satisfaction do the Chinese get from eating melon seeds? The kernel is tasteless and is tiny, and yet they extract it with the skill and speed of a dozen parrots and every roadside is littered with the husks in melon time.

The next thought, perhaps not original, is that seeds are the most important things in our lives, and yet in every garden countless millions of seeds are wasted. There is no wastage of energy in the world compared to that of seeds, which are smothered when they fall, or are dug into the ground. No doubt some crank, some day, will measure this energy and try to evolve some scheme for utilising it. Meanwhile, there is no getting away from the fact that an enormous amount of seed is wasted.

This is no incitement to gardeners to collect even a portion of their own harvest, for few realise the immense skill and labour and cost which are necessary for keeping strains of both vegetables and flowers pure. Apart from the mechanical processses of collecting, cleaning, drying and storing seed, the main fact is one of selection. It has been my good fortune, within the past fortnight, to have been shown over the establishment of one of the largest raisers of seed for sale in the world. Here were acres and acres of every conceivable plant being grown entirely for selection of the best strains. The ground was divided into plots of about 8yds. square, each flower separated into its various colours. In order to keep the colours apart from each other, they are separated by some entirely different plant. The result was amazing, and I should advise every large grower of annuals, like gardeners of public parks or gardens, to visit a big seed-raising establishment during July or August so as to see what plants and colours group together. In this particular place there must have been dozens of kinds of phloxes, each one grown in its separate plot, where every variation of tone and colour could be judged clearly and concisely.

As I have said, the labour is enormous. There are men whose sole job at this time of year is to move from plot to plot, pulling out rogues and examining the qualities and defects of each individual plant in the plot. It requires a great deal of skill and patience. The best plants are carefully labelled and numbered for special strains, then the seed is collected and sent out to farmers who actually grow the seed for market the following year, for, large as this extent of ground is, they cannot supply a tithe of what the market can absorb.

This is only given as an instance of the reason why it does not pay the ordinary gardener to grow his own seed. It is really a question of pounds, shillings and pence, for it only pays when it is done on an enormous scale.

On the other hand, there are exceptions, particularly in the case of rare plants or special strains, and in the collecting of such seeds people are often negligent. They say, maybe with truth, that they have sufficient for their own needs; but barter and exchange are important means of acquiring plants among keen gardeners, and a change of locality often does a plant good. I could give a number of instances where plants, not only rare but beautiful, have been lost to cultivation owing to slackness in collecting seed. Many of the new Chinese primulas have proved on first importation to be difficult plants. They are supposed to be perennial, but in many cases they die after flowering. Probably in a generation or two they may become more accustomed to conditions in the British Isles, but gardeners become despondent and neglect to collect seed.

By all means leave vegetable and all ordinary flower seed to those who utilise their knowledge and make their living by raising them, but also keep an eye on anything which is out of the way in your garden, and collect the seed before it is scattered.

E. H. M. C.

IN OUR NEXT ISSUE WILL BE FOUND:

NEW ZEALAND PLANTS FOR THE BRITISH ISLES.—I, by Dr. L. Cockayne, F.R.S.

THE CULTIVATION OF CARNATIONS, by Montagu Allwood.

PENTSTEMONS, by H. W. Canning-Wright.

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POSSIBILITIES OF GARDENING IN SCOTLAND

BY SIR JOHN STIRLING MAXWELL, BT.

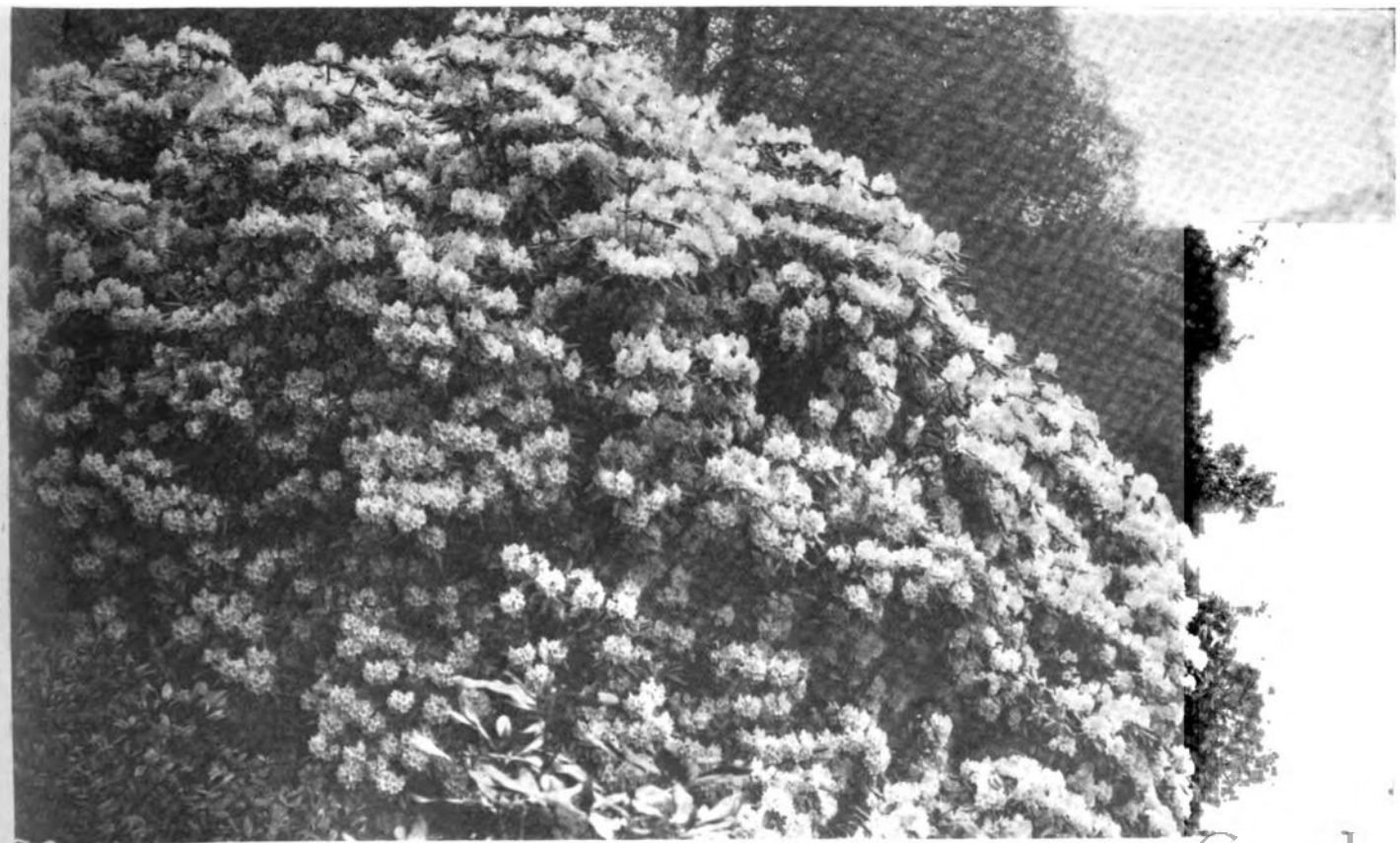
SCOTLAND IS A COUNTRY OF UNBOUNDED OPPORTUNITIES IN THE WORLD OF GARDENING. EVERY PLANT, FROM THE SUBTROPICAL TO THE ARCTIC, WILL FIND A HOME SOMEWHERE IN ITS CONFINES.

THE Editor asks me to write a note on garden possibilities in Scotland—a somewhat bewildering theme since few countries of similar size are capable of growing so wide a variety of trees, shrubs, and herbs or of lending them so becoming a setting. In range of climate Scotland is, of course, surpassed by countries such as Chile, Kenya or Ceylon, where abrupt changes in elevation bring the tropics within a few miles of a temperate, not to say alpine, climate; but in Europe it has no rival as a home for plants, except in the sister kingdom south of the Tweed.

For the culture of such fruit trees and flowering shrubs as demand a hot and dry summer, we must admit that Scotland has few districts to compare with the southern English counties. Yet anything that grows in Hampshire or Kent will thrive as well in the kindly climate of Nairn or Moray, and even in the Lothians and Berwickshire we find at Whittinghame a notable eucalyptus tree and at Marchmont a magnificent arbutus. For plants which dread frost and drought—plants which are only half-hardy in the districts just mentioned—the west of Scotland affords ample scope from Galloway right up to Cape Wrath. Even Cornwall cannot claim a softer climate, and Cornwall lacks the shelter of hills. It also lacks the marked distinction in length of day between summer and winter, which in the north tends to concentrate the period of growth and thus enables tender things to withstand a winter which even the moderating influence of the sea cannot quite cure of caprice. This last point holds good in spite of the fact that very few of the plants we care to cultivate come from latitudes so high as that of the North of Scotland.

It will be apparent to the reader that any attempt to enumerate the fine things which can be grown in Scots gardens would turn these notes into a nurseryman's catalogue. Let our space rather be devoted to special opportunities which Scots gardeners might exploit. First, there is the great opportunity offered by the west coast. Here in a few fine old gardens, such as those at Culzean, Lochinch, Monreith, Ardgowan, Stonefield and Poltalloch, we see how perfectly at home the flora of the Himalayas, Western China and Chile can be made, not to mention many good things from New Zealand and South Africa. At other places such as Benmore, Ardtornish and Poolewe, enthusiasts have more recently brought together fine collections. Here and there a single striking specimen is found, like the large Rhododendron Falconeri at Gairloch. But the number of plants in general cultivation on the west coast is deplorably small. On the Firth of Clyde hundreds of gardens are passed which contain nothing more interesting than golden euonymus and an occasional plant of Escallonia macrantha. The glories of the April rhododendrons are unknown. In June one looks in vain for the tall primulas from China or the lovely family of meconopsis which would both thrive as well and spread as rapidly in these little gardens as in their native mountains. Public gardens such as are found in most of the coast towns would do good service in making these recent acquisitions known and distributing the seed they bear so plentifully. Now that the influence of the Royal Botanic Garden in Edinburgh is to be extended to the Bayley-Balfour Memorial Garden in Glenbranter, where the possibilities of the soft western climate will be fully exploited and brought within reach of the public, one looks forward with confidence to a rise in the standard of west coast gardens.

Secondly, mention must be made of the small glens or ravines which are found everywhere in the Highlands and in several lowland counties—notably Lanarkshire and Ayrshire, which are otherwise rather windswept. These glens offer wonderful opportunities to the gardener. Here as in all sheltered places, the thermometer must be studied and frost-holes avoided. But the escape from wind, variety of aspect, and rapid drainage which such ravines afford, can be used to



A GLORIOUS SIGHT IN THE PASS OF LENY, PERTHSHIRE. RHODODENDRON CAMPANULATUM IN FULL BLOOM, THIRTY FEET HI

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produce effects quite beyond the gardener's reach on level ground. The writer's thoughts turn to the entrance of a Perthshire glen where plants of Rhododendron campanulatum and R. barbatum have reached the size of trees—a glorious sight in bloom—and, again, to a garden on the Findhorn, where herbaceous plants planted in large masses adorn the steep, sunny bank of that noble river. Quite apart from its cultural advantages and the chance it affords of effective grouping and bird's-eye views, the glen has mystical charms of its own, especially if the sides are tree-crowned — the broken lights, the noise of water, the exclusion of the outside world—which would make the fortune of any pleasance

Thirdly, a word about the gardens of shooting lodges. These are often at quite high elevations. Many lie between the 1,000ft. and 1,500ft. contours. These gardens are not large or ambitious, and too often they are neglected except for a week before the Twelfth. But where they are in charge of a keen and competent man, be he gardener or keeper, they are often quite delightful. Their elevation makes them late, but they make up for lost time in the long days of the northern summer. The writer knows of a garden near the head of the Don where the strawberries are at their best in the first fortnight of September, roses and sweet peas in full bloom and the borders as gay as those of Hampton Court. His thoughts also wander to a little garden at 1,300ft. in Inverness-shire and compare a large patch of Rhododendron kamschaticum, brilliant in June with its red saucers (when the hares have not paid it too much attention), with struggling specimens of the same species under handlights at Kew. Plants which fall victims of our changeable winter are relatively safe at high altitudes where the winter is steady and the spring late. There are thus in the shooting-lodge garden opportunities often unsuspected by the owner for the cultivation of plants which cannot be kept alive in most lowland places, as well as for the whole race of alpines. Here cotoneasters of all kinds flourish amazingly and, given shelter from wind, many delicate rhododendrons. Primula and gentian, meconopsis, anemone and campanula, and many herbaceous plants apt to damp off elsewhere, will be found to survive and increase under these conditions.

A GENERAL VIEW OF GLENBRANTER, THE FUTURE HOME OF MANY RECENT INTRODUCTIONS.

This note, incomplete as it is, cannot altogether ignore the question of autumn colour, a beauty in which Scotland excels, but seldom sufficiently considered in the gardener's lay-out. Here the writer would specially appeal to those whose gardens are among the hills, where grass and bracken turn at the first touch of frost, especially after a wet September, to gold and amber. It is true that nothing is lovelier at this season than the native birch, rowan and aspen. But other glories are within the gardener's reach. I refrain from a catalogue, but I suggest for a beginner, among the smaller trees, Acer rubrum, A. circinatum, A. pictum and the Japanese maples; among shrubs the common barberry, Berberis Thunbergii and Rosa rugosa; among herbs, Spiræa palmata, Saxifraga peltata and Funkia Sieboldii. These, with plenty of Michaelmas daisies, will make any garden glorious in October, but doubly so in a moorland setting, where the whole picture is in harmony.

ROSES FOR LATE SUMMER

THIS IS A TIMELY REMINDER THAT ROSES ARE NOT FINISHED FOR THE YEAR AFTER THEIR FIRST BLOOMING. SUITABLE VARIETIES FOR THIS TIME OF YEAR ARE LISTED WITH FULL DETAILS.

WHATEVER may be our taste in flowers, the rose stands unrivalled as the flower which prolongs the summer and joins it to autumn and, in some seasons, to winter.

Rose growers will remember the autumn of 1923 and how one was able to gather quite good roses until the early part of November, when the sudden frosts brought winter in reality.

Lovers of the rose are no longer content with the rose of summer; a little study and observance of the varieties which are so good in autumn are worth while, because one may plant these with the assurance that, providing we are not visited with a very dry late summer season, we shall have good flowers in normal September weather.

Although a selection of the suitable varieties is an important point, it is also necessary in order to secure good autumn roses to "do them well." When planting, it is not merely a matter of orthodox routine to prepare the soil so that the roses make good growth. Readers of THE GARDEN have been well informed from time to time on the best method to plant roses. Those who have a good rose soil have little trouble beyond deep digging (two spades deep), the manuring of the soil and hoeing; but those who have light sandy soil, or black sour soil, must take more drastic measures to secure success with autumn flowers.

It is well to remember that these late blossoms are obtained through the means of late growth, and we can only get this by a soil condition which makes them grow again after the first flush of summer vegetation. With poor sandy soil, therefore, as well as black peaty and sour soils, it is necessary to take out 2ft. of earth and replace with some of a heavy nature. Nothing is better than turfy loam, if obtainable although good results with the aid of stable or farmyard manure can be got with ordinary heavy soil. Those who are unable to do this can do much by digging deeply (2ft.) and by manuring heavily, both with stable or farmyard manure and bone-meal. The black soils must have a heavy dressing of lime (or ground chalk) applied early in each year at the rate of ½lb. to the square yard.

SUMMER TREATMENT.

Few people appreciate the value of the hoe. It is almost a mysterious tool in the way it works. It should be used after

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every heavy fall of rain or watering. It should stir the soil lightly every three weeks to maintain a light surface or tilth.

Unless we have a wet summer, liquid manure water two or three times during July, with occasional heavy floodings of the rose-beds, is one of the best things in order to secure this late growth, which brings the flowers. It may be noticed that I use the word "flooding" in preference to "watering," because few people appreciate the amount of water necessary to penetrate a soil which is at all dry, to be of any good to a deep-rooting plant such as the rose.

To penetrate to the roots, not only a quantity of water but time is required. A bed should, therefore, be watered about three times in an evening, after which a trowel should be used to see how far the water has penetrated the soil. If watering is repeated three days running, it is far better than at intervals of two or three days.

In cutting blooms of the first crop we should cut stems sufficiently long to avoid leaving a long, leggy plant, bearing in mind that this is a summer pruning for the next crop of flowers. If we do not cut our flowers, the same remark applies to the cutting of old flowers and seed vessels, which should be removed as soon as possible, for these much retard a new growth.

Material for spraying the new growths should be kept in stock so that it is to hand to use against aphis immediately they are observed, for aphis may quickly spoil the next crop of flowers.

LATE SUMMER AND AUTUMN VARIETIES.

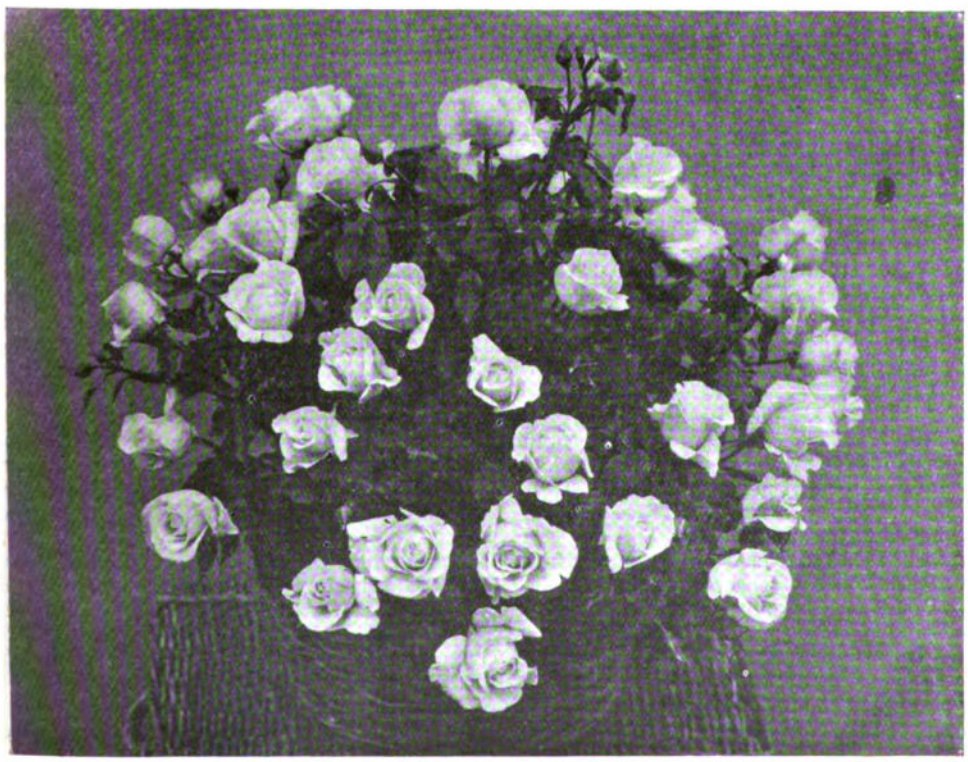
The galaxy of June roses obtained from the old hybrid-perpetual and other summer roses may not be easily repeated, but with a good selection of the continuous-blooming and more perpetual hybrid teas there need be no break of flowers from May until autumn in the south, or from June farther north.

In consequence of the cold summer of 1923, most of the hybrid teas flowered well in the autumn when we had better weather; but a list made last autumn would not be entirely reliable for every season.

Included among the more reliable varieties would be: *Crimsons*—Hadley, Hoosier Beauty and Colonel Oswald Fitzgerald.

Among *Reds*, Queen Alexandra is a remarkable variety that should be included in every garden. A peculiar feature of it this season is that the old gold reverse to the petals is scarcely to be seen. Victory and Richmond are also good, and the newer Etoile d'Holland may be included with its parent, the beautiful General McArthur.

CHRISTINE, OF A DEEP GOLDEN YELLOW, UNUSUALLY FREE AND KEEPS ITS COLOUR.



AN ACCOMMODATING VARIETY OF UNUSUAL EXCELLENCE AND DELICATE TONE OF COLOUR, MRS. H. MORSE.

Of *Rose Pinks* we have an ample choice. That wonderful old variety, Mme. Caroline Testout, would be included, although it may not be everyone's shade of colour. Columbia, Premier, Lady Alice Stanley and a variety I would like strongly to recommend Rose Marie, a lovely rose for the garden, comprise a quartet of varieties that last a week when cut and in water. Mrs. H. Morse may also be included, although this could be classed with Mme. Abel Chatenay, which has never yet been beaten. *Paler Shades* would comprise Ophelia and the more richly tinted Mme. Butterfly.

Among *Whites*, Frau K. Druschki flowers well but less freely than the dainty Clarice Goodacre.

The *Yellow* varieties include Christine, Golden Emblem, Souvenir de Claudius Pernet, Golden Ophelia and its improved form the new Roselandia, also that lovely apricot-tinted yellow, the Rev. F. Page Roberts. Souvenir de Mme. Boullet is another to make a note of.

The *Copper, Orange* and *Apricot* varieties provide a wealth of colour for the autumn. Those who have not enjoyed the richness of Los Angeles or of W. F. Dreer, its half-sister, have a treat in store.

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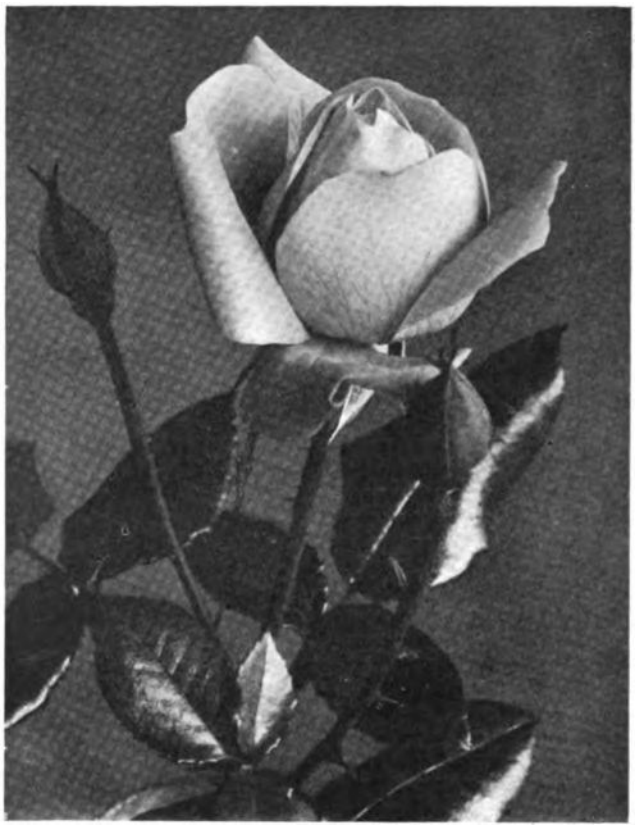
Mme. Herriot, Lady Pirrie and Independence Day are popular ones; while Aspirant Marcel Rouyer, a new rose with an awkward name, has a great future, for it is a greatly improved Sunburst. Those who like singles will find Isobel the queen of this class, her wonderfully tinted flowers are reliable in late summer as well as early.

THE CLIMBERS.

Of climbing roses the rose garden of twenty years ago had few to make it bright. Indeed, on the contrary, there was a sadness as of departed summer while summer was yet with us.

The early ramblers of May and June finished with the Wichuraianas in July, but with the climbing hybrid teas we have a wealth of material to maintain the rose garden gay until autumn in keeping with their dwarf and bush originals.

Our old friend Mme. Abel Chatenay is still to the fore in its climbing form, but if I only grew one, methinks it would be Climbing Paul Lédé, because it grows well everywhere. Its



ONE OF THE SUPREME GOLDEN YELLOW VARIETIES, GOLDEN EMBLEM.

shapely salmon-tinted flowers in summer assume an orange and copper tint in autumn. Climbing Richmond, Climbing Ophelia and Climbing Lady Hillingdon should all be included. For pergola or pillar work Souvenir de Claudius Denoyel is a gorgeous shade of crimson whose deliciously fruity fragrant flowers make it indispensable to all who want the best. Climbing Château de Clos Vougeot is less reliable, yet worth the while of all to try. It is easily the most magnificently coloured dark red rose, blackish crimson with brighter red edge to the petals. Those who can make this rose "do" have their reward where it succeeds. Its flowers hang a week on the plant, and the hotter the sun so much better is the colour it develops, for it never "blues" except in cold wet weather.

Such is a short list of our best friends among roses—those which prolong the glories of summer. There are others, there will be many more to come, but with them we may have roses from May until October.

LAURENCE J. COOK.

THE STORY OF THE ROYAL BOTANIC GARDEN AT EDINBURGH

[This year marks the centenary of the Edinburgh Royal Botanic Garden in its present position at Inverleith. With the exception of Oxford, Edinburgh is the oldest botanic garden in the British Isles. As well as being a botanic garden, it is a great teaching centre under the able directorship of Professor W. W. Smith, since the department of botany of the University of Edinburgh is situated within its confines. Since the days of Sir Isaac Bayley Balfour this garden has specialised in systematic work connected with the flora of China and the neighbouring countries, and it was mostly due to the untiring energy of Sir Isaac that so many magnificent new Chinese plants have found their way into the gardens of this country. A feature of the Edinburgh school to-day is the interest that is taken in the intricacies of plant propagation. No doubt our readers will remember Professor Small's interesting account of the demonstrations which took place at Edinburgh six weeks ago. No visitor to the capital of Scotland should miss seeing these magnificent gardens.—ED.]

THE mere mention of the Botanic Garden at Edinburgh will bring to the minds of many readers of THE GARDEN a vivid picture of an area some 58 acres in extent where may be seen a great spectacle of plant-life assembled from all over the world, each member, one feels, possessing an individuality of its own. And indeed, if one has the good fortune to walk round with the Regius Keeper or the Head Gardener and learn of the way of this plant and of the needs of that, the feeling becomes a definite assurance. Botanists and horticulturists most competent to judge will tell you that the garden is one of the finest institutes of its kind, while the thousands of visitors who pass through its gates testify to the appeal it makes to those who love plants and flowers, perhaps, for their beauty alone.

Yet this extensive collection of plants had but a small beginning, and it may be of interest to give a very brief outline of that historical development which has culminated in the now famous garden of to-day, the present year marking its centenary in the site which it now occupies in Inverleith on the north side of the town.

Most botanic gardens have had their origin in physic or medicine gardens, and that of Edinburgh is no exception. It owes its inception to the designs of Sir Robert Sibbald, an eminent Edinburgh physician of the seventeenth century. Sibbald was intended for the ministry and was sent to the College to study theology; but science attracted him more, and he went abroad in pursuit of medicine. In 1661 he qualified as a doctor in Paris and in the following year returned to Edinburgh and settled down to medical practice. He soon became acquainted with Dr. Andrew Balfour, also a physician, and with Patrick Murray, the Laird of Livingston in West Lothian. Murray was much interested in the cultivation of useful plants and had a good collection of them. When he went abroad, Sibbald and Balfour, by this time fast friends, secured many of them for the purpose of establishing a physic garden in Edinburgh, and in 1670 a small piece of ground at Holyrood, not so large as a present-day allotment, was stocked with medicinal plants, mostly from Murray's collection but partly also from Balfour's private garden. This was the foundation of the Royal Botanic Garden of Edinburgh, the second oldest in Great Britain, that of Oxford, founded in 1632, being the oldest.

Into this small garden at Holyrood the two physicians, together with a James Sutherland, to whom the care of the garden was entrusted, brought together a collection of eight or nine hundred plants. In 1677, the same physicians obtained from the Town Council a lease of a piece of ground situated below the Calton Hill, just where the north-east portion of the Waverley Station now stands. This area they converted into a second medicine garden, known as the Town's Garden, the same James Sutherland being appointed to its charge. Still later, in 1702, the Town College, now the University, founded another and third physic garden at "Kirk o' Fields,"

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close to the College buildings, and of this College garden also Sutherland became custodian. Thus, in the beginning of the eighteenth century there were three physic gardens in Edinburgh, with Sutherland in charge of all of them. This position brought the man into great prominence, and the University appointed him Professor of Botany, while the King made him King's Botanist in Scotland. Sutherland proved himself an enthusiastic collector of plants, both British and foreign, and had between two and three thousand species under cultivation. As Professor of Botany he gave instruction to students at a fee of £1 per session, and for purposes of teaching he kept a specially arranged border of dispensatory plants. It is difficult to estimate the far-reaching influence which these early physic gardens of Edinburgh have had on the development of science and medicine throughout the world. Certain it is that, with Sutherland as King's Botanist and Professor of Botany, Sibbald as first Professor of Medicine, and Balfour as one of the founders of the Royal College of Physicians, they have given Edinburgh a Botanic Garden and School of Medicine of which she is justly proud.

A PORTION OF THE MAGNIFICENT ROCK GARDEN AT EDINBURGH.

In 1706 Sutherland resigned his charge of the Town's Garden as well as his Professorship in the University, but, remaining King's Botanist, he retained the care of the Royal Garden at Holyrood, and apparently carried also the title of "Regius Professor of Botany." Sutherland's successor was William Arthur, appointed in 1715; but as he became implicated in an unsuccessful Jacobite plot he held office only for a short period, and in 1716 was succeeded by Charles Alston. Soon afterwards the College garden was abandoned, and in 1729 the Town Council gave Alston the charge of the Town's Garden and appointed him Professor of Botany in the University. Thus the Royal Garden and Town's Garden were united under one keeper, and the Regius Professorship of Botany and the University Professorship were similarly combined. The dual post, once again established during Alston's period of office, has so continued to the present time.

In 1763, the Royal Garden and the Town's Garden proving too small, a transference was proposed by John Hope, who had succeeded Alston in 1761, and a new site, about five acres in extent, was secured in Leith Walk. Here the gardens did not remain very long, for Daniel Rutherford, who succeeded Hope, emphasised the need for more suitable ground. The change—not effected, however, until after Rutherford's death—was made in 1820, when the gardens, now under the care of Robert Graham, were removed to 14 acres of ground at Inverleith. The transference of all the plants took fully three years, and thus one hundred years have elapsed since the final establishment of the Botanic Garden of Edinburgh in its present site. During that interval there have been many changes, first under John Hutton Balfour, appointed in 1845, who gradually added to the size of the garden until the present area was completed in 1876, and later under Sir Isaac Bayley Balfour, who held office from 1888 until 1922. It is not too much to say that under him the whole establishment was completely reorganised. Plant-houses that were of no further use were removed or rebuilt and their range greatly increased. Scarcely anything of the old laboratories remains, an almost completely new block of buildings taking their place. The outside garden was entirely overhauled, and a rock garden, Balfour's special pride, created on a grand scale. Truly, Edinburgh Botanic Garden remains a monument to his persistent enterprise and unbounded zeal, a great constructive work which had taken him thirty-four years to complete.

A VIEW FROM THE GARDENS AT INVERLEITH.

In this necessarily brief account, in which an attempt has been made to give some idea of the early beginnings of the Royal Garden at Edinburgh rather than to dwell on later developments, no reference to the principal gardeners has been possible. In the list appear such famous names as John Mackay, George Don, William McNab and James McNab. Their history is another story, and its telling must be left to another time.

J. R. MATTHEWS.

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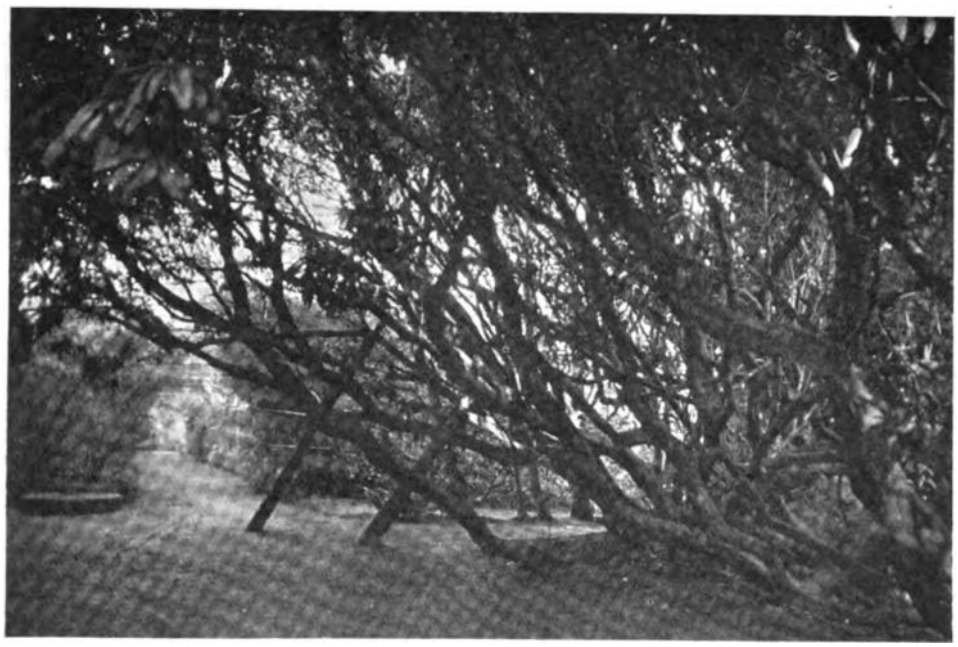
THE GARDEN AT LOGAN

LOGAN, the garden of Mr. Kenneth McDouall, lies on the Mull of Galloway, that narrow strip of land which runs south from Stranraer into the Irish Sea. To those who have not visited that district, Galloway is only known as a wild country where a breed of cows live and which is filled with lochs sprinkled among moors. This is known from Mr. Crockett's novels. What is not generally realised is that Galloway possesses in sheltered nooks and crannies along the coast what must be one of the most equable climates in the world. It is true that last spring they suffered from the results of eight or ten degrees of frost, but that was practically unheard-of previously, and they were not so badly treated by the weather as were the south and west of England. In many years Logan has only a degree or two of frost on the grass on an occasional winter morning, and even that is not common.

In some ways the country and the climate resemble that of Cornwall, but, on the whole, it is more equable and it rarely suffers from drought. The great advantage, from the gardening point of view, that the extreme south-west of Scotland possesses is that July and August are usually damp months and that they are never burnt up by the sun, as is so often the case in the home counties. I was told beforehand about the climatic conditions at Logan and expected to find a great garden, and I was not disappointed.

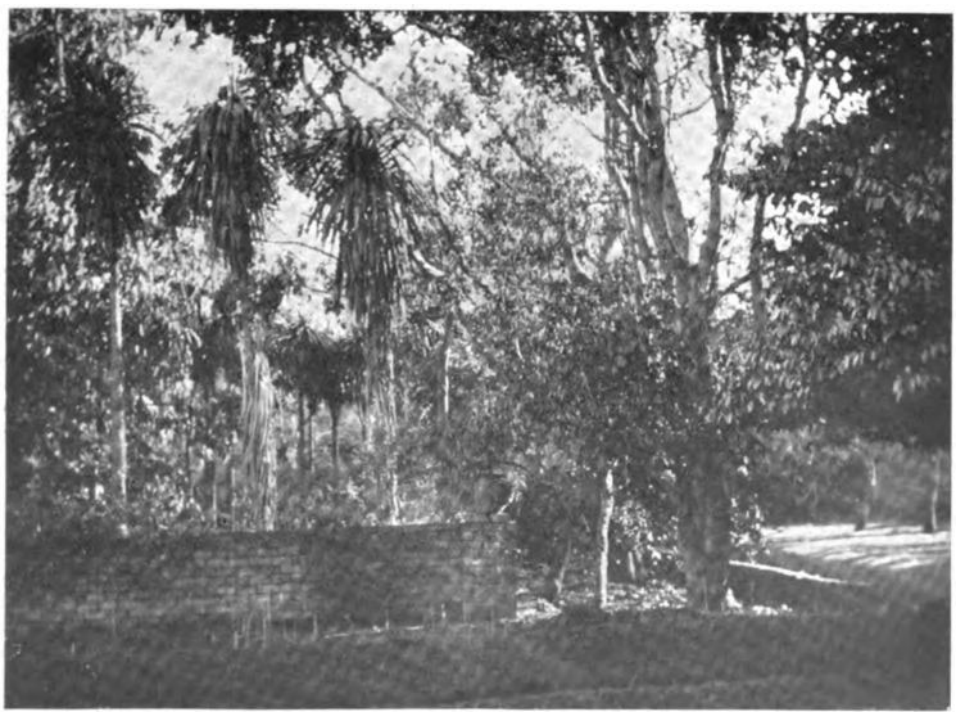


FINE RHODODENDRON HYBRIDS OF GREAT AGE.

Apart from the climate, Logan has one other great advanage. Both Mr. McDouall and his brother are such keen gardeners that they rarely leave home. They are constantly at work in their garden, with that skill and affection which is probably the greatest asset that a garden can have, for the more you put into a garden the greater the result will be—a common aphorism, but a true one.

Logan House faces south-east and looks over Glenluce Bay towards Sir Herbert Maxwell's house at Monreith. To the west lies the garden, and behind that a gently rising wooded slope filled with rhododendrons, and beyond that again the sea. Naturally, as the place is practically surrounded by the sea, there must have been a hard tussle to begin with to keep off the winter gales, which blow there with unexample ferocity; but this has been accomplished by means of hedges and belts of trees, while the slope to the west gives a very fair protection.

One of the first things which struck me at Logan was the fact that here was a garden filled with sub-tropical shrubs, and yet alongside of them roses and other plants which fill gardens elsewhere flourish with equal vigour. This is a very rare combination to find in a garden, and it speaks volumes for the fertility of the soil, for usually roses do not thrive in the moist, clammy atmosphere so necessary for the well-being of sub-tropical shrubs. The rose garden is particularly attractive, enclosed in bays of clipped yew, with taller specimens standing sentinel at the corners. Two of the illustrations to this article show the tropical appearance of this garden better than any number of words. One shows a line of dracænas of great size with two Australian gums of a growth rarely attained in this country, while the other is an illustration taken under some old rhododendron hybrids. This is the true form which the tree rhododendron takes in its native habitat, great branches with clean stems interlacing overhead, forming



THE TROPICAL APPEARANCE OF THE GARDEN IS SHOWN IN THIS ILLUSTRATION.

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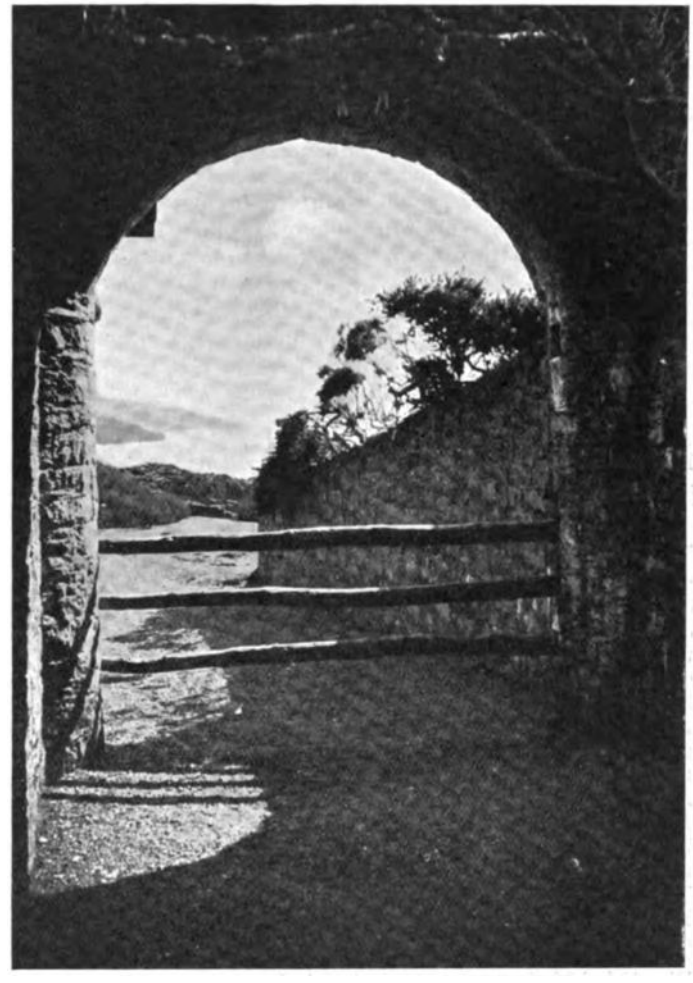
such thick shade that nothing will grow underneath. It is as well to say that this form of growth is by no means uncommon in this country, but it is only found in situations nearly perfect for the cultivation of rhododendrons. The Himalayan rhododendrons grow particularly well at Logan. Arboreum, Aucklandii, Falconeri are all prominent; but the bush that attracted my attention was one of R. Hookeri: although not the largest, it was the most healthy and shapely that I have seen, and R. Hookeri is usually very difficult. Most of them are planted in the wood beyond the garden. Among the larger bushes straggle those sweet-scented rhododendrons usually seen in greenhouses, such as Maddeni, Dalhousiæ, Edgworthii and their hybrids. They are all completely at home and are as healthy as anyone would like to see [In clearings in the wood and by the side of the drive down to the sea are beds of the newer Chinese seedlings. The illustration shows a portion of a bed of seedlings of R. sino-grande, which is extensively grown at Logan. As a rule, their large leaves are tattered and shrivelled, as this rhododendron is not over hardy; but among all the dozens of seedlings I saw in this garden I could not find any leaf which was not perfect.

Another point wherein Logan differs from Cornwall is that their climate allows them to grow the dwarf alpine rhododendrons with far greater success than in the west of England. At Logan they are grown on the peat terraces, which were described in THE GARDEN of July 26th, 1924, page 519. R. repens was in flower during my visit, and I also saw masses of R. calostrotum and R. myrtilloides, the latter with a mahogany-coloured bell of firm waxy texture, and, to my mind, one of the best of the dwarf rhododendrons.

The fourth illustration shows the western gateway with the road leading down to the sea shore and the fish-pond—and here I must break away from gardening for a moment, for Logan is the proud possessor of what must be the only salt-water fish-pond in the British Isles. It was made many years ago out of a natural cleft in the rocks which is filled at high tide by the sea. Although no longer in use from the food point of view, it contains numbers of large cod and some lythe. The cod are excessively greedy and snap voraciously at limpets held in one's fingers. A cod is not a pretty feeder and gurgles in his gullet when he snaps. Neither is he a dainty feeder, and one has to remove one's fingers in haste, otherwise they will be caught by his exceedingly sharp teeth.



THE WESTERN GATEWAY OF LOGAN LOOKING TOWARDS THE SEA.

To return to the garden. It is impossible to list all the subtropical plants and plants you never expect to see growing and flowering out of doors in Scotland without protection, such as the datura, for such lists only raise envy in the breasts of those not blessed with such a climate as Logan. Although it is the most favoured in this respect, Logan is by no means the only fine garden in the neighbourhood; both Monreith and Lochinch are within a few miles, and they both contain splendid collections of plants. In fact, that portion of Galloway which borders on the sea is full of enthusiastic gardeners: and little wonder, for it is a picturesque corner of Scotland and blessed with conditions suitable for gardening such as could not be found in a Sabbath day's journey.

As this is the time of year when most people from south of the Tweed visit Scotland, it is as well to point out that wherever one travels in Scotland it is a good thing to keep one's eyes open, for, although individual gardens may not be as well known as in England, yet, wherever one goes, one will find keen gardeners and fine gardens. In the east and north they are considerably behind England in time of flowering, so comparisons can be made of the different results obtainable north and south of the Tweed.

E. H. M. Cox.

SEEDLINGS OF RHODODENDRON SINO-GRANDE.
Note the healthy appearance of the leaves.

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FREESIAS FROM SEED

BY THE REV. JOSEPH JACOB.

WE live and learn. Modern ingenuity has made carnations possible all the year round. The potentiality of the freesia as yet is only imperfectly understood. As flowers go, it is a very new comer. One of the best books on bulbs ever published, called "Bulbs and Bulb Culture," by the late D. T. Fish, had nothing whatever to say about freesias. The edition I possess was published in 1885. Even then no mention is made of them, although in Barr's bulb catalogue for 1882 two varieties are listed, viz., Leichtlini at 3s. 6d. a dozen and refracta alba at half a guinea. In the same year THE GARDEN had a coloured plate on July 29th.

Much has happened since then. Freesias are now among the commonplaces of every bulb list. The introduction of coloured varieties—more especially, I think, the yellow ones with their delightful scent—gave them a new impetus. Few in 1882 can have dreamed dreams of the vast development that would take place within forty years. The find of the pinky mauve Armstrongii in South Africa brought in colour. Workers in Holland, Italy, America and Britain began to see visions, with the result that we have the freesia as it is to-day. Yes; but what may it not be to-morrow? From my own experience I think I can say there is a great future before it. We are learning—line upon line, here a little and there a little—slowly learning what can be done by cross-fertilisation and selection. The picture of a splendid potful in full bloom in August from seed only sown the previous March which appeared in Sutton's catalogue for 1923 must have opened thinking gardeners' eyes. That such a thing should be possible! A goodly array of flowers on plants which less than six months before were but seeds! This fact when it is fully appreciated will be found to be a big leg up to its development. No weary waiting of years as in the case of the daffodil! A freesia seed can give us a plant that will bloom as quickly as one from a sweet pea seed!

Will readers forgive my referring to myself? I am sending one of our largest firms ten thousand carefully cross-fertilised seeds this year. It is a straw which shows how the wind is blowing. The wind is zephyr-like now. Before long it will have become a gale—more than a gale, a hurricane, were all Britain the favoured south coast of the Isle of Wight or the warm nooks of Devon and Cornwall. It is no extracting sunbeams from cucumbers to have freesias blooming all the year round. I have three good pots in flower as I write, from corms sent me in March by Mr. Leonard Sutton, and flower-spikes are showing on little plants raised from seed sown last Jaunary. I had some quite decent-coloured flowers this last April from seed sown in July, 1923. Of course, one always gets a small proportion of bloom from seed sown about half an inch apart in seed pans. If, however, one year's experience is anything to go by, one can get good results in the following spring if the seed is sown more thinly in 6in. pots and the plants kept steadily growing on.

To me seedling raising is a great joy. There is a great inward satisfaction to feel that this or that family is like clay in the hands of the potter and that to a very large extent we are able to fashion it as we will. I had visions, when I began, of deep-coloured sweet-scented yellows of an open build. My Flame received the only award of merit given to a freesia this year by the Royal Horticultural Society. I have pure whites which are not far removed from stephanotis in shape and size. It has all been done by seedling raising and selection. Hence it goes without saying that the less time a plant is over its seed production the better for the would-be potter. This acceleration is indeed a "big leg up." How much more can be done in a given time!

To anyone who has a cool, airy greenhouse from which frost can be excluded and who wants a horticultural hobby full of interest and thrills might I suggest the raising of freesias from seed—home-grown, if in any way possible.

LATE-FLOWERING ALPINES

ALPINES which bloom in the later summer are by no means too plentiful; even the commonest kinds are very much in demand at this time of the year, and are also greatly appreciated. To a large number of alpine enthusiasts it seems to be a puzzling question as to what plants can be employed to give colour from, say, July onwards; and, no doubt, it is a troublesome point, as by far the majority of alpines have finished blooming by the end of June. Still, there are a good many, from which a selection is described below, that will prove helpful to readers in search of such information. We should be very grateful to the gentian family, as it provides quite a number of good plants suitable to the title of this note, and which are well worth growing. Some of them may be rather more particular about composts than others, but, I take it, that is all in the game, and in the end the extra time and trouble are often recompensed by good results. However, a good many alpine lovers know the good qualities the gentians possess.

GENTIANA ASCLEPIADEA.—Here we have "the willow gentian," a glorious plant for a cool moist corner in a good peaty loam, and which will grow to 2ft. or 3ft. high where it is suited. It is not difficult by any means, and freely produces graceful, slender stems furnished perfectly with oval pointed leaves arranged in pairs. Its lovely blue blossoms adorn the upper portions of the stems, sitting close in the axils of the leaves. August and September are the months these flowers are borne, when the usual lack of colour prevails in the rock garden. After the plants flower they soon die down for the winter and remain dormant until the following spring. Seed is generally plentiful, but it is rather slow work raising them and growing into flowering size plants; at least three years must be allowed.

GENTIANA SINO-ORNATA is still rather uncommon in gardens, undoubtedly due to its newness, having made its appearance in cultivation only a few years ago. It is one of the loveliest of its race, and of great merit. Flowering in October or so adds additional value to the plant, and for that reason alone it should become extremely popular, and no doubt it will become an "every-man's plant" before very long. Regarding cultural details, I shall suggest and advise treatment that I know to be successful, although I have heard of it thriving splendidly (in numerous cases) in composts that differ from the composts of my own experience. However, I find that a depth of 6ins. or 9ins. of a good mixture of peat, leaf-mould and silver sand in equal parts provides a happy home for this notable plant, in such a position where the sun cannot dry it out. Coolness at the root is a great help towards success. The plant is of prostrate habit almost, and soon makes a mat of dark green leaves, somewhat fleshy and narrow, borne on trailing stems about 6ins. in length; from the tips of these the flowers appear, in large trumpet form, of an Oxford blue shade, beautifully striped on the outside with quaint distinct lines. A close rival to this plant is Gentiana Farreri, very similar in habit and requirements; the colour of its blossoms is more of an electric blue, also striped, with a slightly darker shade on the outside, and the foliage rather narrower and more grassy. Both plants are natives of China, perfectly hardy and perennial, and die down after flowering and remain dormant during winter.

SILENE SCHAFTA.—This charming little plant is worthy of a place in any rock garden, as it hardly ever fails to give the utmost satisfaction with the least possible attention. It thrives in almost any well drained soil and enjoys a sunny aspect. The flowers are a rich pink colour, usually smothering the tufted, slender plant, which grows a few inches high. August being its flowering period causes it to rank among some of the best late-flowering plants. Seeds are readily

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set, and also germinate with ease, so that, once obtained, there should be no difficulty in keeping up an ample stock to supply ordinary needs.

SILENE CALIFORNICA.—Another item for showy flowers in August, desirous of a warm and sheltered position, in a compost of light gritty soil. It grows about 9ins. high, but the stems are rather lax and are inclined to flop about. At the apex of these stems are borne large solitary flowers of an intensely vivid scarlet, very shaggy and handsome. The leaves are green, oval and pointed. It is rather uncommon in gardens and has the reputation of being a fairly uncommon species, but still it seems to seed and germinate readily.

CYANANTHUS LOBATUS, COOPER'S VAR.—A plant of trailing habit with fleshy leaves and stems, much beloved by the ravenous slug. As an improvement on the old species it has larger and darker blue flowers. They may be likened to those of the "Periwinkle," with round inflated calyx covered with short black hairs. Its leaves are small, green and finely cut at the tips, with a covering of silky silver hairs on the underside. Moisture at root is the key to success, with sunshine; failing this, a cool, semi-shady position is advisable, in a mixture of gritty peat and leaf-mould.

SAMOLUS REPENS.—A quaint carpeter from Australia, needing special care in allotting it its future home. Being a somewhat tender plant, it should be awarded a warm position, sheltered from cold winter winds, in light, gritty soil. It is prostrate in habit, seldom more than a couple of inches high, with tiny leaves of a coppery colour, and abundant flowers in July or August that are almost white, a slight tinge of the faintest pink being present; however, they make a fine contrast to the foliage. Although it is not very showy, and never hits one in the eye, it is quite a dainty little alpine.

ONE OF THE LOVELIEST OF ITS RACE, GENTIANA SINO-ORNATA.

ZAUSCHNERIA CALIFORNICA MEXICANA.—In the late summer this plant blooms in profusion, blossoms of a wonderful scarlet, dangling from slender upright stems of a foot or 18ins. high, and in shape of long narrow trumpets; but it must have one of the sunniest aspects, particularly where it will be kept fairly dry, especially in winter. The foliage is rather hairy and presents a grey-green appearance. The soil should be light, gritty and well drained, and small plants then grow quickly into good-sized clumps.

ŒNOTHERA MISSOURIENSIS.—From late July onwards for several weeks large clumps of this delightful "evening primrose" are seldom without flowers; although individual blooms are very short-lived, there is a good continuous supply always following on. About 4ins. is the diameter of the exquisite, almost sessile, primrose-yellow flowers when fully expanded, but usually they are like large shallow cups, and do not open out as much as is possible. They rise from the axils of the long narrow leaves, which are dark green. The stems are thick and fleshy, dark red in colour, and grow about 12ins. in length, but they do not appear bolt upright—they always, more or less, lie or attain a semi-procumbent habit. It is one of the easiest to grow, asking only for a sunny position in ordinary good loam. For the wall garden it is also delightful.

INULA ACAULIS.—Here is a choice and uncommon alpine, fit for a position in the moraine, where it will form dense low tufts of dark green foliage, not exceeding a height of 3ins. In the late summer numerous flowers appear, stemless, nestled snugly among the leaves, like golden baby sunflowers an inch across. It is perfectly hardy and a sound perennial.

CERATOSTIGMA PLUMBAGINOIDES, probably better known as Plumbago Larpentæ, a typical autumn-flowering plant, is indigenous to China. It requires a warm, light, sheltered position, then it will run about freely underground and soon make a handsome patch of leafage on red stems 6ins. high. The flowers are borne in heads and are deep blue in colour.

Note.—With the exception of samolus and inula, all the plants referred to lie dormant in winter. F. BARKER.

THE CAUCASIAN CATCHFLY (SILENE SCHAFTA) IS WORTHY OF A PLACE IN THE ROCK GARDEN.

FORTHCOMING EVENTS.

September 2nd.—Glasgow and West of Scotland Horticultural Society's Show, to be held in Kelvin Hall, Glasgow (four days).—Croydon Horticultural Society's Meeting.—Royal Caledonian Horticultural Society's Meeting.

September 6th.—Blackburn Horticultural Society's Meeting.—Falkirk Horticultural Society's Exhibition.

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COMPLETE MUSHROOM CULTURE

MUSHROOMS all the year round is an impossible ideal, for through the heat of summer it is impossible to grow sufficient to justify the trouble. For about nine months of the year, however, spendid crops result and, by a succession of both indoor and outdoor beds, an unbroken supply is easily kept up.

Growing in the natural way, in a meadow or on the lawn, is a method that is worth much more extended practice, and the time to begin this is in June. It is a very simple matter, and all that is necessary is to lift pieces of the turf, about 1ft. square and a similar depth. Put in 9ins. of fresh horse droppings and ram this as hard as ever you can, then insert a piece of spawn, replace the cut-up turf and again ram well. This is by no means a one-season experiment, for you will gather a splendid crop of mushrooms during the August and September following the insertion of the spawn, and for many years afterwards this will spread and become more and more prolific, far from the original spots in which it was planted. Production in later years may be enormously stimulated by the application of a handful of salt spread over each square yard of ground, which, while it increases the yield of mushrooms, does not injure the grass.

Forcing outdoors from July to April is a very easy matter, if certain methods are observed from the outset The two things most important are the manure and the spawn. The manure should come from horses that are well fed, and too great care cannot be taken in turning and re-turning the heap so as to get rid of all rank steam. While the manure should be sufficiently fresh to ferment freely, it should not be used too fresh, or fermentation may be so violent that the centre becomes white, which necessitates taking down the whole bed and remaking. Throw the manure up into a conical pile and turn it two or three times a week. Plenty of short strawy litter is an advantage, as it tempers the heat, and, if the manure is nearly pure, about one-eighth its bulk of garden soil should be added or there is danger of overheating. Take care, in turning your heap, that the manure which was previously on the outside is turned in to the centre and *vice versa*. Three turnings, as a rule, are sufficient to ensure a proper condition of the manure, but this depends to some extent upon its moisture when received. If very wet, a longer time must be allowed; while, on the other hand, where very dry, it should be damped slightly or it will quickly become white in the centre. Needless to say, perhaps, that steps must be taken to protect the heap from heavy rains while it is heating in preparation for the bed.

Making the bed demands just as much care as the preparation of the manure. Let it be sufficiently large, otherwise it will soon cool, and a great point is to maintain a steady lasting heat. Beat, tread and ram the manure as hard as you can possibly get it, right from the very bottom, and build your bed so that it will be about 4ft. wide at the base, sloping up nearly to a point at a yard high. A thermometer will be necessary to test the heat, for, immediately after making, this will probably rise to 90° Fahr. or more. In a week or ten days this will decline to 80° Fahr., and then is the time to spawn. If the heat rises very considerably, the safest way to cool down is by making several large holes, here and there, through which the excessive heat can make its escape. Do not leave these open too long, or the cooling will be too rapid.

Spawning consists in breaking each brick into eight pieces and inserting these all over the surface of the bed, at distances of 1ft. apart. These pieces of spawn should be inserted perfectly flat, so that there is no air space left behind them, and covered to about the thickness of the brick with manure. The whole bed should now be covered to a depth of 1in. with garden soil, using this sufficiently moist so that it will stick on and not fall off in flakes. Begin this earthing at the bottom and work upwards and, at the top of each spadeful of soil that is packed on, leave a slight ridge so that the soil above will be kept from slipping down.

Having well earthed the bed, the whole should now be covered with a layer of straw to a depth of at least a foot. In about six weeks mushrooms will begin to appear and the yield should continue for three months, especially if, as they become dry, the beds are just moistened occasionally with liquid manure warmed to 75° or 80° Fahr.

Cleanliness of the crop is vastly improved by covering the whole bed with a sheet of canvas before the straw is put on, keeping it in place by pegging at the corners. This also greatly simplifies the gathering, for, where only a straw covering is used, one is very apt to break the mushrooms in forking off the straw. Mushrooms should never be cut with a knife, but pulled out so as to remove the whole of the stalk. Failure to do this leaves the stump of the stalk still in the bed and this rapidly becomes a black lump of decay, which has the effect of killing the mycelium that is spreading in the manure around it and thus prevents the growth of further mushrooms.

The making up of other beds to provide a succession should not be neglected and, as the months advance and we get further into the colder weather, care should be taken to place these in more protected positions and also to increase the depth of the covering straw. Nothing "sucks" the heat from the bed worse than wind, and this is the first point that should be guarded against, by placing the bed at the foot of a wall which gives shelter from the north and east. In very exposed places, the best plan of all is to sink the bed entirely below the ground. Take out a pit and, when the manure is in proper condition, throw it into this, treading as the work proceeds so as to get the whole very firm. Let the top of the bed be about 1ft. below the ground level and spawn the surface in the usual way. It is very easy to place boards over the top of such a bed and bury these under straw to any required thickness, and a bed made upon this plan is usually very productive for a long period. Beds that show signs of becoming exhausted may often be revived by allowing them to approach dryness and then giving a thorough watering with warm salt and water, 1 oz. of salt being dissolved in every gallon of water.

In all cases one can scarcely be too careful as to the source from which spawn is procured, for its freshness is one of the most vital points. Poor spawn is worse than useless and will never produce a good crop of mushrooms. It is not so much a question of age as the conditions under which it is stored. These should be dry and cool, warmth and moisture being the essentials to start the mycelium running. Purchase your spawn, therefore, from a good firm, which has available the best conditions for storage and from which there is a quick sale.

Indoor culture presents no greater difficulties than any of the methods hitherto described, and any building that is well away from the house, such as an old shed or stable, may be utilised with just as profitable a result as in the regular mushroom house. Observe similar care in the preparation of the manure, and see that, while it is sufficiently moist to ferment readily, it is sufficiently dry to have a certain amount of "spring" in it when trodden, as this is just the condition under which the spawn runs most rapidly.

For indoor beds, a foot thick is sufficient, and care should be taken not to spawn until the thermometer tests show that the temperature has fallen to 80° Fahr. Cover the surface, after spawning, to the depth of an inch with garden loam that has been passed through a ¼in. sieve. Keep the temperature about 70° Fahr. by means of the hot water apparatus, if a greenhouse or other building is being used, but in the case of a stable or outhouse maintain the temperature by means of a thicker bed and a deep covering of straw. In the case of a heated house it is better not to use a straw covering, as it has the disadvantages of encouraging woodlice, and also the spawn from the bed is apt to become drawn into the litter. More water will be required in a heated house, but too great care cannot be taken to avoid over-wetness, as this is rapidly fatal to the running spawn. Always use tepid water for moistening purposes and see that paths, walls, etc., are damped efficiently, as well as the manure of the bed. Ventilation on a moderate scale should not be neglected, for it is important to keep the atmosphere sweet, though air should not be admitted in such quantity as to lower the temperature or unduly dry the atmosphere.

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Where mushrooms are grown indoors, whether the building be an ordinary greenhouse or a shed or outhouse, do not fail to recognise the importance of light in producing results of the very best quality. Where light and air both circulate freely, the mushrooms are thick and heavy, while those grown in the dark are thin and generally lacking in flavour.

Mushrooms may also be successfully raised in pots, but, owing to the limited size of these, the crop cannot be expected to be a heavy one and, owing to the fact that these pots have to be plunged in a bed of fibre, it is much easier to make up a small outdoor bed, which will unquestionably give better results.

Before leaving the subject, a word must be said concerning the various pests that may be encountered. Allusion has already been made to woodlice, and to these may be added slugs and snails, the larvæ of several flies, and, possibly, rats and mice. Slugs and snails are best dealt with by the time-honoured method of trapping by bran or a cabbage leaf. Woodlice will congregate in pots filled with hay and can then be destroyed by turning this into boiling water. Mice and rats should be killed by trapping or virus. Spraying the beds with weak salt and water is the best remedy against the fungus gnats, but care should be taken not to make the surface too damp. H. W. CANNING-WRIGHT.

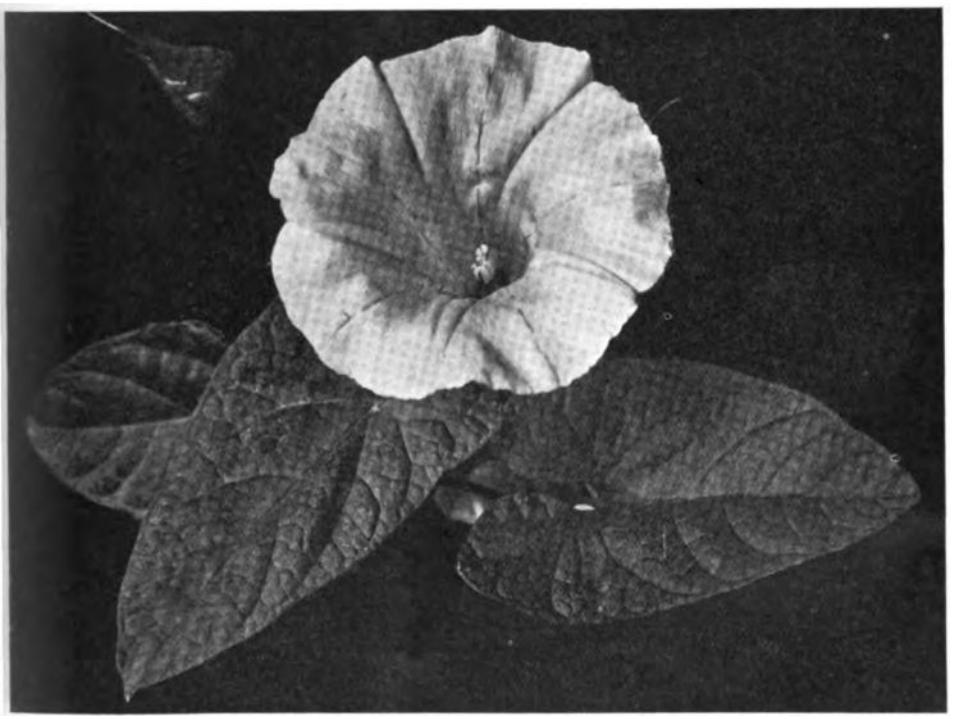
NOTES FROM CONTRIBUTORS

TWO LARGE FLOWERED "BINDWEEDS."

THE ordinary native bindweed (Calystegia sepium) is too common a plant to find a place in gardens, charming though it is. Practically a form of it, but infinitely showier, Calystegia sylvestris, a native of South-eastern Europe and North of Africa, is, however, well worth growing.

The plant is a very strong grower, sending up twining stems over trees and fences up to 12ft. or 15ft. high. During most of the summer, it produces beautiful satiny white flowers, faintly shaded pink on the outside, that measure 3ins. to 3½ins. in diameter, which is at least double or treble the size of those of Calystegia sepium. What makes the species quite distinct are the two large floral bracts, slightly margined with pink, which hide the calyx almost entirely and are conspicuously rounded, with their base ventricose and keeled. The buds are also plump and heart-shaped. The flower is about as long as it is wide, and is borne on a pedicel 4ins. or so long. The foliage is more developed than in C. sepium, distinctly wider at the base and shorter in length. It is generally more lobed at the base and its tint somewhat deeper.

As a whole, C. sylvestris can be ranged among the most ornamental climbers, both for the ordinary or for the wild garden. Nothing more lovely can be imagined than the base of a large Lawson's cypress, dotted, in July and August, with the attractive and large flowers. Anybody who has seen this will long wonder why the plant is not more commonly met with. Its only drawback, like C. sepium, is its invading habit; but provided one is forewarned, measures can be taken to keep it in bounds. The best way is, probably, to build up round the clump an underground fence of tiles or other builders' material, or to keep the rhizomes severely in check every year.



CALYSTEGIA SYLVESTRIS ROSEA WITH BLOOMS OF A DELICATE SOFT PINK.

Beautiful as C. sylvestris is, its variety rosea, a rare form, is still more showy. It has flowers quite as large as the type and of a soft pink. Occasionally one finds it in catalogues under the erroneous name of C. sepium rosea or flore incarnato (C. dahurica), which is quite a distinct and, in the mind of the writer, inferior plant. With it, as with the type, one can make beautiful arches, columns, wall coverings, etc. It can also be used to advantage for climbing up conifers and small trees of strong nature that have a bushy base.

One point not to be missed about these calystegias is to grow them always in a sunny or half sunny and open situation and in soil of fertile nature; otherwise they flower shyly and their blooms do not attain full size and beauty. The propagation of these bindweeds is easy; any tiny underground stem will grow the following season into a new plant, but will, as a rule, show best its second year after it has taken full possession of the ground around it.—C. L., *Paris*.

SOPLEY PARK, HAMPSHIRE.

SOPLEY PARK is the residence of Mr. J. Kemp-Welch, and in the beautiful and well kept gardens, which, practically, surround the mansion, there are many features that arrest the eyes of the visitor, excite his curiosity, arouse his interest and almost tempt him to covet. I had the privilege recently of inspecting these gardens, which are so well managed by Mr. James Murray, the competent head-gardener. To do full justice to these gardens I should have to write a long article, but I only intend to refer to a few features in them that may be interesting to readers. First, I should mention a scheme in blue and shades of blue in a greenhouse. Groups of achimenes, heliotrope, etc., filled the stages, and I have to admit never having seen a more simple combination nor one more pleasing. The old tree carnations were—at the end of July—flourishing still and bearing huge flowers freely. The lawns were lovely, reposeful and a fit setting for the many fine specimen trees. The prevailing colours in the flower-beds were blue and varying shades of it. In a recess backed and flanked by trees and shrubs, and on which the visitor comes suddenly on turning a corner, a rosery has been established right away from other kinds of flowers. Pansies are used as a groundwork, and the general effect is most pleasing. The paths are formed in graceful curves, but in the fruit and vegetable gardens they are straight and tend to the economical working of these quarters where vegetables of all kinds are grown to perfection. The apples and pears are equally well looking, many trees being loaded with clean fruits. Standing out were pear Doyenne du Comice and apple James Grieve. Under glass grapes, including Muscat of Alexandria, peaches and nectarines, figs, melons and tomatoes were huge crops, quality throughout being conspicuous.—G. G.

THE MONTPELIER RUSH.

FEW people know Aphyllanthes monspeliensis, the Montpelier rush, yet it is a plant of high interest in every way and, when it flowers, not to be despised or overlooked, so distinct is it in every way. It belongs, I believe, to the lily family, and comes from the South of Europe and North of Africa. To see it out of flower you think you are looking upon a spreading tuft of rushes of glaucous grey-green and giving no promise of what is to come. By and by, if the conditions are propitious, little brown bud-like sheaths appear at the top of some of these rush-like growths, and then there emerge from these attractive six-rayed flowers of blue. It is quite a delightful plant if you can flower it; if not, it is interesting, but disappointing. In its native lands it seems to seek for a little shelter from the

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fierce sunshine, and is to be found mainly in partial shade, but in most of our gardens it delights in full sun, although in the south the shade of a shrub is often helpful in inducing this flowering bush to bloom. I have seen it flowering admirably in the garden of a keen grower on the top of a rockwork bank and exposed to all the sun of the day. But this was in a garden near the Forth, and there, as in the North of England, it required all the sun it could secure. This plant grows naturally on rather stiff soil, but with us should have a lighter compost. A rich, deep loam has been recommended, but I think it prefers one of loam and leaf-soil, with or without a little sand, according as the loam is heavy or light. It is frequently long in coming into flower, as it is generally over-divided in nurseries. It hates disturbance, but the economic conditions of a nursery are such that this must be done or it would not pay to retain it in stock. When planted and happy, it should be left alone, and its owner will in time enjoy its flowers.—S. ARNOTT.

THE MIXED BORDER.

THE "thirty acre" gardens which Bacon seems to think the smallest that are worth consideration, and all those delectable rose, rock and herbaceous borders described in horticultural papers, while eminently desirable, are, alas! beyond the reach of those readers who possess only small villas and the grounds thereto attached. These will be well advised to turn their attention rather to the mixed border, which, like genius, shows to most advantage within narrow limitations. It may surprise them to hear what a number and variety of plants may be grown in a patch of ground only 25yds. long and 6ft. in breadth, and how, with forethought and care, a succession of blooms may be maintained in it throughout the year. Thus, a short description of a border of this size may serve as a consolation and suggestion. It is situated in an East of Scotland villa garden and has a southern exposure, and a red brick wall to shelter and form a background to it. On the top of this wall, 5½ft. high, Erinus alpinus, Dianthus deltoides, alyssum, etc., have established themselves. Against it two plants of Senecio Greyii have been placed, one at either end, whose grey leaves are beautiful all the year round and whose great panicles of clear yellow flowers make a fine show in summer. Between those are placed also three freely flowering roses—a Dorothy Perkins, a Conrad F. Meyer, and an old-fashioned nameless white rose more sweet-scented than any of them. In the spaces still left are specimens of Berberis Darwinii, Choisya ternata, Cistus ladaniferus, C. purpureus, Escallonia macrantha, Jasminum nudiflorum, Kerria japonica, Phygelius capensis, Veronica Hulkeana, and Weigela rosea.

The soil of the border is poor and sandy and requires frequent enrichment; in spite of this, the plants thrive wonderfully. The following flowering shrubs, most of them evergreen, save the border from having the bare and blasted appearance of the ordinary herbaceous border during the winter: Cistus algarvense, C. crispus, C. lusitanicus, C. salvifolius, Cytisus Ardoini, C. præcox, Ononis rotundifolia, Philadelphus Avalanche, Spiræa arguta, S. decumbens, Veronica Autumn Glory, V. parvifolia, V. pinguifolia and V. cupressoides. The herbaceous plants are mostly in clumps, but some of them are only single plants. They are Aster Beauty of Colwall, A. Climax, Armeria cephalotes, A. setacea, Anemone japonica Lord Ardilaun, A. Pulsatilla, Anchusa myosotidiflora, Artemisia argentea, Campanula Moerheimi, C. macrantha, Centaurea stricta, Centranthus coccineus, Chrysanthemum Bronze, C. King Edward, Dictamnus Fraxinella albus, Echinops Ritro, Helleborus niger, Helenium autumnale, H. Riverton Beauty, Single hollyhocks, Iris Queen of May, I. pumila violacea, Megasea purpurea, Montbretia germanica, Orobus vernus, phlox red and white, Pulmonaria rubra, Polemonium cœruleum, Polyanthus primulas, Rudbeckia laciniata plena, Scabiosa caucasica, Statice latifolia, Tradescantia virginiana, Thalictrum aquilegifolium, Verbascum densiflorum and V. Weidmannianum.

There are also a few clumps of bulbs—Chionodoxa Luciliæ, Colchicum Bornmülleri, Erythronium Pink Beauty, Lilium candidum, L. umbellatum, Narcissus Queen of Spain, N. Emperor and Muscari conicum.

The edging of the border is made of old whinstone causeway blocks, rising about 4ins. above the gravel walk, and made up behind with stone chips, rough sand and old leaf-mould into a soil suitable for alpines. The following plants fill the ground behind the edging, and some of them grow over it on to the path: Acantholimon glumaceum, Antennaria dioica, Anthyllis montana rubra, Arenaria balearica, A. montana, Aubrietia Dr. Mules, Calceolaria poyrrhiza, Campanula muralis, C. Profusion, C. turbinata, C. Warleyii, C. White Star, Dianthus deltoides, D. cæsius, D. fragrans, Erigeron alpinus, Erodium guttatum, E. Reichardi, Geranium lancastriense, G. Traversi, Genista tinctoria fl.pl., Gnaphalium Leontopodium, Gypsophila rosea, Hypericum olympicum, Iberis Little Gem, I. petræa, Lithospermum prostratum, Mertensia primuloides, Phlox frondosa, P. Nelsoni, Potentilla nitida, P. Tonguei, P. Miss Willmott, Saponaria ocymoides, Saxifraga Aizoon and varieties lutea and rosea, S. apiculata, S. Cotyledon, S. Elizabethæ, S. lantoscana, S. ligulata, S. sancta, S. Wallacei, Scabiosa Pterocephala, Sisyrinchium bermudianum, S. striatum, Silene acaulis, S. alpestris, S. Elizabethæ, S. maritima fl. pl., Smilacina bifolia, Sedum album, S. kamschaticum, S. reflexum, Sedum spurium coccinum, Statice auriculæfolium, Teucrium lucidum, Tunica Saxifraga, Veronica incana, V. pectinata rosea, V. Bidwillii, V. Catarractæ, V. Guthriana and V. pimeleoides.

At present, although the plants are rather crowded, they give little trouble beyond that required to prevent them encroaching upon one another; indeed, some of them have not been disturbed for years, although they all get a top-dressing annually.—H. W. L.

CORRESPONDENCE

THE BREAKING OF TULIPS.

SIR,—In your issue of April 5th, Mr. W. A. Watts made the best contribution to the vexed question of The Breaking of Tulips that I have ever read. When I lived in Dundalk I lost many varieties through this cause, and nearly every variety "broke." It is undoubtedly due to some disease which has the power to live in the soil and so infect any tulip bulbs planted in it. Of course, some sorts are better able to resist this disease than others. Mr. Watts recommends dusting the bulbs at planting time with green sulphur. Does he mean common flowers of sulphur, and could the bulbs be dressed now? I have them in bags. Would it do to put some of the sulphur in each bag and shake up the bulbs?—IGNORAMUS.

[We forwarded the above letter to Mr. Watts, who replies as follows: "In reply to your correspondent 'Ignoramus,' the sulphur I use is the green sulphur generally used for horticultural purposes. It is very fine, finer I think than the yellow flowers of sulphur and therefore better suited to the purpose. I use a little powder distributor, which costs about 1s. at a chemist's, and fill it about one-third full with the sulphur, and give each tray containing the bulbs two or three good puffs before they leave my bulb sheds for the field. There is no reason why the bulbs should not be treated when lifted, and I may say that for many of my other bulbs, such as hyacinths, crocuses, daffodils, etc., I mix green sulphur and insect powder half and half and give a good dusting with this mixture as the bulbs come into the sheds from the fields. If there are any insects or any mould or fungus spores lurking round, this will check them. The amount of powder used is very small, the cost is inconsiderable, the application very simple, and the result, in the case of tulips, at any rate, most satisfactory. Next season I intend to apply the sulphur in the early spring to the young foliage of the tulips with a knapsack powder distributor, with the idea of checking 'fire.' The latter is so apt to appear, after frost or rough weather, on the damaged foliage; but my chief object in using the sulphur on tulips is, as I have previously explained in your columns, to give the bulbs protection from some unknown fungus which I believe to be the cause of 'breaking.'"—ED.]

EVERGREENS IN A FRENCH GARDEN.

SIR,—Will you allow me to ask the readers of THE GARDEN if any one of them will send me some seeds of Piptanthus nepalensis (the evergreen laburnum)? I will, of course, pay for them and the postage. A small quantity will come quite well by post. Some kind anonymous readers of THE GARDEN sent me a great many seeds for "The Little Gardens of Reims." They were greatly in demand. I gave them away as prizes to the more deserving jardinets. I also sold about thirty of the resultant plants at the Kermesse at Reims last year for Les Blessés Mutilés de la Guerre. I could have sold hundreds. Everyone was asking for them. In the garden of the wonderful hospital which has been built by Americans on the outskirts of Reims, in memory of their fallen in the Great War, half a dozen plants of Nepaul laburnum grown from British seed are planted. So are rose trees, gooseberries and currant bushes grown from cuttings sent to me from Windsor Castle Gardens as King George's personal gift to the poor of Reims. Here I am planning a new garden for English people. There is a long stretch of north wall on which I want to induce interesting evergreens to grow. I shall be most grateful to receive any advice from my fellow horticulturists as to what to plant there.—VICTORIA SLADE, 11, *rue de l'Aquette, Grand Vaux, Savigny s Vige, S. et O., France.*

FRAGRANCE IN CALYCES OF RHODODENDRONS.

SIR,—A correspondent in your issue of June 28th draws attention to the fragrance of the leaves of Rhododendron oreotrephes, a quality which, as you point out, is shared by many of the species. One other quality has, I think, been less often noticed: the calyces of some rhododendrons have a distinct and delightful scent. Thus, the beautiful hybrid Lady Alice Fitzwilliam has calyces that smell exactly like the common scented-leaved geranium, though the powerful scent of the flowers is very unlike this. This peculiarity is shared by others of the Edgeworthii tribe and, if I remember aright, by R. ciliatum. Probably some of your readers have noted it in other kinds unfamiliar to me.—W. ARNOLD-FORSTER.

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SEEDLINGS AND THEIR PRESENT TREATMENT.

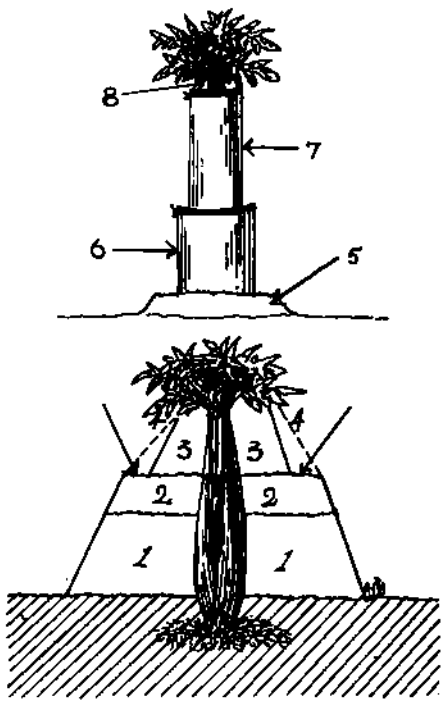
IN the early part of the year, the cultivator who wishes to raise batches of seedlings must meet and overcome many difficulties—late frosts, cold rains, general dampness and insect pests. In the autumn there are difficulties, too, some similar, others not. In the spring, warmer weather and more light come with every day that passes, and if there is a little overcrowding (always a mistake) there is not so much damage done as at this time, when colder weather and shorter days are ahead. So we at once realise the necessity for transplanting farther apart. The question of watering should be duly considered. We have to contend with fogs as well as rain and, later, frosts. Seedlings, now, do not require as much water as they do in spring. If kept on the dry side, it will be to their advantage, and when water must be applied it should be used about breakfast-time, not in the afternoon. In the spring, we try to keep cold winds from the seedlings, and few are placed on high, dry shelves, but nearer the front and middle part of the greenhouse, in the case of those raised under glass. Now, we place them on the high shelves to prevent overdrawing and damping. Seedlings in the open borders should be guarded against earthworms and slugs and the collection of foreign matter among them.

AUTUMN TREATMENT OF GRAPE VINES AND PEACHES.

Many amateur cultivators grow a few vines in a greenhouse structure along with a miscellaneous collection of plants. Such conditions handicap the owner when he tries to obtain that blue-black colour in black grapes and the coveted amber in the white. Even the grower who devotes a structure solely to the vines must act carefully during the colouring process and after the berries are ripe. In regard to the first referred to, all necessary watering of the pot plants should be done early in the day, and if there are stones or tiles as flooring, spilled water should be mopped up at once. Some night air is essential, but only sufficient to keep the atmosphere from becoming stagnant; this is not a difficult task where the hot-water pipes can be warmed at will. A stagnant atmosphere would result in split or decayed berries, or both. In the vinery itself a buoyant atmosphere is easy to obtain. The black grapes colour best under a canopy of healthy main leaves—not a cluster of lateral shoots. The white grapes require full exposure to the sunshine after the berries soften for ripening. Peach and nectarine trees are frequently neglected after the fruits have been gathered. The cultivator should remember that the trees are under glass and, like a chained-up dog, at his mercy. He should thoroughly soak the border with clear water several times, syringe the trees freely, also several times, and night and day keep all the ventilators wide open.

BLANCHING CELERY.

There are several ways to effect a good blanch. The commercial way is somewhat different from that of the private grower. The latter does not mind taking a little extra trouble with his plants in this respect, especially if he requires spotless sticks for exhibition. The two



methods I adopt myself ensure well blanched stems both for autumn and late winter use. My efforts are made towards excluding slugs, which mar the beauty of so many finely grown specimens. Perhaps the sand system will be carefully noted. I like to place sand next to the stalks of all plants for show purposes. Ordinary soil earthing: Nos. 1,1, first earthing; Nos. 2, 2, second; Nos. 3, 3, third. Begin with a wide base; the arrows point to ledges on which the final earthing, Nos. 4, 4, is done and all sides left smooth for the winter. Sand and paper earthing or blanching: No. 5 shows a base of sand; No. 6, broad, stiff paper band; No. 7, top paper band; No. 8, soil and sand, mixed, pressed tightly. The paper bands are filled with sand. Watering and feeding may be continued.

DRYING OFF TUBEROUS BEGONIAS AND GLOXINIAS.

We all like to keep the tubers of these plants sound throughout the winter months if possible, especially those that are expensive or great favourites; but, in spite of all efforts, losses frequently occur. The old plan of storing the pots containing the tubers near to the hot-water pipes should not be followed in these days. It has been responsible for the loss of thousands of good tubers in the past. Even in this case fewer losses would have occurred if boards had been placed between the pots and the pipes and, in this way, prevented dry rot. In the first place, the tubers should be well prepared by gradually drying off the plants and taking care that the old leaves mature naturally before they are removed from the crowns of the tubers. In the meantime, several boxes, a few inches deep and new, should be procured. Peat, leaf-soil or coconut refuse form a suitable material in which to pack the tubers. I prefer sweet leaf-soil free from bits of wood and fungus growths. The leaf-soil should be passed through a ½in. mesh sieve. Place a thin layer in the bottom of the box, then carefully arrange the tubers on the material, leaving a small space between each one. Fill up with the peat or leaf-soil, leaving the crowns of the tubers bare. Remove practically all old soil from the tubers, and store the boxes in a dry place in an intermediate temperature. A greenhouse is quite suitable.

PLANTING VIOLETS IN FRAMES.

The violet is a very accommodating plant. The two enemies most injurious are red spider and damp—especially in the form of fogs. It is not wise to leave the work of placing the plants in frames for early spring flowering to a late date, much better get the plants well established before the short days and cold weather of winter come. September is a good month for the purpose, early in northern counties and towards the end of the month in the southern. The frame should be in a warm, dry position. If a hot-bed is made up, it should be 2ft. wider each way than the frame, and at least 2ft. high after the material has settled down. However, splendid crops of violets may be grown in soil in a frame without any hot-bed material or artificial heat. The soil should be of good quality and sweet — a very important point — and about 1ft. in depth, so arranged that the leaves of the plants will almost touch the glass of the frame-lights. It is an advantage to have the soil in a medium state of moisture.

GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Winter Greens.—Such plants as kales, broccoli, savoys and Brussels sprouts are making considerable headway, the season having been ideal for getting them established without much labour. A thorough hoeing will help them, and if the Brussels sprouts are likely to bend over, each plant should be given a stake.

Endive.—A final sowing of a winter variety should be made in lines 1ft. apart, selecting, if possible, a dry border for this crop. Plant out seedlings from earlier sowings directly they are large enough.

Winter Spinach.—The sowing made a few weeks ago should be sufficiently advanced for thinning, and the plants should be about 6ins. apart in the rows. Keep the plot free from weeds, and a frequent use of the hoe is recommended. Where spinach is in demand another sowing should be made.

Celery.—Continue to earth up celery when the weather is dry enough. First remove all side shoots and weeds. The day previous to earthing up, afford the roots a thorough watering with diluted liquid manure. The celery maggot should be watched for, and all brown patches on the leaves picked off. An occasional dusting of old soot will tend to hold this pest in check, and, moreover, it will act as a stimulant for this crop.

THE HARDY FRUIT GARDEN.

Raspberries.—The old canes which have borne fruit this season should be cut out at the first opportunity, and the new growths reduced to five or six on each root. Retain the best and stoutest canes, and tie them singly to the wire supports. All shoots between the rows should be pulled up, weeds removed, and the soil lightly pricked over with a fork. If the plantation has not received any manurial assistance for this year, a mulch of partly decayed manure will be beneficial. At this season the canes should receive as much light and air as possible.

Black Currants.—Overcrowded bushes never produce fine fruit, so it is essential for a little annual pruning to be carried out. The spur system as applied to red and white currants is not suitable for the black varieties, the pruning consisting of merely thinning the old growths that have borne fruit. Encourage the production of strong basal shoots, and if the bushes are now relieved of all useless wood, the new growths will have a better chance to develop to their fullest extent. Plants that are suffering badly from big bud ought to be dug up and burnt, and later on a fresh plantation made on another site.

FRUITS UNDER GLASS.

Pot Vines.—These may now be given a sheltered position outside, but the plants should be fully exposed to the full rays of the sun in order to thoroughly ripen the canes. Plunge the pots in ashes, and the roots should be kept moist until the leaves are fully matured and fall from the canes. The lateral growths should be cut back at intervals to encourage the main bud to develop.

THE FLOWER GARDEN.

The Bulb Order.—This should be sent off as early as possible to avoid disappointment, and with a view of having the bulbs to hand when required.

May-flowering Tulips.—When the bulbs were lifted some months ago, there were found to be quite a number of small bulbils that will not bloom during the coming season. These ought now to be planted out in the reserve garden in lines 1ft. apart.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

French Beans.—The variety Canadian Wonder is usually bearing good crops about this period of the year, but the plants are easily spoiled by frost and early in September a few degrees is sometimes recorded, while the second and third weeks of the month may be quite free from frosts. If the beans are growing on a border, one should fix up a temporary framework of some kind on which a few pea trainers can be laid. Each evening—except if it is raining—spread over the trainers sufficient frame mats to keep the plants safe. By doing a little extra work of this kind one can keep the plants alive and thereby prolong the supply.

Lettuces.—To have lettuces for cutting in winter and early spring the plants should be grown either in a frame or in a sheltered part of the garden. A narrow border at the base of a high wall is quite a suitable place, and seedlings should be set out now 4ins. or 5ins. apart. The cabbage varieties, All the Year Round and Tom Thumb, or Balloon Giant, a cos kind, do quite well out of doors in the winter time.

Onions.—This year—in general—bulbs do not seem to be very large. Those produced from seed sown last autumn should be partly raised now by the digging fork and left thus for a few days. Afterwards they should be lifted and spread out on top of a wall or where they will receive the greatest amount of sunshine, so as to dry the skins and ripen the bulbs. Throughout this period they should be occasionally turned until they are perfectly dry. The bulbs should then be tied up in bunches and hung from the rafters of an airy shed.

Spinach.—The prickly seeded or what is also termed winter spinach should be sown now or as opportunity favours. We have had it sown between the lines of young strawberries as late as September 23rd and obtained splendid results. The shelter which the spinach—when it was fairly well grown—afforded the young strawberry plants seemed to give us the only explanation for the early ripening of the fruits of these strawberries.

THE FLOWER GARDEN.

Ageratum.—Those who like blue shades should grow this old bedding plant, and, indeed, it is not to be despised, as it is so accommodating and even effective when in flower. Those who possess a good compact and floriferous strain should procure cuttings now and insert them in boxes filled with medium fine sandy soil made firm. Give a good watering to settle the cuttings, then place the boxes in a frame and shade from bright sunshine.

Marguerites.—Cuttings of these should also be secured and dibbled into boxes or pots filled with medium fine sandy soil. The double white variety Mrs. Sanders is a choice kind.

Hedges.—The clipping of yew hedges and trees should now be attended to, and it is wise to leave this work to an experienced individual. Well kept golden yews, either in hedge or bush formation, add considerably to brighten and beautify the surroundings.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Nerines, of which there are now so many beautiful varieties, are worthy of much more general cultivation. They only require cold frames and ordinary greenhouse treatment during all stages of their cultivation. N. Fothergilli major is usually the first to show its flowers about this time. The numerous garden varieties will then keep up a display for several weeks. Nerines are generally regarded as being difficult plants to grow successfully, but really their cultural requirements are quite simple. After flowering they should not be neglected, as is too often done. Being their growing season, they should have every attention as regards watering and regular feeding. Where the plants have been in the same pots for a number of years—they usually flower best when left undisturbed for some years—they should be kept regularly watered until the foliage shows signs of turning yellow. At this stage water should be withheld and the plants may then be stood in a cold frame and the lights placed over them to keep them dry. Otherwise they should be fully exposed to the sun or stood on a shelf well up to the glass in a sunny greenhouse. Success depends almost entirely on these two important factors, viz., good cultivation during their growing season and a thorough roasting in the sun when they are at rest. When the flower-scapes begin to show, growth also commences. It is then necessary to give the plants a good soaking at the root, afterwards watering them regularly as they require it. When it is necessary to repot them it is best done when they are just starting into growth. After repotting, water should be very carefully afforded until the plants get a good hold of the fresh compost. The potting compost should consist of a good rich medium loam with the addition of enough sand or old mortar rubble to keep the whole open and porous. A 6in. potful of fine bonemeal may be added to every bushel of soil. It is not advisable to use large pots, and large shifts should be avoided when it is necessary to repot specimen plants. Nerines produce seed quite freely, especially if hand fertilised. Seed should be sown as soon as ripe and the resultant plants grown on without drying off until they attain flowering size, which is usually the third year from seed sowing. Nerine Bowdeni should never be dried off altogether, for, unlike the others, it is more or less evergreen.

Pycnostachys Dawei.—Plants propagated earlier in the year make fine large specimens for the conservatory beds. If cuttings are rooted at this time, useful plants will be produced for the stages.

Coleus thrysoideus may be treated in the same way as the above, plants rooted at this time being very useful for the stages and general decorative work. This coleus can be successfully rooted right up to the time that the inflorescences are beginning to show. Shoots at this stage rooted in small sixty pots are very useful for table decoration.

Lachenalias should now be repotted, the bulbs being sorted out into different sizes. The smaller sizes should be placed in boxes and grown on for next year. Lachenalias thrive in a similar compost as advised for nerines, and eight to ten bulbs may be placed in a 48-sized pot. Stand the plants in a cold frame and give very little water until they start to grow. These plants require perfectly cool treatment at all times, and succeed under the same conditions afforded nerines and freesias. J. COUTTS.

Royal Botanic Gardens, Kew.

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ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Plants for Dry, Sunny Bank (J. H.).—Suitable shrubs include Spartium junceum, Genista hispanica, helianthemums, double gorse, Tamarix pentandra, Atriplex Halimus, lavender (especially the dwarf vera), Santolina Chamæcyparissus, Vinca major, Hypericum calycinum and rosemary. As the locality (Budleigh Salterton) is mild, it will be possible to grow at least a dozen cistuses, including CC. laurifolius, cyprius, Loreti, purpureus, ladaniferus, Hillier's Silver Pink, corbariensis monspeliensis and obtusifolius. Besides the annuals mentioned (poppies and eschscholtzias) portulaca, Limnanthes Douglasii and nasturtiums should be included.

Plants for a Rocky Wall (A. T. A. C.).—There is not much prospect of success with the rock wall as long as the elm roots are allowed to invade it, for they not only impoverish, but also dry it up. It would be best to take up the turf at the top of the wall for a width of 3ft. at least, and completely clear it of roots, then to return the turf on the backward 18ins., leaving the remaining 18ins. as planting space at the top of the wall. Then, every three years at least, the back 18ins. of turf should be lifted and the roots again cleared. For the rocky face and the space above, the best plants would be: helianthemums, both the trailing kinds and the larger H. formosum, santolina, nepeta, dwarf lavender, aubrietias, double arabis, Iberis, pinks, Sedum spurium, and your Sedum spectabile, which evidently needs division. This also would be a good arrangement for colour. At the end, where protection from wind is wanted, some evergreen shrub such as laurustinus or holly would be desirable. For the large shrub bed, good additions would be Cistus laurifolius and C. cyprius, both about 5ft.; Veronica Traversi, 5ft. to 6ft., and the dwarfer V. buxifolia, 1ft.; the golden Cassinia fulvida, 3ft.; the grey-leaved Phlomis fruticosa and Senecio Greyii, both about 4ft.; the two hardy fuchsias, FF. gracilis and Riccartoni; Yucca filamentosa, Staphylea colchica, 5ft.; Olearia Gunniana, 3ft., and O. Haastii, 5ft.; Rhododendron myrtifolium, 3ft., and R. ferrugineum, 2ft.; Hydrangea paniculata, H. hortensis and H. arborescens, all 3ft. to 5ft. For lilies among the shrubs, LL. candidum, testaceum and its beautiful white variety, the scarlet pomponium and chalcedonicum, the orange croceum and umbellatum, the pale yellow monadelphum, the apricot-orange tigrinum and the purple Martagon, with its dark variety Catani.

To Prevent Hydrangea Blooms Turning Blue (W. C., Guernsey).—Evidently, the soil in which the plants are grown contains iron, or the water coming into contact with their roots turns the flowers blue. You should procure some soil—at least for the pot plants—from a district known to be free from iron.

Rose and Other Questions (J. McG.).—With regard to the questions about roses, we advise you to procure catalogues from rose growers advertising in THE GARDEN. In these catalogues you will find everything you wish to know, as the different varieties in the various classes are quite correct for the purpose. The small indentation under the bark, showing when the wood is removed from the bud in preparing it, is natural and not detrimental. Carnations Bookham Yellow, Dora Blick, Gordon Douglas, Sir Galahad, Miss Willmott, Purity—these are selfs. The following are yellow ground fancies: Amphion, Becky Sharp, Bombardier, Fantasy, Gipsy Girl, J. J. Keen, Lord Steyne, Rosamond, Sam Weller and Salome. Isatis glauca is a hardy biennial and is propagated by seeds sown in early autumn. Verbascum phœniceum is a hardy herbaceous plant, perennial, propagation by root division in spring. Boltonia asteroides has pale violet or purplish flowers. You will be able to pick it out from the Michaelmas daisies. Tradescantia virginica is propagated by root division. Plant the harebells and ferns in the autumn, and the heather in clumps when the flowers have faded.

TREES AND SHRUBS

Staking a Thorn Tree (E. F.).—On the side to which the tree is leaning fix a stout forked stake or prop at a good angle to withstand pressure. Place the bottom of the prop on a piece of paving stone to prevent it working into the ground. Fix a piece of old rubber tyre in the fork of the prop to guard against damage to the bark. If it will rest against the underside of a branch close to the trunk so much the better.

Beech Hedge (E. M. C.).—To obtain bushy plants forming a thick bottom to the proposed hedge, top the young plants before new growths commence next spring. Continue to stop the shoots as each 1ft. of growth is made until the required height is reached.

Double Gorse (E. M. C.).—Spring is the best time to prune gorse, but if, when young, the plants make extra vigorous new growths, stop these about midsummer. Remove the dead tips now and also all dead material from the base.

Davidia involucrata (F. B., New York).—This very interesting tree thrives in most soils, growing freely in company with woodland trees such as the beech, chestnut, oak, elm, maple, hornbeam and lime. Davidia involucrata resembles very much in leaf the last-named tree. A damp or peaty soil is not required; a medium rich loam is the best for young trees.

THE HARDY FRUIT GARDEN.

Loganberries (E. F.).—It is usual to loop the vigorous young shoots of loganberries to temporary supports until the old canes have finished fruiting and can be cut away.

Summer Pruning of Fruit Trees (C. H. C.-P., Surrey).—It is advisable to summer prune fruit trees. Young shoots growing from the main stems, if not required to fill gaps, should be cut out entirely. Other, normal, shoots of the current year's growth should be cut back to six leaves or buds from the base. The winter pruning following in due course. It is getting late to do this work, but it may be done forthwith.

The Pollination of Plums (Felsted).—(1) Kirke's Blue is stated by Mr. M. B. Crane, John Innes Horticultural Institute, Merton, to be self-sterile, and to set fruit if crossed with Old Green-Gage or Coe's Violet. (2) Mallard: We can only find a very old reference to this, in which Mr. Sherrard, Mr. Crane's predecessor, states "the Plum is partially self-sterile." (3) Diamond: We do not think this has been experimented with, but it is a notably shy cropper in Kent, even on a plot where it is mixed with a large number of other varieties. (4) Arch Duke, no information. (5) Admiral, no information. (6) Belle de Septembre, no information. We do not think any of these three have been used experimentally. (7) Utility: We do not think this plum has been experimented with, but its early promise of profuse cropping would seem to indicate that it might be self-fertile, like most of the heavy croppers, such as Victoria, Czar, Pershore, etc. (8) Washington: Both Mr. Rawes of Wisley and Mr. Hooper of the S.E.A. College, Wye, place this as self-sterile, and the latter suggests crossing it with Pond's Seedling. As to whether any plum will cross-pollinate any other, in Crane's article, "Journal of Pomology," Vol. III, No. 1, he says that in certain instances, which are probably exceptions, varieties are inter-sterile. We think that with the mixture of trees you have got the question of distance would hardly matter. It is rather more a question of insects. Have you noted hive or wild bees or other insects doing the work? We have not found cordon plums to grow very satisfactorily, especially on unknown root stocks. Plums like to have things their own way, and this is impossible with cordons. We have consistently proved that certain root stocks assist plums in much earlier cropping, which is a factor previously neglected.

FRUITS UNDER GLASS.

Grapes Diseased (W. P. H.).—The berries are badly mildewed. No doubt this has been caused this year mainly by the cold winds. A too dry border or one too wet will also conduce to mildew. The grapes are quite unfit for consumption and should be burned. Thoroughly syringe the vines with "Abol" according to instructions given with each tin. This course would help considerably to prevent mildew occurring next year. Of course, careful ventilation, so as to avoid cold draughts, is very important.

MISCELLANEOUS.

Treatment of Bulbs (E. D., Henley).—Rose President Bouche would tone with Mme. E. Herriot best. You have treated the soil quite correctly; in spring apply 1lb. of sulphate of ammonia and 3lb. of superphosphate per 20 square yards to assist both growth and blooms, also the colour of the latter. Moderate applications of rotted manure would not injure the bulbs. The above artificials may be applied instead. Protection from winds and forenoon sunshine is essential in growing tree peonies. Allow, approximately, 4ft. between the plants. The long exposure of the bulbs of Lilium candidum would harm them very much. They do not thrive if frequently disturbed. Apply a good surface mulch in spring of fibrous loam. Yes, Anemone apennina, if given a little shade and allowed to become established, would do well in rough grass provided the latter was not left to grow and smother it. The same remarks apply to Tulipa macrospila. A clear ring of soil must be kept round the bulbs, and their foliage should be allowed to mature naturally and not cut while green.

The formation of Flower Buds (Mrs. V. Aldershot).—If one knew what plants you have in mind it would be easier to answer your questions. To deal with all plants would require too much space. Many woody plants form their flower buds mainly in the previous autumn, herbaceous plants form theirs on the new growths in spring; but the process of flower bud formation is going on all the time, from one year to another. The plant sent for identification is Artemisia vulgaris, "mugwort."

Various Questions (W. M.).—Delphinium Zalil should flower well in your district (Aberdeenshire) if the plants are strong and grown in a deep, rich soil. Sometimes slugs destroy the leading shoot before it is 1in. long, and the secondary shoots fail to flower. Place old coal ashes 1in. deep on and around the crowns in winter. Plenty of room should be allowed for the willow-like stems of Ansonia salicifolia to ensure ripening and flowers. Ordinary deeply dug soil will do. Olearia Haastii is quite hardy; grown in a comparatively sandy soil in the south, the plants flower four

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of five years. In heavier soils in the north they frequently flower every other year, after very hot summers two years in succession. It is not possible to say what accounts for the poor growth of peonies without knowing treatment of plants. Herbaceous peonies are fond of moisture. The Moutan peonies like some protection in spring, and decomposed manure for all, preferably cow manure. This manure answers well for the Japanese irises; we advise a good trial, and also plenty of moisture for the plants generally.

Names of Plants (Miss C.-B.).—Roses: 2, Moschata alba; 4, Pink Provence: 5, Marie Verdier; 7, Zenobia, moss; 8, Mousseline, moss; 10, Old Damask; 11, White Provence; 12, Charles Lawson; 13, Dawn; 15, Old Cabbage Provence; 16, Double White Briar. Nos. 1, 3, 6, 9 and 14 had fallen to pieces on arrival.——(" South Saxon ").—Taxus baccata, common yew.——(" Shotley ").—Roses: 1, Eclair; 2, D. Jamain; 3, Captain Hayward; 4, E. Morney; 5, Mrs. S. Clarke; 6, Augustine Guinoisseau; 7, Mrs. George Shawyer; 8, Philadelphia Rambler.——(Miss R.) Acanthus longifolius.

RULES FOR THE ROSE COMPETITION

A list of six (only) hybrid tea roses to be sent in in order of preference on a separate sheet of paper, with name and address of the sender clearly written on the top. No ALTERNATIVES WILL BE ALLOWED, but readers may send in any number of lists.

Lists must reach this office not later than Saturday, September 20th (after that date no lists will be accepted) and must be accompanied by a coupon, which will be found on page ii. of this issue. Coupons will also be found in the issues of September 6th and September 13th.

The popular vote will be final, and no correspondence will be entered into over this competition.

Envelopes must be marked COMPETITION and addressed to THE GARDEN, 20, Tavistock Street, Covent Garden, W.C.2.

The Editor will not be held responsible for letters missing in the post.

The First Prize will be an order for £3 on any advertiser to be found in the pages of THE GARDEN.

The Second Prize will be an order for £2 on any advertiser to be found in the pages of THE GARDEN.

The Third Prize will be a book, or books, from the *Country Life* Library to the value of £1.

The result will be announced in THE GARDEN in the issue of October 11th.

The Editor's decision on all points will be final.

See THE GARDEN, *August 23rd, page 578.*

PEONY PLANTING

A FACT that merits far wider recognition among the gardening fraternity is that everything has its proper planting season, and—although we may do this at other times without absolute disaster—yet, when the work is done at the correct time, far speedier and better results are ensured. In no case is this more true than with the peonies—especially on the score of speedy establishment, for no plant likes removal less. Ever a favourite in the hardy garden, the Old English forms have given place to a new race of hybrids of glorious beauty, the petals of which vie with the finest of sea shells in delicacy and beauty of colouring, while—in many varieties—they compete with the rose in exquisite fragrance.

Their dislike of removal must be emphasised from the point of view of soil preparation—this cannot be too thorough, and care should be taken that some of the supply of manure provided is of a permanent character. Basic slag and half-inch bones are two valuable substances that should not be forgotten in this respect, although plenty of well decayed animal manure should be used in addition. Mix this with the soil, right from the bottom, and we may remark in passing that the ground intended for growing peonies should be trenched at least 3ft. deep. Planting, of course, must not be done until the ground has had time to settle, and this means that it must be prepared some time in advance.

Position is an important point. The shrubbery—although so commonly used—is one of the worst possible places. Not only do the hungry shrub roots draw heavily upon the available nutriment, but the tops of the peonies die to the ground level in autumn, thereby leaving large gaps that give an unsightly appearance to the shrubbery in winter. An open but half shaded spot is the ideal, for here the flowers last longest and retain their colour best, a consummation that is impossible of achievement where fully exposed. The old crimson form bleaches to an unpleasant pink in a few days under hot sunlight and the dainty pearl pinks, etc., of the modern varieties are far more fugitive. Writing of the old crimson form reminds that this *is* a plant that will grow under trees, etc., and seems to be quite unaffected by their proximity, but the choicer forms must be planted in the open.

Do not wait until the tops have died down, but complete your plantings before the end of September. This may sound rather unusual advice, in view of the fact that—with most perennials—they are allowed to remain as long as possible before cutting down, but an examination of the roots will disclose the reason for this. Just beneath the surface of the ground, next year's shoots, buds, leaves, etc., are already formed and more is gained by sacrificing the foliage now than in allowing planting to be deferred.

September planting means that those roots will already have begun to work before wet and cold stop further progress. October or November plantings simply remain dormant until the spring and then have to start upon their work of re-establishment. Do not bury the crowns too deeply, 2ins. below the surface is about right, and—while making quite firm—be sure not to bruise the growth buds. Plants should never be put nearer than a yard apart, for—once established—growth is very luxuriant and they will fully cover that area.

Next March and every one that follows, mulch the plants heavily with manure, for this serves a threefold purpose. First, it retains moisture in the soil; secondly, it keeps the plants cool; and thirdly, it goes far in providing that nourishment without which handsome flowers cannot be produced. It is during the early part of the season that any extra nourishment is of the greatest value, for no sooner is flowering past, than the plant turns steadily to the business of producing the following year's shoots and buds. Do not feed during the first year after planting, the ground will contain plenty of nourishment from the initial preparation, but, in subsequent years, a few thorough soakings of liquid manure during dry spells will be amply repaid.

H. C. W.

CATALOGUES RECEIVED.

Messrs. Wm. Cutbush and Son, Limited, Barnet Nurseries, Barnet.—Bulbs and Plants for Forcing.

Messrs. R. Wallace and Co., Limited, The Old Gardens, Tunbridge Wells.—Irises.

Messrs. James Carter and Co., Raynes Park London, S.W.20.—Bulbs.

Messrs. E. P. Dixon and Sons, The Yorkshire Seed Establishment, Hull.—Bulbs.

Messrs. Barr and Sons, 11-13, King Street, Covent Garden, London.—Daffodils and Hybrid Nerines.

Messrs. Sutton and Sons, Reading.—Bulb catalogue, profusely illustrated.

FOREIGN.

Messrs. Ant. Roozen and Son, Overveen, near Haarlem, Holland.—Bulbs, etc.

PUBLICATION RECEIVED.

" Rural Texas," by Wm. Bennett Bizzell, Ph.D., LL.D. Published by The Macmillan Company, New York. Price $2.50. A short history of Texas in which the reader is brought through the wild and stormy days of ranching to the present day development of agriculture and country life. The economic possibilities of farming in that country are well explained. Much useful information is contained in its pages.

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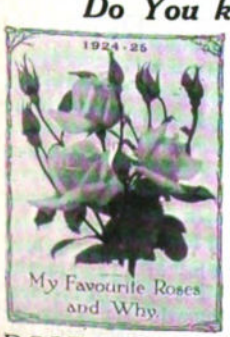

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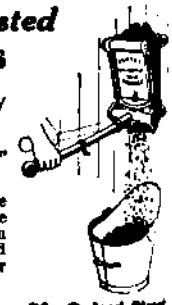

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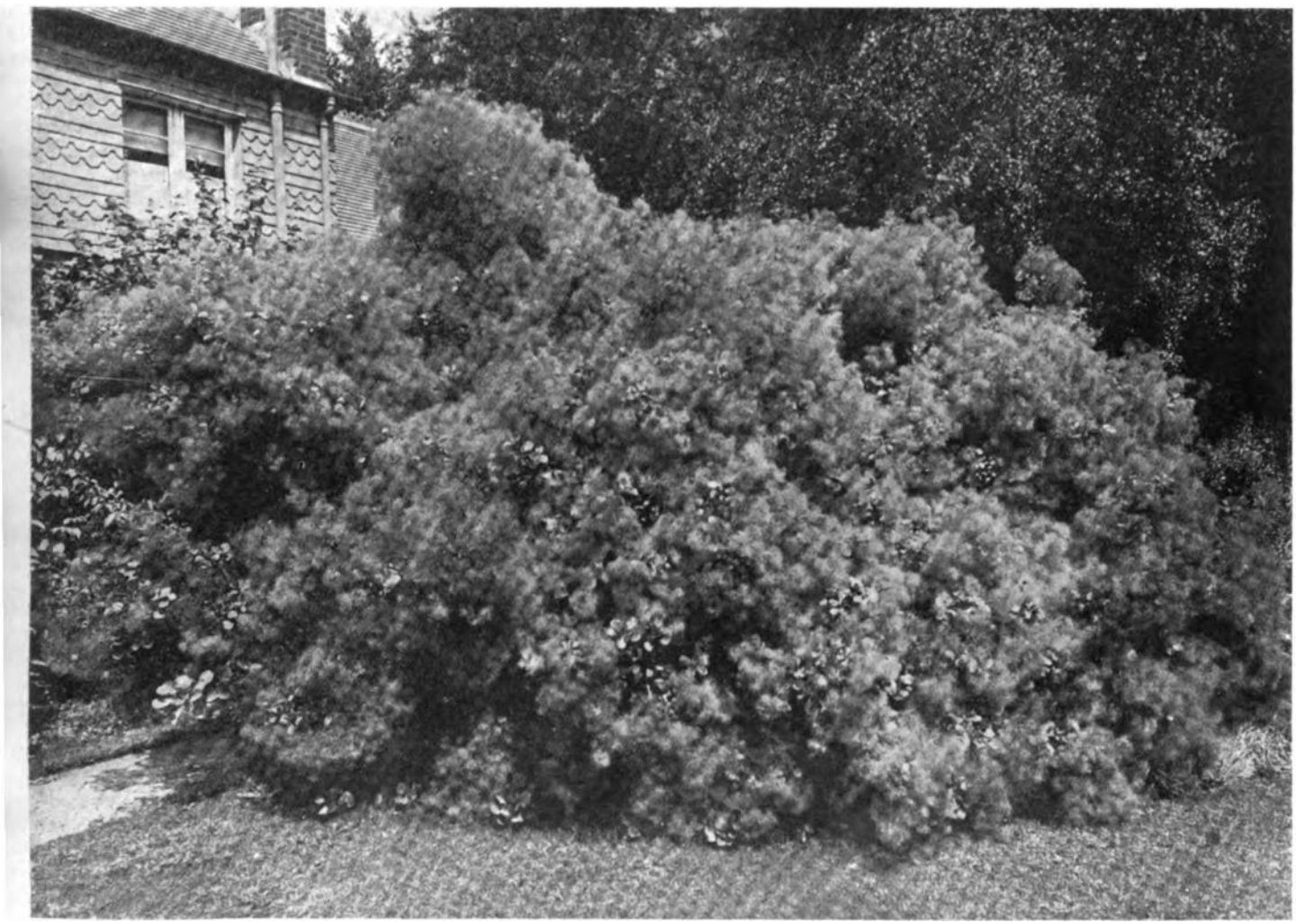
THE GARDEN

VOL. LXXXVIII.—No. 2755. SEPTEMBER 6, 1924



A MAGNIFICENT BUSH OF RHUS COTINUS (THE VENETIAN SUMACH). THIS ILLUSTRATION WAS SENT IN BY A READER, AND FULL DETAILS WILL BE FOUND IN OUR CORRESPONDENCE COLUMNS.

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THE GARDEN

SEPTEMBER 6, 1924

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SEEDS AND PLANTS FROM OVERSEAS

I.—SEEDS.

ON the opposite page will be found the first of a series of articles by Dr. Cockayne on "New Zealand Plants for the British Isles," in the introduction of which he comments upon the fact that many New Zealand plants are difficult to grow in the British Isles. Several of my friends who are expert seed raisers have told me that New Zealand seeds as a rule are bad germinators. That may partly be due to the fact that a great proportion of the New Zealand flora is strictly endemic, but apart from that a great deal of biological work remains to be accomplished to elucidate what goes on inside a seed prior to germination. To a gardener all that matters is "Does a radicle appear or does it not?" but the problems dominating the germinating qualities of seeds have never been really discovered. It seems to be certain that a plant in the prime of life will bear seeds with a higher percentage of germination than either a very young or a very old plant, this, of course, only in the case of ligneous or perennial plants. These remarks, however, only come into the scope of this article in that they show that the question of germination can be approached from various angles.

The usual reasons for poor germination of seeds coming from abroad are as follow:

1. Endemic nature of the plant.
2. Unknown conditions of original habitat and climate.
3. The power of germination is short lived.
4. Chemical action taking place owing to violent change of temperature.
5. Postponement of sowing and careless cultivation on their arrival in this country.
6. What might be called unnecessary packing.
7. Errors in collecting.
8. Mere cussedness on the part of the plant.

Now let me try and explain these reasons in detail with possible suggestions of remedy—if I can think of any:

1. It is natural to suppose that, if a plant is endemic in a confined area, as in New Zealand, it will strongly resist interference even in its seed, particularly as many parts of the world have strongly marked climatic characteristics which cannot be imitated elsewhere. Who can hope to imitate the conditions under which Primula sonchifolia grows, damp summers and a covering of snow in winter, out of which it appears in the spring?

2. This is often fatal to successful germination and is usually the fault of the collector in not providing adequate field notes. The salient facts to be learnt are altitude, climate, soil, orientation, shade, neighbours, temperature. Many failures could be avoided if these details were given in every case.

3. If this is the sole reason for failure, there is little remedy except to get the seed home by the quickest possible route and to sow it at once. Magnoliaceæ are typical examples of seeds whose germinating powers are short lived.

4. About this little is known, but chemical action undoubtedly takes place. In order to counteract any action Kingdon Ward has tried sending home seed in tins filled with carbon di-oxide by means of a sparklet syphon with no water in it, and then hermetically sealing the tin. The result was successful, but it may have been due to an especially good batch of seed and not the carbon di-oxide. Further experiments will have to be made before this is proved.

5. This is also a grave error, entirely due to carelessness at this end. More valuable introductions have been lost owing to postponement of sowing than from any other cause. The best rule in all cases is to get the seed into the soil at the earliest opportunity whatever the time of year may be. The only possible exception could be with a few annuals.

6. As Dr. Cockayne points out, it is a mistake to pack seeds in sand or charcoal. I have never heard of their being any the better for it, and there is no knowing what the desiccating powers of charcoal may accomplish in a really hot climate. It would be better to hermetically seal the tin or pack the seed in clay. This latter method has been tried in the case of oaks with considerable success.

7. It is obviously unfair to expect a collector to have a thousand pairs of hands and be in a hundred places at the same time. It is also obviously unfair to expect all plants to wait for the collector before perfecting the ripening of the seed. I should put 20 per cent. of the failures down to the seed not being collected absolutely ripe. Another error is in collecting seed from young or old plants. There is another moot question. Should seeds with fleshy coatings have the flesh removed or not before sending? There is no doubt that on some occasions seeds only germinate after having passed through birds or beasts, but no doubt they often germinate just as freely when the flesh rots on the ground. The argument against sending seed with the flesh still covering it is that fermentation must set in, and that this may cause a chemical reaction inside the seed, but it appears to be natural that the flesh should rot and that fermentation would take place on the ground in any case. This problem has not been solved as yet.

E. H. M. C.

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NEW ZEALAND PLANTS FOR THE BRITISH ISLES

BY DR. L. COCKAYNE, F.R.S.

NEW ZEALAND PLANTS ARE SUPPOSED TO BE DIFFICULT TO GROW IN THE BRITISH ISLES. DR. COCKAYNE, IN THIS AND FOLLOWING ARTICLES, DESCRIBES PLANTS WHICH HE CONSIDERS SUITABLE FOR OUR GARDENS.

INTRODUCTORY.

THE main object of these articles is to give an account of certain New Zealand plants worthy of a place in the gardens of the British Isles, and while dealing with some fairly well known flowers, not to neglect others—frequently of great merit—rare or absent in horticulture. Evidently, too, a knowledge of the conditions under which the plants grow is naturally of horticultural importance, and as so much that is misleading has appeared on this head in garden literature, some general statements may be welcomed concerning the climate of New Zealand. Special details about their actual growing places will be found in the account of the species themselves.

Since the New Zealand botanical region extends through twenty-five degrees of latitude (29° to 54° south lat., the Kermadecs to the Macquaries) there are considerable differences in climate in proceeding from north to south. Thus, in the lowlands there is a gradual change from a frostless winter to one where it is occasionally 16°F. The latter temperature is far lower than many of the forest and coastal plants can endure, so, generally, species of this class are unsuited for the British Isles, except in those localities with exceptionally mild winters. On the other hand, there are about 950 high-mountain species, 490 of which do not descend to the lowland belt. The maximum cold which the last-named class has to endure may be estimated at about 10°F., an estimate derived principally from the behaviour of many of its species under cultivation during specially severe winters both in their native land and Great Britain. These high-mountain plants, then, are those which specially concern gardens in England, Scotland and Ireland, and with such these articles chiefly deal.

TYPICAL VEGETATION ON ANTIPODES ISLAND, ONE OF THE NEW ZEALAND SUB-ANTARCTIC ISLANDS.

ALPINE CONDITIONS IN THE SOUTH ISLAND OF NEW ZEALAND.

Snow does not lie so long as on the European Alps.

Regarding temperature in general, those extremes which occur at similar latitudes in the Northern Hemisphere are wanting at every altitudinal belt: it is only at a few places (these in the South Island) that shade temperatures occasionally reach 100°F. The means for the North and South Islands respectively are, for the lowlands, 61° and 59°, while the winter means are 49° and 43°.

An important factor affecting the plants is the frequent and excessive high winds; those from the south-west, generally accompanied by driving, cold rain, rapidly reduce the temperature. Where this cold, wet, southerly weather rules (as in Stewart Island, and the groups of very small islands far to the south or east of the South Island — the Snares, Lord Auckland, Campbell, Macquarie, Antipodes and Chatham Islands—the first four known as the "New Zealand Sub-antarctic Islands") much of the soil consists of sopping wet peat some 30ft. or more in depth. In parts of the South Island, too, especially in the extreme south and south-west and on the wetter mountains, many desirable plants grow under semi-subantarctic conditions. An important result of such is the persistence of dead leaves and other parts which remain attached to stems, or leaf-bases, as rotting, extremely wet masses into which short roots frequently penetrate. This condition makes these plants difficult to cultivate.

The rainfall, usually spread over many days, differs considerably in different parts of New Zealand, but over wide areas there is ample for the natural incoming of forest. On the west of the South Island, and extending over the Divide,

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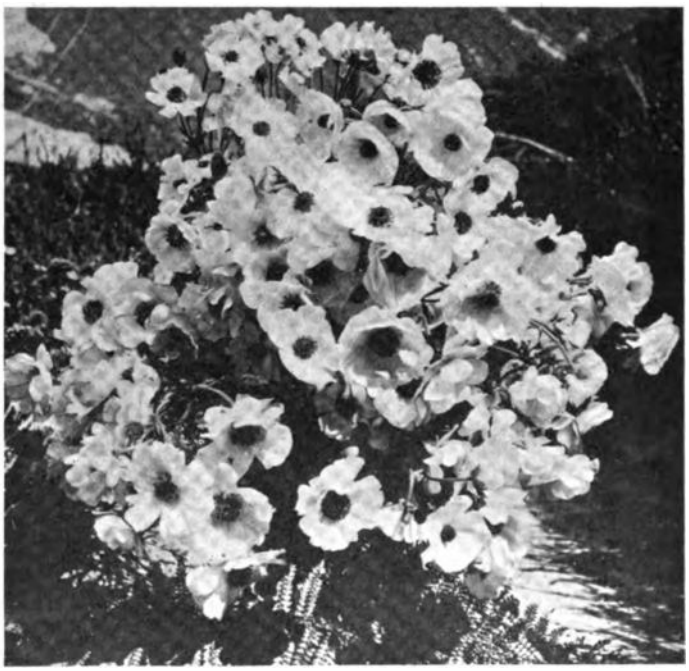
the annual rainfall may considerably exceed 250ins. On the other hand, in several localities there falls yearly less than from 24ins. to 14ins. The plants of these semi-arid districts have, likewise, to endure hot, dry, violent winds.

Snow, even in the lowlands of the South and Stewart Islands, may lie, during particularly cold winters, for a day or so, but with increasing altitude it gradually increases until the highest peaks carry vast snowfields, and great glaciers descend to low altitudes (2,500–700ft.). Although a snow covering is a protection against frost, many species subject to its shelter at high altitudes are also abundant where snow lies for a brief period, so they are exposed to continuous frost for many days, or alternately thawed and frozen daily.

PROCURING PLANTS FROM NEW ZEALAND.

Leaving out of the question those species readily procurable from nurserymen in the Northern Hemisphere, undoubtedly the best method of introducing new or rare species is by means of seed. *The essential condition is that such be fresh; seed more than one year old should never be used.* Seeds should always be sown as soon as possible after arrival. Many, even those of alpines, germinate rapidly in gentle heat. There is not the slightest need to pack seeds in dry soil, charcoal or sphagnum, as so often demanded. My personal experience with seeds of thousands of species sent from botanic gardens of most countries has proved that germination is almost certain; my sole failure, after many attempts, having been with Dryas octopetala. Living plants, if properly packed, travel well in Wardian cases. I have often thought that more use should be made of the cool chamber on ships, or of light freezing. Possibly the latter would enable rhizomes, with the flowers already developed, of the glorious Ranunculus Lyallii collected in early spring to travel successfully to Great Britain. The plants would blossom soon after arrival, as do imported bulbs with us, or they might be kept frozen until the European spring. The experiment demands a trial for, if successful, one of the most desirable plants in the world would be available, and cheaply, for British gardens.



A MAGNIFICENT GROUP OF RANUNCULUS LYALLII.

Dr. Cockayne suggests that wise use could be made of the cool rooms on board ship to bring such glorious plants as these alive to the British Isles.

SPECIES SUITABLE FOR GARDEN CULTURE.

The species of New Zealand flowering plants, ferns and lycopods number about 1,800, and, if the two last-named classes be omitted, 80 per cent. are purely New Zealanders. This high degree of endemism, coupled with the unusual forms of many species, makes the New Zealand flora of peculiar value for horticulture. Nearly all the trees and shrubs are evergreen, while plants which yearly die down to the ground are the exception, so there are many evergreen semi-woody species admirable for winter embellishment of the rock garden. In what follows not merely beauty of flowers is taken into consideration, but desirable leafage, elegance of form and use as carpet plants for bare soil. With but few exceptions, the species cited are those which have to endure the most severe frosts that New Zealand can supply. The many fine evergreen trees and shrubs known to be hardy only in the frostless parts of the British Isles are not dealt with; it is those suitable for rock gardens which receive special consideration, and even of these many have to be omitted.

Although in what follows something is generally told about the natural growing places of the plants, it may be taken as an axiom that, no matter in what situations they grow in nature, nearly all the species will do best in good, free garden soil, and that for alpines perfect drainage, abundance of water, and for some (but varying with the locality) more or less shade, are essential. Because a plant grows naturally in peat or in a bog it does not say that peat should of necessity be added to the soil or that the bog plant should occupy a particularly wet spot; indeed, it may do best under dry conditions.

(*a*) SEMI-WOODY PLANTS AND HERBS.*

1. Acæna (piripiri; lowlands to 3,000ft. and some species far higher; stony ground, shingly river-bed).

All make pretty carpets of feathery foliage, differing in colour according to the species. The nomenclature in British gardens is far from accurate; indeed, in nature the species hybridise greatly, and botanically many distinct plants are brought together under one name. The following are good: A. microphylla (A. novæ-zelandiæ of many British gardens) is of various forms; all have showy red spines on the fruiting head. A. inermis has no spines; its leaves are from pale green to slate coloured, dark purple and brown, according to the variety. A. saccaticupula and A. hirsutula are worth introducing. The lowland species (A. Sanguisorbæ and varieties and the true A. novæ-zelandiæ) become garden weeds.

2. Aciphylla (speargrass, Spaniard, little Spaniards).

Many of the species are fine decorative plants with rigid, pale or yellowish bayonet-like leaves. A. maxima (giant Spaniard, 3,000–4,000ft., in the sub-alpine scrub) has flowering stems more than 10ft. high and leaves in proportion. A. conspicua (3,000–5,000 ft.), another tall plant, has orange-coloured midribs. A. pinnatifida (3,000–5,000 ft., wet ground) has smallish rosettes flattened to the soil of narrow, much-cut leaves with yellow midribs, and forms considerable patches by means of its far-spreading underground stems; it is a most desirable plant. So, too, are the small palm-like rock plants of high altitudes—A. Monroi, A. divisa, A. similis and A. Spedeni.

3. Anisotome (Ligusticum in "Manual of the New Zealand Flora").

These are mostly noble plants of the carrot family with long, broad, erect, much-cut, bright green leaves and flowers bunched in large heads. The sub-antarctic A. latifolia, with immense heads of blossoms, rosy lilac, rosy purple, pale lilac, occasionally white, on massive stalks, 3ft. high, and thick, dark green leaves, 2ft. long, is one of the glories of the flora. A. antipoda (also sub-antarctic) is similar, but rather smaller, the leaves more finely cut, and the colour of the flowers richer. A. Haastii and A. capillifolia (3,000–5,000ft. in deep soil in full sunshine) have pretty fern-like, erect, soft leaves and white flowers. A. intermedia and A. Lyallii (coastal) are larger than the last two, but, though easier to grow than any of the above, are not so hardy.

(*To be continued.*)

* My thanks are due to Messrs. Whitcombe and Tombs, Ltd., for permission to draw on my recently published book, "The Cultivation of New Zealand Plants" for matter used in these articles; nevertheless, nearly all are published here for the first time.

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THE CULT OF THE PENTSTEMON

THERE IS HARDLY A MORE USEFUL PLANT TO BE FOUND IN THE GARDEN THAN THE PENTSTEMON. A TIMELY WARNING IS GIVEN IN THIS ARTICLE THAT THEY FLOWER MOST PROFUSELY IN FULL SUN.

THE name pentstemon covers a wide range of plants that are both hardy and half-hardy, although it is the latter that are more generally met with in the average garden. How satisfying is their colour mass, whether employed in beds or borders, and at how small a cost in labour all this is produced. The hardy species are chiefly interesting to the rock gardener, but here, again, there is no lack of beauty and interest, while one or two, at any rate, are so good that their promotion to the border will provide a magnificent display of charming flowers over a period of several weeks.

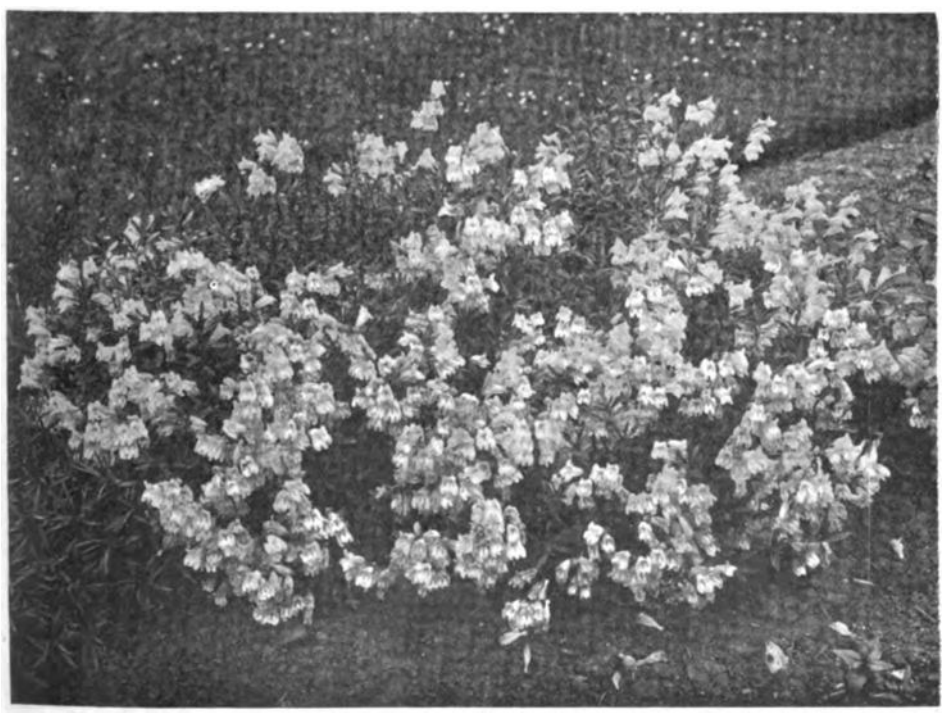
In considering their culture, let us suppose that it is spring and that it is proposed to obtain a stock of the bedding kinds by means of seeds. The plant is a very easy one to raise by this method, and early sowing in a cool greenhouse will give you a large supply of plants that will flower during the same summer and autumn. They will, of course, be a mixed bag, and only the finest forms should be retained for future propagation, but what a wealth of colours and markings one will have from which to select. There cannot be any cause, at least, for complaint at lack of variety; that has been our experience when dealing with the plants in this way.

Having, then, brought your plants to the flowering stage and weeded out the less pleasing forms, future propagation of the best is ensured by means of cuttings. This presents no more difficulty than seed raising did, and a cold frame of average size is sufficient to shelter several hundred plants. The cuttings consist of healthy side-shoots snapped off, either with or without a heel, and when the lower leaves are removed, are at once ready for insertion. This may be done quite close together, for but little growth will be made during winter. The soil of the bed under the frame should consist of a sandy loam mixed with some old manure and leaf mould, pressed down rather firmly round the cutting. Water these well in and then keep the light closed for a fortnight or so, until the leaves stand up without drooping when air is admitted.

A FINE MASS OF ONE OF THE SPLENDID NAMED KINDS, DAYDREAM.

From mid-September to early October is the best time to take these cuttings, as the side shoots are usually late in making their appearance and seldom attain sufficient length before this time. During winter, abundance of air should be admitted. The plants are hardier than the calceolaria, and every effort should be directed towards keeping them dwarf and stocky. Roots are usually emitted in spring, so that the plants are better undisturbed until they show signs of renewed top growth—generally in April or early May—when they may be lifted and planted out where they are to flower, in rich, light and plentifully manured soil. To gain the full effect from them, the plants must be massed together in fair numbers. A note should be made that they are great sun lovers and are quite unsuitable for positions where they do not enjoy a generous share, throughout the greater part of the day, for, deprived of the sun they often fail to do anything but produce stems and leaves.

Before parting from the hybrid forms let us add the following list of a dozen splendid named kinds. Adonais, rosy magenta with pure white throat; Andromeda, salmon pink, the throat blotched with carmine and scarlet; Arethusa, purple lake with white throat; Black Knight, deep maroon blotched with black and maroon coloured stems; Daydream, pink and white throat; George Home, enormous scarlet flowers with white throat; Ideal, white slightly tinged rose; Lucie Farquhar, claret crimson, throat white pencilled with purple; Myddleton Gem, a grand bedder in delicate pink, with pure white throat. This is one of the longest-flowering varieties and will bloom from June 1



PENTSTEMON SCOULERI, WITH ITS PALE LILAC FLOWERS IN GRACEFUL RACEMES.

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November. Newbury Gem, a compact dwarf grower with small crimson scarlet bells, capable of magnificent effects in the mass; Racine, purple violet with throat blotched with brown; White Newbury Gem, counterpart of the above, but pure white.

Turning to what may be called the hardy kinds, one meets a most diverse range of plants of which many are of great decorative value, revealing an extremely wide range of colours and habits that may make showy effects in the border as well as the rock garden. One uses the word "hardy" concerning them with a certain measure of reserve, for, where a variety does prove an absolutely hardy plant in one garden or district, it may prove quite the reverse in another, so that, until one has tested during several winters, wisdom dictates that a few cuttings should be inserted in a frame as a reserve in case of accident.

P. argutus has well been named the graceful pentstemon, for it produces, in summer, splendid spikes of bright purple flowers, with the tips of the divisions of the lower lip touched with sky blue. The growth is half shrubby, with dark green leaves that are much paler on the underside. Height 3ft. to 4ft. Acuminatus is best suited to the rock garden, as the growth is not above 1ft. The growth is sub-shrubby, with spikes of densely crowded flowers that open lilac and gradually change with age to a deep purple. Barbatus is synonymous with the plant known as Chelone barbatus, a very brilliant and vigorous perennial—6ft. high—of unquestioned hardiness. The flowers are borne in late summer, scarlet on the outside and white within. The leaves are slightly glaucous, the flower spikes drooping in long, rather loose panicles. The variety hybrida differs only in its colour, a purplish violet. Campanulatus is much dwarfer, reaching a height of 18ins. and upwards, and flowers from May until stopped by really hard frosts. This species has been largely used in hybridising the seedlings from which our best named varieties have come and, as it is a native of Mexico, a question mark may well be placed against its hardiness—in all but very sheltered gardens. The flowers are a dull rose on the outside, but light flesh within veined by violet.

Cobæ is certainly not hardy, and one can only be sure of the plant where cuttings are annually inserted. The flowers, which are produced in July and August, are a deep purple and curiously inflated, reaching a height of 1½ft. Cœruleus is splendid for the rock garden, where it makes a neat shrubby little bush covered with narrow glaucous leaves and delightful little spikes of pure blue flowers. Confertus introduces a distinct colour change, for the flowers are pale yellow: the height is about 1ft. and the habit very neat and compact.

Glaber, too, is especially good in the rock garden for the habit is prostrate and the growth does not exceed 6ins. to 9ins. in height. The flowering season is chiefly early summer, although odd spikes continue to appear until well into the autumn. Even in the typical form there is much variation in the colour from light to dark blue, while the variety glaber rosea is a light rose. Glaucus, as its name implies, has foliage which is more or less glaucous, and stems 1ft. tall, while the flowers, produced in somewhat dense spikes are a bright violet purple. Heterophyllus forms a grand rock plant as it is so free in flowering and does so from July to September, a season when blossom is particularly welcome. The growth, 1½ft. high, is very neat, erect and bush-like, the flowers an attractive bright blue.

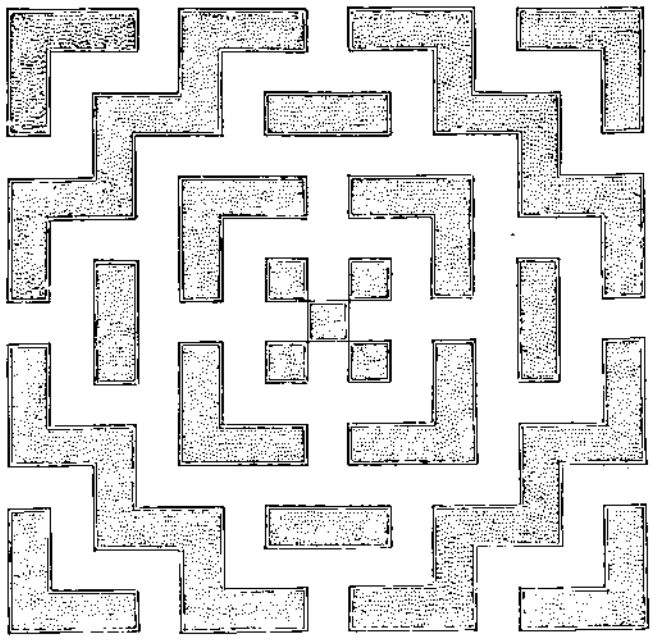
Lævigatus digitalis is splendid in the border, and flowers from June to August. These flowers are white, in loose spikes like foxgloves, and extremely decorative when cut. Ovatus, again, renders excellent service in the border, where, at a height of 2ft., it produces good spikes of true gentian blue flowers from July to September. Pubescens is one of the old-world garden favourites, rather dwarf and producing pale purple flowers in loose upright spikes. Isophyllis is one of the most striking September border plants, of light dainty growth and possessing brilliantly coloured flowers. The height is about 18ins. and the stem much branched and furnished with narrow green leaves. The flower spikes are abundant, with numbers of small bright coral-red tubular flowers that are extremely effective. Scouleri is fairly well known. The habit is that of a shrubby evergreen, that flowers in early summer in the form of pale lilac racemes. Speciosus is a remarkably showy blue species, reaching a stature of 1½ft., with very long spikes of flower.

Finally, let us mention Davidsoni, a splendid dwarf shrubby species that has been the subject of considerable controversy. Some contend that this should correctly be known as rupicola, but the former name has become so well established that it will probably continue to be known by this for many years to come. The habit is sub-shrubby, scarcely rising from the ground. The leaves are a glaucous grey and the flowers vivid ruby red.

H. W. CANNING-WRIGHT.

KNOT GARDENS

THE recent laying out of an Elizabethan knot garden at Hampton Court has aroused an interest which may result—and if so, so much the better—in the general revival of a quaint and pleasing horticultural fashion. Knot gardens, or parterres, as they were called in France and by some English gardeners, were introduced into England certainly as early as the reign of Henry VIII, but it was not until the time of Elizabeth that they touched the zenith of their vogue. Then every great house had at least one parterre, while, in some instances, the whole of the flower garden, no matter how large its area, was laid out in the formal little beds, arranged in designs varying in degrees of elaboration, but always within a rectangle and framed, as it were, with turfed "alleys" often "pleached" or roofed with branches of trees such as hornbeam, yew or box.



A DESIGN FOR A KNOT GARDEN IN JOHN REA'S "FLORA."

In the majority of these formal gardens the knots or "frets" were outlined with a low-growing shrub, such as box, kept severely clipped, but a live edging was by no means invariable. In Lord Paulet's garden at Hinton St. George, the "compartments" were marked out by brickwork, and John Rea, in his "Flora," the second edition of which was published in 1676, says that the beds in his ideal garden, which he picturesquely describes as "fashioned in the form of a Cabinet with several Boxes fit to receive and securely to hold Nature's choicest jewels," should be edged with "rails," 4ins. broad and 1½ins. thick, with a half-round top. These were to be dressed with linseed oil, red lead and umber before use. Rea advocates the use of this wooden framing because it is so quickly ready that the beds will be "presently in perfection," whereas French box,

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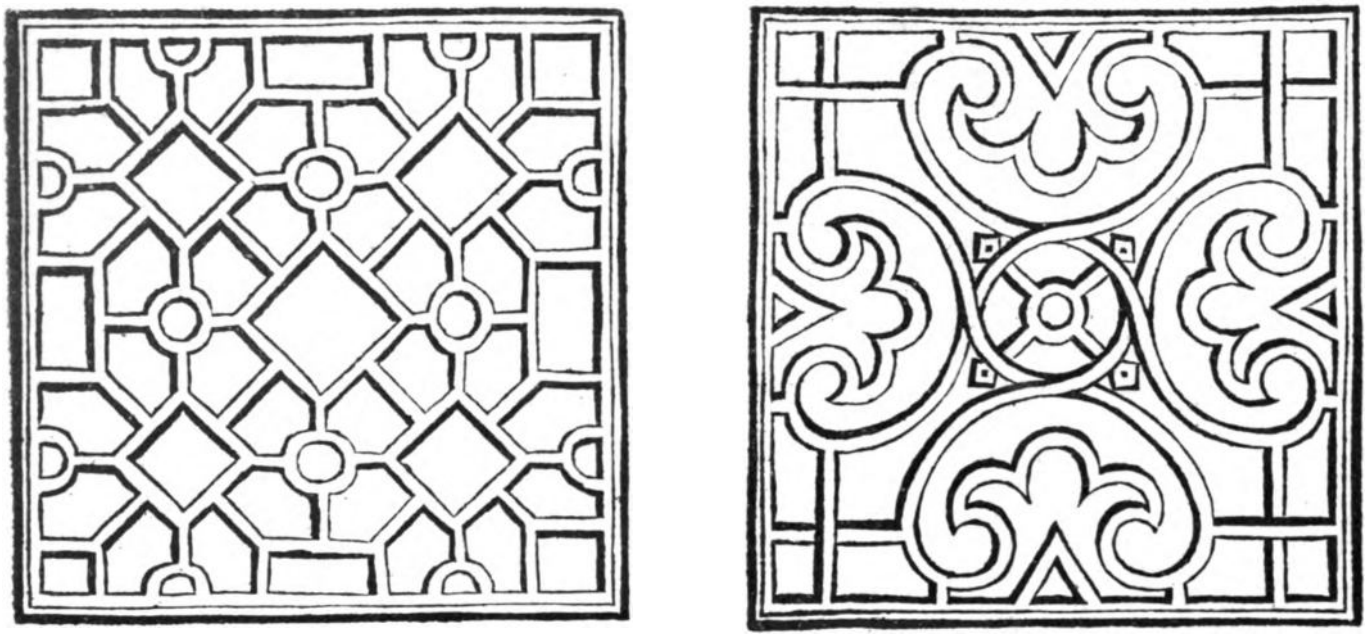
which he gives as an alternative "where timber is scarce," is slow-growing; moreover, it is necessary to cut the roots away on the inside with a keen spade every other year to stop them running into the bed, and to shear the top thrice yearly.

On the other hand, the author of the "Country House-wives Garden" (1660), prefers that the "frets" should be outlined with growing plants, of which he supplies rather a queer list. He omits box, but includes "Privit, Raisins, Fea-berries, Roses, Thornes, Issop, and Sage." What exactly were the raisins, one speculates, and likewise the fea-berries, which latter, by the way, appear as "fe-berries" in other seventeenth century gardening books? As to the planting of the knots themselves, the old-time gardeners dismiss the subject with an annoying vagueness. Rea tells us that tall flowers such as Crown Imperials and Martagon lilies should be placed at the corners of the beds and "tufts a Seventh of Cut-work of Grass and Imbroidery; an Eighth whose middle is all Cut-work and the Border Imbroidery; a Ninth, on the contrary, whose Borders are all Cut-work and the middle Imbroidery; and lastly, another sort whose middle is partly Imbroidery, partly Cut-work and green Turf, with Borders of Turf and Cut-work. *Note:* Imbroidery = those draughts which represent in effect those we have on our Cloaths and look like foliage, in Gard'ners' language called Branch-work. Below the Foliage certain Flowers called Flourishings."

The intricacies of these directions make one's brain reel in the effort to grasp the distinctions between the various styles, and the explanatory note does not provide much enlightenment.

Francis Bacon, in his famous essay "Of Gardens," writes, "As for the making of Knots or figures with divers coloured earths . . . they be but toys, you may see as good sights many a time in tarts." Coloured sands and earths, always



THE LOZENGE DESIGN FOR A KNOT GARDEN AND THE FRET, BOTH FROM THE "COUNTRY HOUSE-WIVES GARDEN."

of the best Pionies" in the centre of the principal ones, but for the fillings, bulbs and tubers, such as tulips, narcissi, hyacinths, ranunculus and irises, are alone mentioned, the meagre list concluding airily with "and all other kinds of good roots." In the surrounding borders, however, divided by green alleys from the knot garden proper, Rea says that double rose campion, double none-such wallflowers, double stock-gilliflowers, red primroses, hepaticas and dame's violets are to be planted.

In both the "Flora" and the "Country House-wives Garden," a number of plans of "frets" for knot gardens are illustrated, those in the latter volume under such names as Cinqfoile, Flower-de-Luce; Trefoyle, Crosse-bow and Maze. Some of them—especially the maze—are excessively elaborate and would call for the greatest nicety in cutting, but it is only when one reads the description of parterre designs as set forth in "The Retir'd Gardener," of Loudon and Wise, who were respectively gardeners to Charles II and Queen Anne, that it is possible to realise what a very serious business the planning of such a garden was. Quoth the gardener to the gentleman—the instructions are in dialogue form—"Some Parterres are said to be imbroider'd; others partly imbroider'd and partly Cut-work with Borders; a Third sort compos'd of Grass-work only; a Fourth made up of Imbroidery and Grass-work; a Fifth only Cut-work; a Sixth nothing but Cut-work and tufts of Grass; popular in French parterres, came to be used more freely in England, however, at a later date, in the gardens made under the Dutch influence after the accession of William and Mary. In these the knots or frets were on a smaller scale, and miniature canals, sometimes spanned by toy bridges, were often introduced. Glass balls and other meretricious ornaments were mingled with the flowers; a great error in taste it seems to us to-day, although it must be admitted that Bacon, rather inconsistently, it would seem, with his condemnation of coloured earths, commends the use of "plates of coloured glass, gilt, for the sun to play upon."

The popularity of the knot garden waned after the first quarter of the eighteenth century. Taste began then to veer towards the so-called "natural," or "romantic" style, the style of Kent, of Brown, of Mason and of Repton, of which expanses of turf, groups of trees and shrubs, curving paths and winding streams, Greek temples and long "vistas" were the essential features. Such gardens were pleasing, even beautiful, on a large scale, but when translated into miniature proportions they became dreary little combinations of patches of meaningless lawn, thickets of dingy evergreens, wriggling paths and absurd trickles of water. Yet gardens of this type, for no very obvious reason, continued in general favour in England until the nineteenth century was middle-aged and the "bedding-out" craze had begun to develop.

R. E. HEAD.

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THE FORTNIGHTLY MEETING OF THE R.H.S.

THERE was a miscellaneous collection of plants at the Royal Horticultural Society's meeting on Tuesday, August 26th. The attendance was very poor owing, no doubt, to the fact that so many people are out of town on holiday at present. The exhibits were not so numerous as usual. Unfortunately, the Shrewsbury and Southport shows clashed more or less with this meeting. According to the book of arrangements it should have been a plum show. However, only one firm exhibited a collection of these fruits.

In the centre of the hall Messrs. George Bunyard and Co. had a large collection of pot-grown plum trees laden with luscious fruits. The specimens shown were exceedingly well grown. Here were such sorts as Victoria, Monarch, Giant Prune, Kirke's Blue, Late Orange, Coe's Golden Drop, Early Transparent Gage, Indian Blood and Archduke.

A wonderful collection of large-flowered decorative dahlias was shown by Messrs. J. Stredwick and Son. Of outstanding interest were Alice Amos, a large pure white flower; Sheila Ward, lemon yellow; Mabel Lawrence, scarlet; Kitty Rogers, rosy white. Nearly all the flowers shown were marked by the floral committee for trial at Wisley.

Messrs. Kelway and Son showed their well known "Langprim" hybrid gladioli. Here were such sorts as Langport Scarlet, Golden Girl, Painted Lady, D'Orsay, White Swan and Louis N. Parker.

The only other exhibit of gladioli was from Mr. Alfred Edwards. This was mainly an exhibit of primulinus hybrids. We noted such "prims" as La Saviere, an exceedingly attractive sort with apricot flowers with carmine blotches; Alice Tiplady, orange saffron. Among the large-flowered sorts were Baron J. Hulot, indigo blue; L'Immaculée, a very fine pure white.

Messrs. D. Prior and Son had an exhibit of roses containing good specimens of K. of K., Ophelia, Mrs. Henry Morse, Los Angeles and Independence Day. Messrs. Chaplin Brothers, the Rev. J. H. Pemberton and Messrs. Easlea and Son also showed roses.

A very representative collection of violas was staged by Mr. W. Yandell of Maidenhead. Conspicuous sorts were Geo. Macdonald, primrose; Edina, dark blue; Moseley Perfection, yellow; Oxhill Purple; Klondyke, yellow; Admiral Hood, cream, edged lavender.

Ornamental vines, Cratægus Pyracantha in fruit, fuchsias and clematises were shown by Messrs. L. R. Russell and Co.

A very interesting exhibit was staged by Mr. F. C. Stern of Goring-by-Sea. Here were several well flowered veronicas, such as VV. salicifolia, speciosa Pink Pearl and angustifolia. Other noteworthy plants were Kniphofia natalensis, Buddleia variabilis and Cotoneaster multiflora calocarpa.

Mr. G. A. Nix had a large exhibit of fruit, including black and white grapes, peaches, nectarines, plums, melons and pears. The fruits were very well grown. This exhibit was very tastefully arranged.

Large collections of herbaceous phloxes were shown by Messrs. J. Cheal and Sons and Messrs. Rich and Co.

Perpetual-flowering carnations were exhibited by Mr. C. Engelmann and Messrs. Allwood Brothers. The latter firm also showed numerous varieties of their famous Dianthus Allwoodii.

Messrs. Daniels Brothers showed their new September black currant, also several varieties of apples.

Perennial scabious were staged by Messrs. Isaac House and Sons.

Single bronze chrysanthemums were shown by Messrs. Scott and Wickham.

Hardy plants were exhibited by Mr. Hemsley of Crawley, Mr. G. Reuthe and Mr. F. G. Wood.

The Misses K. and E. Hopkins showed a miniature rock garden.

Seven dishes of well grown plums were staged by Mr. W. R. Scott of Nottingham.

THE BEAUTIFUL FLOWERS OF A HARDY HYBRID EUCRYPHIA, E. NYMANSAY.

SPRAYS OF DAVIDIA VILMORINIANA, WITH THEIR LONG, OVAL FRUITS.

NEW AND RARE PLANTS.

CLERODENDRON UGANDENSE.—A very beautiful greenhouse plant indigenous to East Africa. Large sprays of pendulous flowers were shown. The latter have pale bluish outer petals while the inner petals are dark blue. Award of merit. Shown by the Director, Royal Botanic Gardens, Kew.

COTONEASTER RUBENS.—Well fruited sprays of this prostrate shrub were shown. The berries are dark red. Award of merit. Shown by the Director, Royal Horticultural Society's Gardens, Wisley.

DAVIDIA VILMORINIANA.—Fruiting sprays of this deciduous tree were shown. The fruits are oval and about 1in. long. Native

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of W. China. Shown by the Director, Royal Botanic Gardens, Kew.

EUONYMUS YEDOENSIS.—Sprays laden with magenta coloured fruits were shown. Award of merit. Shown by the Director, Royal Botanic Gardens, Kew.

GAULTHERIA PYROLOIDES.—This is a beautiful ericaceous shrub which bears pure white berries and thick, leathery leaves. The berries stand out in contrast to the foliage. Award of merit. Shown by the Director, R.H.S. Gardens, Wisley.

PYRUS AMERICANA NANA.—Large trusses bearing dark red fruits with a fine sheen were shown. Award of merit. Shown by the Director, Royal Botanic Gardens, Kew.

ROSA WEBBIANA.—This is a desirable Himalayan species which bears dull red hips. Shown by the Director, Royal Botanic Gardens, Kew.

EUCRYPHIA × NYMANSAY.—A beautiful plant somewhat in the way of E. cordifolia but flowers much larger. It is an interesting hybrid and said to be hardier than the other members of the family. Award of merit. Shown by Lieutenant-Colonel Messel.

EUONYMUS ALATUS F 392.—Fruiting sprays of this plant were shown. The fruits are much lighter in colour than E. yedoensis. Award of merit subject to correct naming. Shown by Mr. F. C. Stern.

SYRINGA JULIANA.—This plant is a native of W. China which has a violet-coloured calyx and the corolla deep lilac outside. It is fragrant. Award of merit. Shown by Mr. F. C. Stern.

SYRINGA POTANINII.—A well flowered specimen was shown. The flowers are powerfully fragrant and are of whitish colour. This plant should become exceedingly popular. Award of merit. Shown by Mr. F. C. Stern.

CATTLEYA TAGUS var. EXCELSIOR (Rhoda × King George).—A noteworthy advance in the production of the large-flowered yellow cattleya. This successful combination of four species has yielded a flower in which the stiff and broadly formed sepals and petals are rich canary yellow, the roundly shaped labellum velvety crimson, with gold venation in the throat. First-class certificate. Shown by Messrs. Flory and Black.

LÆLIO-CATTLEYA MRS. T. WARD var. MAJESTICA (L.-C. Hiawatha × L.-C. Lustre).—A large and finely built flower, somewhat flattish in shape, the broad segments bright purple, the labellum of deep crimson-purple extending to the extremity of the side lobes. Award of merit. Shown by Messrs. Cowan and Co.

LÆLIO-CATTLEYA PROFUSION var. COMPACTA (L.-C. Serbia × C. Hardyana).—The specific name of this hybrid well denotes the profusion of flowers produced on a batch of these plants. This example, an immature plant, bore a spike of three compactly formed blooms, of rose-purple colour, the roundish labellum of much darker tint and crisped at the margin. Award of merit. Shown by Messrs. J. and A. McBean.

A cultural commendation was awarded to Mr. Thurgood, orchid grower to Mr. H. T. Pitt, Stamford Hill, N., for a finely cultivated plant of Maxillaria venusta, bearing nine flowers, white, with buff-yellow on the labellum. This species is a native of Columbia.

FLOWERS SEEN AT SHREWSBURY

VISITORS to the old-world town of Shrewsbury for the occasion of the Floral Fête obtain many fresh impressions, especially those there for the first time. One of them to visitors from the South is that summer is still in its heyday, for one sees flowers sent from the North which are just coming to their best with their later season.

This show, of course, is one of the largest in the country, being, in point of size, only second to Chelsea. In the number of visitors it easily eclipses the latter, but there are other attractions which add to those of the fruit show.

Among the features of this fête are the keen competitions which enhance the interest of the show, for competitions bring out points and create enthusiasm not found in an entirely non-competitive show.

The occasion of the jubilee celebration of the Shropshire Horticultural Society was one of the finest shows they have ever held.

Quite the best lot ever seen of crotons (a complete avenue of them) came from the well known growers who compete in the large group classes and were staged by Messrs. Cypher, Cheltenham; Mr. Holmes, Chesterfield; Mr. McDonald, gardener to Sir Geo. Kenrick; and Mr. Manning, Dudley. The old varieties are still the best, such as Warrenii and Prince of Wales. These groups included choice cattleyas and dainty oncidiums, with other orchids. A light effect was further obtained with the use of Humea elegans, Aralia Veitchii, and such plants. There was never any attempt at massing, which is fatal to the lightly arranged group.

Probably the finest group in the show was of vegetables, staged by the veteran, Mr. E. Beckett, who, if possible, eclipsed his former triumphs and called for special recognition by the judges. Among interesting subjects being the aubergine, which so attracted the attention of H.M. the King at Chelsea Show. A pea which is eaten in the pod when young, the delicious International, was there, as well as Carter's Quite Content, and several others. All vegetables in season were represented in perfect specimens.

The group of plants from Messrs. John Peed and Sons composed of caladiums, streptocarpus, etc., contained a noble specimen of the Dracæna Victoria some 6ft. high.

Fine groups of vegetables, fruit and flowers from Messrs. Webb and Sons, Messrs. Dickson and Robinson, and Messrs. Toogood and Sons well sustained their reputations.

FRUITS.

Fruits are always one of the outstanding features of Shrewsbury Show, and the class known as The Champion Decorated Table is always a source of education. The Duke of Northumberland's gardener, Mr. Barker, secured first prize and challenge cup for his arrangement of Peaches, Dymond, Peregrine and Royal George; Nectarines, Dryden and Lord Napier; Plum Jefferson; Apples, Ribston and Cox's Orange Pippin; Fig Brown Turkey; Melons; Grapes, Muscat Hamburgh and Muscat of Alexandra. The second prize went to Lord Belper's gardener, Mr. J. McCartney, who also had, additional to the above, Nectarine River's Orange, a very choice variety; Apricot Moor Park; Pear Souv. du Congrès; Apples, Peasgood's Nonsuch and Wealthy.

In the class for twelve bunches of grapes, the first prize fell to Mr. Owen, gardener to the Pyll-y-Crochan Hotel Co. His six varieties being Madresfield Court, Muscat of Alexandra, Mrs. Prince's Muscat (black), Alicante and Black Hamburgh. The Duke of Newcastle (gardener, Mr. S. Barker), was second, Messrs. Webber and Sons, Minehead, third. In the latter were some magnificent Appley Towers, one of the most handsome of black grapes. Messrs. Webber were also winners in the class for twelve dishes of fruit, consisting of Apple Beauty of Bath, Nectarine Darwin, Peaches, Early Crawford and Dr. Hogg, Cherry Morello, Plum Belle de Louvain, currants, grapes, etc.

There were several other classes for plates of peaches, nectarines, apricots, apples, pears, plums, etc.

Magnificently fruited apples on pot-grown trees came from The Kings Acre Nurseries, Limited. Herring's Pippin, a little known variety, was one of their finest for quality and appearance combined.

The very late black currant, "Daniel's September," was exhibited by Messrs. Daniels Bros.

Plum Purple Pershore was well shown by Mr. E. J. Parsons, Worcester, who also had good fruits of Plum Belle de Louvain, the largest cooking plum at this season.

ROSES.

Golden Emblem is now probably the most popular yellow rose, and was shown in nearly every group. Mrs. H. Morse the most popular carmine pink; Queen Alexandra, gorgeous red with old gold reverse; Betty Uprichard, salmon carmine, and Lady Inchiquin, orange vermilion, were all exceptionally brilliant. The winners of the competitive classes being Messrs. Gunn and Son (Olton), Thos. Robinson (Nottingham), Messrs. Bees (Liverpool), and Messrs. Dunton (Wolverhampton). A new rose which came to the fore on this occasion being W. F. Dreer, a relative of the lovely Los Angeles. The former is orange or golden yellow shaded with peach pink.

HERBACEOUS PLANTS.

At a date when summer and autumn meet, the hardy flowers are very varied. The Kniphofia aloides in the winning group of Messrs. Gunn and Son, and the Yucca filimentosa in that of Messrs. Bees, Limited, were two fine things to make a note of. Phloxes and pyrethrums were prominent in the exhibit from Mr. Maurice Prichard.

From Messrs. Bakers, Codsall, came a perfect piece of landscape work with drooping trees over running water. Mr. Clarence Elliott specialised in conifers for rock gardens. A great variety of phloxes from Scotland was in the group of Mr. John Forbes of Hawick. Dahlias from Mr. Woolman and Mr. H. Clarke, Taunton, included Nancy, rosy salmon, and Triton, dark scarlet, also in a magnificent lot seat by Messrs. Dobbie and Co.

Sweet peas were less extensively shown than usual. The winning group coming from Mr. A. S. Dunton, while Mr. Robert Bolton had a magnificent lot in his non-competitive group.

The art of the florist has scope at this show, and some wonderful designs in cut flowers were seen.

CARNATIONS.

All the year round this flower is seen at the shows, but at this date it is not at its best, yet Laddie, in the huge display by Mr. C. Engelmann, and Eileen Low, in Messrs. Stuart Low and Co.'s group, were still in fine form. Border carnations were well displayed by Messrs. Jones Bros., Shrewsbury, but several of the usual exhibitors were missing.

The Shropshire Horticultural Society sets a laudable example in the amount of prize money offered to gardeners, which might well be emulated in other directions. There were no fewer than 171 classes in their schedule, and the foregoing is but an abbreviated survey. Many awards were given in the non-competitive section.

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CORRESPONDENCE

RHUS COTINUS.

SIR,—I was much interested by seeing in your issue of August 16th an illustration of a specimen of Rhus Cotinus as grown by Mr. Cooper of Lindfield, Sussex. But I would venture to suggest that anyone thinking of growing it should train it as a bush, not as a standard, as in Mr. Cooper's picture. I enclose you a photograph [see frontispiece] of one I have in my garden. It is 21ft. wide, 11ft. high and 14ft. through. This is as fine a specimen of Rhus Cotinus as I have ever seen, and this year it has been wonderful, covered all over, as Mr. Cooper describes, with "magnificent filigree red web." The plant is twenty-five years of age.—J. W. READING.

WILD PLANTS IN THE ROCK GARDEN.

SIR,—Being a very amateurish gardener, I rather hesitate to write you. My excuse is a small rockery I made, which seems to interest most of my friends more than any other part of the garden and cost nothing, as I have filled it with wild plants from a bit of the coast on the east of Luce Bay. The flowers on the cliffs and heuchs are so lovely that I thought I would try to concentrate them, and the result has been better than I expected. The first to flower is scurvy-grass (Cochlearia officinalis), followed by meadow saxifrage (Saxifraga granulata) and the spring squill (Scilla verna). Then I have a few cushions of sea-thrift, bird's foot trefoil, lady's fingers, yellow rock roses and wild violets. Later on come the Burnet rose, Genista tinctoria, Geranium sanguineum, hawk-weed, sea-holly, horned-poppy, ladies' bedstraw, three St. John's worts (Hypericum perforatum, pulchrum and humifusum), purple and white thyme, a pinkish white and a yellow sedum, Scotch lovage, etc. I have also put in the white and common heather and bell heather, but they do not make a show yet, as they are still very small. I have found the easiest way to get all these plants to grow is to lift them in their seedling state in spring, but some, such as the Portland spurge, I have had great difficulty with. Up to now I have collected over fifty varieties and found it very interesting, but not too easy to recognise as seedlings. There is a wall behind the rockery covered with ivy, on the roots of which I have got Orobanche minor to grow. It is not pretty, but rather curious.—FRANK B. HOPKINS.

SAXIFRAGA CÆSIA.

SIR,—He is a rash man who would attempt to name a small critical saxifrage from even a good photograph reproduced in THE GARDEN. But I cannot see with my friend, M. Correvon, that Dr. Wacher's picture (page 537) represents either S. cochlearis minor (= S. Probyni Correv.), or "perhaps S. valdensis"; and if it is not Farrer's major form of cæsia, as suggested by Mr. Todd, it is more likely to be S. cæsia × Aizoon (= S. Burnati), a natural hybrid mentioned by Irving and Malby in their excellent book on saxifrages. In this beautifully illustrated work is a good photograph of S. cochlearis minor growing near the typical plant, as I have seen it in its full glory in the Maritime Alps. But, as M. Correvon knows well, all forms of cochlearis have a denser, longer and less erect panicle than the small upright corymbs of the few flowers in Dr. Wacher's photograph.

Burnat says ("Flore des Alpes Marit.," Vol. III, page 271), that S. valdensis recorded by G. Maw (in *Gardeners' Chronicle*, 1874), from rocks near Tenda and growing with S. cochlearis, was probably the result of confusion with S. cæsia or S. diapensoides; and he points out that though valdensis is very closely allied to the two last, its habit is very restricted—"très restreinte." Much useful and exact information about these and other saxifrages will be found in the late M. Burnat's great, but still unfinished, work.

It is well known to every field botanist who has travelled in the Alps that S. Aizoon is extremely polymorphic and often very small in its leaves, rosettes and stature. Moreover, it hybridises rather freely. The leaves of all these species when normal can easily be distinguished by the aid of a good descriptive "Flora." And of their stems those of cæsia are the least glandular, and often they are glabrous below; so this helps us to understand how Dr. Wacher's plant "may be identified by the pubescence or smoothness of the stems," though it is merely a rough guide.

To the free and abridged translation of Grenier and Godron's description of S. valdensis we may add that they say it is a species "remarkable for the characters which it seems to borrow from all the neighbouring (*i.e.*, allied) species, though it is with S. cæsia that it has the closest affinity."—H. S. THOMPSON, *Clifton*.

THE LIZARD ORCHIS.

SIR,—I enclose a photograph of the Lizard orchis (Orchis hircina) which I found in

ORCHIS HIRCINA IN KENT.

June in the neighbourhood of Sandwich. The flower came out in water and it was interesting to watch the long central segment of the lip unfolding. The smell is decidedly unpleasant. This is the fourth specimen which I have seen or known of in Kent, but the plant is very uncommon in England.—C. G. FIELD-MARSHAM.

ORNITHOGALUM THYRSOIDES.

SIR,—Your correspondent Mr. Jacob asks in the issue of THE GARDEN (August 23rd, 1924) for further information about Ornithogalum thyrsoides. A bunch of the cut flowers was on view under this name at one of the fortnightly shows at Vincent Square early in the year. They are regularly shipped from South Africa, but are not generally or widely sold in the London shops. A friend in South Africa sent me some bulbs a few months ago. In South Africa they are known as "chinkerichees" (or, alternatively, as snowdrops, to which flower they have but a faint resemblance, since they grow in corymbs and are not tinged with green). Mr. Jacob is, I think, misinformed as to the flower having any dark markings or centres. The flower shown at Vincent Square had a pinkish fawn tinge outside and a pure white inside. Messrs. Barr's representative told me that they had so far failed to flower them, but no doubt he has done so by now, as I have three spikes showing bloom. I have tried two methods of culture—indoors in a cool house and out of doors. Besides giving much drainage, I have planted them extra firmly with a compost mainly of sand and giving very little water, so as to imitate their natural circumstances on the veldt. If these spikes should open well, I will probably send them up to Vincent Square to be seen. Specimens were on view for a time at Wembley in the South African Pavilion.—E. H. C.

MAGENTA.

SIR,—If your correspondent "M. H. W." has not already received an ample reply to the enquiry for magenta-coloured flowers, there are one or two that I might suggest. A fine vivid magenta may be found among the new hybrid eschscholtzias of the erecta type and also among the deep coloured forms of Colchicum speciosum. The magenta eschscholtzia combines well either with the pale buff yellows or with the mauves and purples that occur in the same group. The colchicum shows off its beauty of line best, I think, with no other companion than Cotula squalida or some loose-growing sedum, unless it be its own magnificent white variety. It does not associate very well with the ordinary pink form. Rubus odoratus has made a pleasant group here with the dull yellow of Digitalis ambigua. It seems rather a pity that this fine flowering raspberry is seldom seen nowadays, for there are not many shrubs that bloom as freely in partial shade, and the flowers, perhaps rather too dull in tone to be classed as pure magenta, harmonise interestingly with the crimson fur of the new stems and the pale biscuit colour of the old ones that have shed their bark. Agrostemma coronaria in its dark form might be taken, perhaps, as a standard magenta, but I suspect that it is the grey-leafed plant mentioned by "M. H. W." It would have been included in the original note on magenta had its proper name not slipped away beyond recall, and I feared that it might not be generally recognised under its more intimate one of Bloody William. It is a favourite cottage garden plant in this part of the world (Buckinghamshire) and should be very useful in any colour scheme that includes magenta.—F. A. HAMPTON.

JASMINUM OFFICINALE.

SIR,—Among summer climbers none bears a more fragrant flower than the white jasmine, its scent being delicious. This being so, and remembering it is an old, well known plant, is it not remarkable how seldom, comparatively speaking, one is greeted by its presence and sweetness in a garden? Since living in this district I have seen a fair number of gardens, large and small, but in one other only than this have I seen a specimen. That such an omission is a great loss every lover of good garden plants will agree, for this jasmine is so hardy, so easy to grow, and beautiful alike in leafage and blossom. Being white, it is not an ideal flower for the white dining-cloth—I mean, to show up well—but it is quite effective on a coloured centre, if such can be arranged. The plant here is growing on the north-west side of the writer's house, and is now, the second week in August, full of blossom. Like the white tobacco plant, Nicotiana affinis, the white jasmine smells most sweet in the cool of the evening. It is easily propagated by layers and cuttings.—C. T., *Ampthill Park*.

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NOTES FROM CONTRIBUTORS

WHAT DID PERSEPHONE GATHER ON THE PLAIN OF ENNA?

I HAVE never been in Sicily except in the train on the way to Malta, so I am writing this query in the hope that someone who knows the island and its flora will make a sort of *ex cathedra* pronouncement as to whether the naughty young woman was going after a daffodil or an iris (?) when she got caught by Pluto and taken to Hades, to the inexpressible grief of her mother, Demeter.

"My life immortal though it be,
Is nought, she cries, for want of thee,
Persephone—Persephone."

Jean Ingelow's account of the episode is as follows:

"The daffodils were fair to see,
They nodded lightly on the lea,
Persephone—Persephone."

"Lo! one she marked of rarer growth
Than orchis or anemone,
For it the maiden left them both
And parted from her company.
Drawn nigh she deemed it fairer still
And stooped to gather by the rill
The daffodil, the daffodil."

Our Laureate's (Robert Bridges) account is different. He, too, pictures Demeter filled with a great sorrow:

"Saw ye the mighty Mother, where she went
Searching the land?
Nor night nor day resting from her lament,
With smoky torch in hand."

But thus speaks Persephone:

"Coud I but find
[Bridges always writes "coud" for "could." —J. J.]
A scented Iris I should be content:
Yet men would call me proud: Iris is Pride."

(From "Demeter, A Mask," 1905.)

The "King of Hell" consulted Zeus:

"Said I, my heart is set:
I take Demeter's child Persephone;
Dost thou consent? Whereto he gave his nod.
And I am come to-day with hidden powers
E'en unto Enna's fair Sicilian field,
To rob her from the earth."

Which flower was it that made this possible?
—JOSEPH JACOB.

CLEMATIS RECTA.

OLD though it is in gardens, Clematis recta, erroneously called C. erecta, is not too well known, although it is an excellent plant for the herbaceous border and might be utilised successfully in the wild garden. It is one of the non-climbing species; but when it grows tall, as it will do in rich soil, it shows some sign of desiring to adopt the habits of its scandent sisters by a twisting of the growths. In most cases, also, it requires to be staked to prevent it from trailing over the ground. This feature suggests, also, its employment for hanging over rocks in the rock garden or for growing on steep banks, which it might veil with its foliage and creamy white flowers.

Individually, the flowers are small, but they are borne in great numbers together and present what is truly a pleasing mass of soft white bloom. There are several recognised forms, but these are difficult to identify and distinguish in the case of the single varieties. That called C. recta mandschurica is considered one of the best, but it is impossible to be certain of acquiring the true form, and the reader will be well advised to try to see the plants in bloom and select what he prefers. The writer once grew a good batch of seedlings of C. recta from purchased seeds, and there was a considerable difference among them in the size of flower and in growth. Probably a prolonged course of seedling raising and selection would yield a good result in the improvement of the flowers, and the hybridiser who took the flower in hand along with other species would probably achieve some valuable plants.

This clematis varies greatly in stature, and I have seen it up to quite 4ft. in height; but about 3ft. seems to be an average stature. I have at present a small plant which is not more than 18ins. high. The foliage is characteristic of the clematises in its general appearance and the stems are surmounted by heads of flower of considerable size. The blooms, as already mentioned, are of a pleasing shade of creamy white and a mass on a large plant is really beautiful. The flowers are also useful for cutting. There is a double variety, C. r. plena, which has been in cultivation for many years but is still scarce. C. recta may be raised from seeds quite easily, by sowing these under glass in spring and treating the seedlings in the same way as other hardy perennials. The plant makes a hard root-stock, rather difficult to divide, although it can be done with care. Some propagate it by means of cuttings also, and division or cuttings must be adopted for the propagation of the double variety. While Clematis recta cannot be recommended as showy, it is a pleasing plant of considerable merit.—S. ARNOTT.

PHYSOSTEGIA VIRGINIANA.

A DULL wet season is not altogether ideal for a herbaceous border, but the above plant, known also as Dracocephalum virginianum, has been most effective during the month of August. The flowers produced in terminal racemes are flesh coloured with a slight tinge of purple, each flower being almost an inch long. The erect herbaceous stems this year are 4ft. high, but during a drier season they are often a foot less in height. No doubt it would be an excellent plant for a damp situation. It is a native of North America, and was introduced during the sixteenth century.—T. W. B.

TWO RECIPES.

AUBERGINES A LA MAIORESE.

Slice the aubergines, pile the slices on a flat surface, sprinkling salt between the layers, place a weight of 12lb. to 15lb. on top to express the juice. After about an hour, remove weight and wipe each slice with a cloth, dust over with flour and fry in *lard*. Take the fried slices and arrange them in a fireproof dish in layers, sprinkling grated cheese (preferably Parmesan) and chopped citron peel and a spoonful of tomato sauce (to which has been added some butter) between each layer, until the dish is full, ending with a smooth covering of tomato sauce. Heat thoroughly in oven and serve in the fireproof dish.

GREEN PEA-POD SOUP.

Take the green pea-pods when the peas have been shelled and boil in a little water with a pinch of bi-carbonate of soda and some salt. When softened, rub through a *hair* sieve. Have some béchamel sauce ready, mix with the green paste of the pea-pods *very evenly*, adding enough cold milk to make the soup, which must be of a creamy texture and consistency. Bring to the boil and serve with little *croûtons* of bread fried a golden brown in *lard*.—A. BULWER.

MARKET GARDENS AND COMPENSATION FOR IMPROVEMENTS

THE NEW ACT.

THE Agricultural Holdings Act, 1923, affects to a considerable degree the interests of market gardeners and those engaged in fruit growing. The wording of the new Act, in certain sections, follows, to a large extent, and in some instances literally, the sections of the lately repealed Agricultural Holdings Act, 1908. It was in relation to such an instance that a case of importance to the occupiers of market gardens and to those concerned in fruit growing came recently before the Court of Appeal.

FUTURE AUTHORITY.

Where the sections in the old or in the new Acts apply, as therein provided, then it is enacted by both Acts that when agreed in writing that "the holding shall be let or treated as a market garden" the tenant shall be entitled to the benefit of the provisions mentioned for improvements. This raised the issue before the Court of Appeal in the case in point.

The Court gave its decision, in fact, after the new Act was passed, and as the relevant sections of both Acts are identical in this particular instance, the judgment of the Court will have binding force and authority in the future.

THE FACTS IN THE CASE.

A market gardener was a yearly tenant at a stated rental, and agreed to pay a further rent of 6 per cent. per annum on money expended by his landlord in supplying fruit trees. Clause 11 of his agreement stipulated that nothing contained in it should be deemed to be an agreement that any part of the premises should be let or leased as a market garden, or ground a claim for compensation. Notice to quit being given by the landlord, the tenant, however, claimed compensation on the basis that the holding was, in fact, a market garden. This was, indeed, the case, for a previous tenant had cultivated it as a market garden and, with the landlord's knowledge, the holding had been taken over and continued in cultivation as such.

DECISION OF THE COURT OF APPEAL.

The Court of Appeal held that the word "treated" in the Act did not there mean simply that the holding should be in use or cultivation as a market garden, but that it should be let and occupied as such, and, further, that Clause 11 in the written agreement had to be given its proper legal effect. The Court also held that an agreement in writing that the holding should be let or treated as a market garden was a condition precedent to such a claim, and laid it down that if a tenant had a right to claim compensation he could not contract himself out of it, but that no such right arose here, because the condition precedent had never been satisfied.

A NECESSARY PRECAUTION.

Prospective and other tenants will recognise from this case that it is not sufficient merely for premises to be used or cultivated as market gardens, but that if they desire to secure the benefit of the special statutory provisions for market gardens they must be particularly careful to see that their tenancy agreements expressly stipulate that their premises, or the required part, are also let or treated thereunder as market gardens.

It may be added that Section 49 of the new Act makes further provision as to market gardens of far-reaching importance to occupying tenants.—A LAWYER.

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SIMPLE GARDENING

AZALEAS.

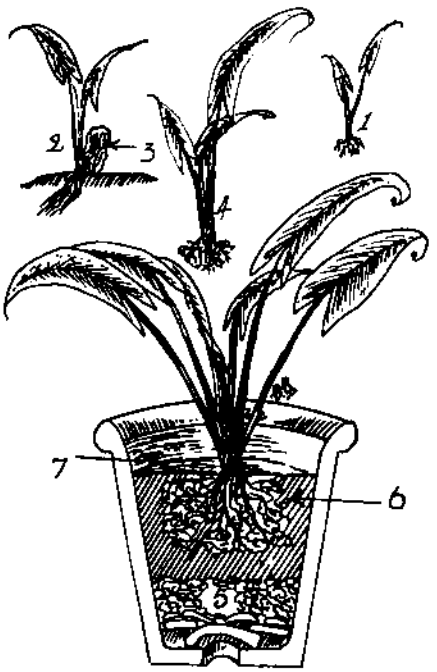
THESE plants are not so difficult to manage as many amateur cultivators suppose. They are general favourites and make a brave show in the greenhouse or conservatory during the late winter and early spring months. From the end of June to the present time the plants thrive best in the open air in a cool position, such as a bed of ashes on the north side of a wall or fence. The plants make the current year's growth in such positions, but on no account should they be neglected as regards watering and syringing. It is during this growing period that a little feeding may be done with benefit to the plants. The last application of any kind of stimulant shou'd be given not later than the end of August. From this date to the end of the flowering stage, clear water only should be applied. If manure water and artificials of a stimulating character be given before the flower buds open, the latter will, probably, turn brown and fall off. These flower-buds have, in themselves and in the leaves and stems, sufficient nutriment stored up to enable the resultant flowers to fully develop. The roots of the plants are fine and fibrous, and are easily killed by over-dryness, over-watering and strong stimulants. The foliage of Indian azaleas is very precious and should be preserved from the attacks of red spider and thrips —two great pests of the plants. Consistent syringing should be the rule after the plants are placed under glass this month till the middle of December, and cool treatment generally is beneficial.

HERBS.

It is a pity that the herb border is not more carefully attended to than is, unfortunately, the case generally. There are isolated cases where herbs are well grown, well harvested and well stored. There is a big demand for herbs in the kitchen; this requirement is continuous, and for this reason it is very important that preparations be made now to meet it. Perhaps any deficiency may be noted now so that the necessary seeds may be sown next spring and roots and cuttings inserted in due season. A small bed will supply the demands of a medium-sized establishment. In every garden should be grown parsley, sage, thyme, mint in fair quantities. In smaller quantities basil, chives, sweet marjoram, summer and winter savory, tarragon and fennel. Mint likes a moist but well drained soil to grow in, but nearly all the others thrive in a lighter rooting medium and in a very sunny position. The soil should not be made very rich, only moderately so. It should be the aim of the cultivator to produce a medium-strength plant and in most cases free-flowering. At the latter stage herbs should be cut and dried for storing. The present is a good time to store in small bunches in a cool, dry shed or room free from cobwebs and dust. Above all the suspended bunches place sheets of paper to prevent dust lodging on them.

LIFTING AND POTTING ARUM LILIES.

There are many cultivators who plant out their arum lilies in early summer and lift and repot them in early autumn. Where this system obtains the present is a suitable time to carry out the work of repotting. Of course, the pots should



be washed clean and dried, a good compost of loam and rotted manure prepared, and clean potsherds for drainage. Probably young side plants will have grown on the older specimens. These shown at Nos. 1, 2 and 4, should be carefully detached and potted singly in small pots. Where old plants were not "dressed" prior to their planting some hard basal stem-tubers will be found as shown at No. 3. These should be removed so that the young side plant, No. 2, can be potted properly. Sound drainage is shown at No. 5 for the large specimens; No. 6, the new compost; No. 7, space for water and surface dressing. For several weeks after potting keep the plants on the north side of a wall, safe from frosts, before placing them in the greenhouse.

PREPARING FRAMES FOR WINTER USE.

Garden frames are always interesting and, when properly managed, very remunerative structures. I have always been interested in them since I was a boy of ten, when an uncle gave me a frame light, unglazed, and I insisted upon carrying it to my home—four miles away. There I built the sides and glazed the light, and have not forgotten the crops of cucumbers grown in it in summer, nor the calceolarias in winter, radishes and early lettuce in spring. In these days the enthusiast can store away hundreds of precious plants and cuttings in the garden frame, where they will be safe from inclement weather. There are alpines, herbaceous plants, choice shrubs, seedlings and cuttings. But the frame should be made weather-proof now; it is too late when the plants are inside, and the fogs, frosts and rains of winter have come. The sides of a garden frame are best preserved by placing them on a single row of bricks. The latter absorb moisture and so there is not any danger of the wood rotting. Even one coat of good paint will keep out moisture during the winter; of course, I am referring to old frames, not new ones. Then, if any repairs are needed, do them now. The internal arrangements should depend upon the kind of plant to be wintered. In a deep frame some shelves will be an advantage for dwarf plants, but in every case ashes form a good base, especially for sweet peas in pots and boxes. Composts for beds in frames should be prepared, too. Soil bases should be watered with a strong solution of lime water to get rid of slugs and earthworms.

SOWING SWEET PEAS IN POTS.

Early-raised plants always flower more freely and bear finer blooms than those raised at a late date. The cultivator should make out his list of seeds required, at once. Some seeds may need chipping before they are sown, this fact is generally intimated on the seed packet. Many seeds look like rubbish and certainly not worth sowing. Do not be influenced by the poor appearance of the seeds. There are two ways—both good—of sowing the seeds; first, in small pots, duly re-potting the resultant plants into larger ones or planting them out undisturbed; second, many seeds in large pots. In the latter case 9in. pots should be selected, washed and dried. A fairly rich compost should be passed through a half-inch-mesh sieve. The compost in the pots should be watered prior to sowing the seeds. Scatter dry lime in the frame before placing the seed pots in it, to guard against slugs. Early in the new year turn out the young plants—the soil, owing to the sifting, will fall clear of the roots—and re-pot them singly in small pots. In due course these plants may be planted out or transferred to large pots and flowered in the latter.

GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Cabbage.—During the next few weeks, and directly the plants are large enough, a good batch of this indispensable vegetable must be planted out. Regarding the site there is no better spot than an onion bed from which the crop has been lifted. There is no need to dig the plot, but it should receive a hoeing, and all weeds must be removed. Set out the plants in lines 18ins. apart and allow a space of 1ft. in the lines. If necessary, afford each plant a thorough watering and at intervals use the hoe to keep down seedling weeds and open the soil.

Potatoes.—All crops that are ready may be lifted and, providing the tubers are fully developed, there is no need to wait till the haulm has died down. By leaving them in the soil for a longer period than is necessary is only courting disaster, especially in a dull wet season such as we have experienced this year.

Parsley.—Where this is always in demand, and a supply is essential during the winter months, a few plants should be lifted and set in a cold frame. In such a position they are easily protected through a period of severe weather.

THE HARDY FRUIT GARDEN.

Gathering Fruit.—This is no doubt the most important work at the present time in many gardens, and I strongly advise that such a task ought to be carried out with extreme care, particularly with soft-skinned apples such as Stirling Castle, etc. The pear crop should be extended over as long a period as possible, and, with varieties like Williams, a few may be gathered at intervals, and if these are placed in a room or warm greenhouse they will ripen very quickly. All fruit in store must be placed on a wooden staging or in boxes and not on straw, because the flavour will be spoilt.

Bush Fruits.—Although it is early for planting, it is not too early to prepare for new plantations of bush fruits. Having selected the site, the plot should be trenched or dug two spits deep, and if the soil is poor, add a liberal dressing of manure. By doing this work now the soil will be ready for planting directly the leaves fall, and, providing the bushes are available, this is no doubt the best time for planting.

THE FLOWER GARDEN.

Violets.—It is time these were lifted and placed in their flowering quarters, viz., cold frames. Any good soil will suit them, but it should be rather on the light side, and when the operation is completed the leaves should be within a few inches of the glass. Lift the plants with a ball of soil and set them out so that the leaves just touch, making the soil firm about the roots, afterwards affording a liberal quantity of water. For the time being admit plenty of air, and all decayed leaves must be picked off as they appear.

Violas.—Now is the time to propagate these charming flowers, and they will readily form roots if cuttings are placed in borders or nursery beds which are not fully exposed to the sun. A liberal sprinkling of sand is essential, and young growths about 3ins. long taken from the base of the old plants will make useful cuttings. Where they are liable to decay during the winter months when given an open border, a skeleton frame containing a layer of sandy soil will be a success, especially if a light can be placed over them when the weather is very wet.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Broad Beans.—As soon as the plants are finished bearing, they should be cleared from the ground. The old stems and any other spent material should be collected and burned.

Cardoons. — Notwithstanding the wet weather, have made good progress, and the most forward plants should have the stems—if not already done—slightly tied with matting, then the earth or other blanching material placed around them. Later batches should have the same attention when sufficiently grown.

Peas.—Late peas, like early varieties sometimes suffer by having pods torn and the peas taken out by some members of the feathered community. It behoves each one therefore to keep a sharp look-out on lines of peas, and stretch nets over them should any of the pods appear damaged.

THE FLOWER GARDEN.

Calceolarias.—There is no doubt that the old yellow bedding calceolaria is a good stand-by, its vivid shade for present-day colour schemes is perhaps a little glaring. The paler lemon-coloured variety is more to be desired. There is also a fine bronzy-brown kind with a sturdy and neat habit, which is really a gem, and, despite the continued wet weather, these brown calceolarias have kept up a good show, although with less rain they would certainly have been more beautiful. The wet, however, has favoured growth and there are plenty of good healthy shoots for cuttings. The cuttings should be secured now and inserted 3ins. apart in firm, sandy soil in a cold frame. Keep the frame lights closed and the cuttings shaded from bright sunshine for a fortnight or so. After this period allow a little air, gradually increasing the amount until the frame lights can be pulled off on all fine days. Thus the plants will be kept dwarf and hardy.

Herbaceous Borders.—If hardy plant borders are to be overhauled, now is a good time to make a start with the work. All plants of the same species or variety, when dug up, should be collected, then temporarily placed close together in lines on a section of vacant ground as near the border, or borders, as possible. Each line or section of plants of the same kind in the line should be properly labelled indicating height and colour where necessary and the number of plants in each group. Plants infested with perennial weeds should either be cleaned directly they are dug up or thrown away. When all the plants have been cleared from the ground the border or borders should be thoroughly forked over; this will level the ground and provide an opportunity to get out underground stems of perennial weeds and portions of plant roots which may have been left. If the ground is impoverished, plenty of decayed farmyard manure and leaf-mould should be placed on the border and well incorporated with the soil as the trenching proceeds. As soon as the trenching is completed the surface soil should be raked and the stations marked off; then the plants should be replanted in whatever formation it is intended to place them.

Pinks.—Cuttings inserted in July should now be well rooted, and if the frame or frames in which they are growing are needed, the young plants should be set out in beds, or they may be run out in lines on some of the borders and transplanted in permanent places in the spring.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Achimenes as they pass out of flower may be stood in cold frames, where the lights can be kept over them, gradually withholding water at the root as they show signs of dying down. During the winter they should be stored in a warm, dry shed or greenhouse. They may either be left in the pots or pans, or may be turned out and stored in dry sand for the winter.

Hippeastrums as they finish their growth and die down may be removed to cold frames, where the lights can be kept over them, otherwise they should be fully exposed to the sun. During the winter they must be stored in a dry building where the temperature does not fall below 45°. It is unwise to store them underneath stages unless they can be kept dry. Before putting them away they should be carefully examined for mealy bug. The plants that finish their growth and are dried off first should be kept separate, as they should be used for the earlier batches; they naturally respond better than plants that have finished their growth later.

Antirrhinums in their many beautiful varieties are very useful for the conservatory and greenhouse during the spring. The intermediate varieties are most suitable for pot culture, as under glass they grow taller than what they do outdoors. For pot work they should be sown in cold frames at this time. When large enough to handle, the seedlings may be pricked off into boxes. Afterwards, when large enough, they may be potted off singly into small 60-sized pots, or three or four plants can be placed round the edge of 48-sized pots. Grown singly, excellent examples can be produced in 48-sized pots. They are very suitable for furnishing the stages and for general decorative work. Where several are grown in pots they should be wintered in the 48-sized pots and early in the New Year be given a shift into 6in. or 7in. pots. Such plants will grow some 3ft. in height and are useful for furnishing the beds in the conservatory. The plants can be wintered in cold frames, giving them plenty of air on all favourable occasions. Or a cool, airy greenhouse where they can be kept well up to the roof glass affords ideal winter conditions for them.

Stocks are very useful for winter and spring flowering. Of course, for winter flowering, seed should have been sown during July, but if sown at this time they will flower during the spring. Seed should be sown very thinly, as they are very apt to damp off if the young plants are at all crowded. The seed-boxes should be stood in cold frames. When large enough to handle, the young seedlings should be pricked off, three or four being placed round the edge of a 60-sized pot. As a proportion of singles must be expected, this allows for them being pulled out. Of course, where space permits, it is best to grow them singly, one plant in a pot. They should be grown in a compost of good medium loam without any added leaf-soil. Lime is important for successful cultivation, and some old mortar rubble may take the place of sand. It is important that they be potted fairly firmly. They require perfectly cool treatment and very careful watering during the winter, and, like antirrhinums, may be wintered in cold frames or in cool, airy pits where they can be kept well up to the roof glass. The East Lothian varieties are very suitable for spring flowering, also All the Year Round, Sutton's Christmas Pink, Beauty of Nice and the many other beautiful varieties

J. COUTTS.
Royal Botanic Gardens, Kew.

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ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Climbing Plants (A. W., Birmingham).—If by perennial climbing plants our correspondent means those which die down to the ground in winter each year, then the choice of subjects suitable for a rather shaded northerly aspect is very limited. Tropæolum speciosum and Lathyrus latifolius in rosy red, pink and white should succeed. Trench the ground 2ft. deep, adding fibrous loam and leaf-mould if the soil is poor. The tropæolum in particular requires a light, well drained but moist soil. If deciduous woody climbers are required, prepare the soil in the same way and plant a selection from Rose Gloire de Dijon, Clematis Jackmani or C. Flammula, Forsythia suspensa and Jasminum nudiflorum.

Treatment of Border Carnations (W. M.).—No doubt the carnations have been eaten by slugs, which have been very troublesome throughout the summer. Sprinklings of soot or dry lime, applied separately, not together, would help to ward off attack by slugs. The latter should be looked for and caught at night by traps in the form of cabbage or lettuce leaves or bran. If carefully lifted, the old plants may be moved to another border. It is rather late to layer side shoots, but it may be done. Any seedsmen advertising in this journal would supply the seeds, which should be sown under glass next March or a little earlier.

MISCELLANEOUS.

Various Questions (R. R., Hitchin).—The markings on the leaves of the pear are caused by a fungus. The present season has been favourable to the spread of this disease. In a normal season it is not so prevalent. Prevention is best, and it is a wise plan to spray with Bordeaux mixture in the spring. The trees should be shaken from time to time now, and the fallen leaves collected and burned. The violas are attacked by a fungus, very common this year. Keep the soil on the surface loosened frequently and the bed free from weeds: it is all that can be done now, as the season is advanced. The leaves are also suffering from the leaf-mining maggot. Next year, in spring, scatter a small quantity of soot among the plants, which will benefit them and keep away the maggot fly. In the autumn thoroughly rake the lawn surface, apply well rotted manure and wood-ashes freely, and half a pound of lime per square yard. Sow hard fescue grass seeds next March.

Violas and Pansies (J. M.).—The viola and pansy are one and the same species, and are difficult to define. They chiefly differ in size and marking, the viola being smaller and mostly self-coloured. The pansy is a garden development, with larger flowers of various colours, some with definite markings and blotches.

Names of Plants.—R. M'K.—1, Deutzia crenata flore pleno; 2, Borago officinalis.——H. G. S.—Ruscus Hypoglossum.——J. M.—Rose Fimbriata.

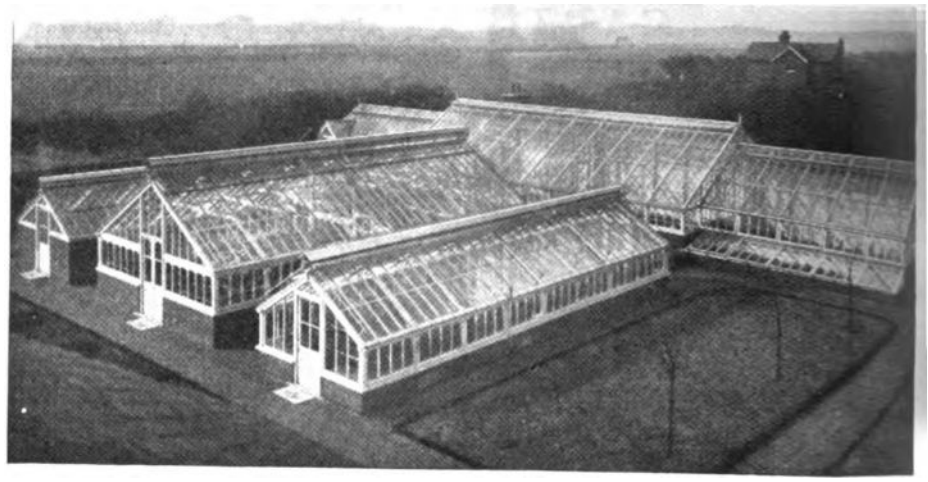
Names of Fruit.—D. M.—Apples: 1, Endsleigh Beauty; 2, Alfriston; 3, Bramley's Seedling; 4, Beauty of Bath.

FORTHCOMING EVENTS.

September 9.—Royal Horticultural Society's Fortnightly Meeting.——National Hardy Plant Society's Gladiolus Show to be held in connection with the R.H.S. Show.

September 10.—National Dahlia Society's Annual Show, to be held at the R.H.S. Hall.——Royal Caledonian Horticultural Society's Exhibition (two days).

September 11.—National Rose Society's Autumn Show, at Botanic Gardens, Regent's Park.



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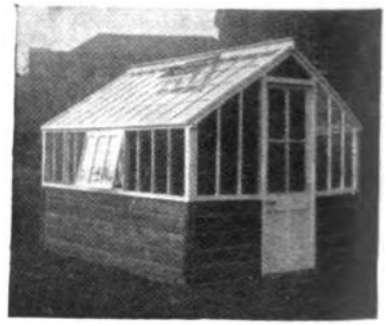

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RULES FOR THE ROSE COMPETITION

A list of six (only) hybrid tea roses to be sent in in order of preference on a separate sheet of paper, with name and address of the sender clearly written on the top. No ALTERNATIVES WILL BE ALLOWED, but readers may send in any number of lists.

Lists must reach this office not later than Saturday, September 20th (after that date no lists will be accepted) and must be accompanied by a coupon, to be found on page ii of this issue, and also in the issues of August 23rd and 30th, and September 13th.

The popular vote will be final, and no correspondence will be entered into over this competition.

Envelopes must be marked COMPETITION and addressed to THE GARDEN, 20, Tavistock Street, Covent Garden, W.C.2.

The Editor will not be held responsible for letters missing in the post.

The First Prize will be an order for £3 on any advertiser to be found in the pages of THE GARDEN.

The Second Prize will be an order for £2 on any advertiser to be found in the pages of THE GARDEN.

The Third Prize will be a book, or books, from the *Country Life* Library to the value of £1.

The result will be announced in THE GARDEN in the issue of October 11th.

The Editor's decision on all points will be final and binding.

See THE GARDEN, *August* 23rd, *page* 578.

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The Kelway Colour Border

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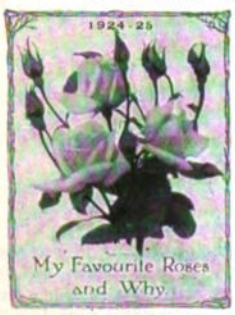

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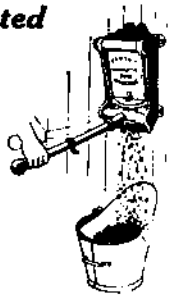

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Rose Competition

See page 640

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THE GARDEN

VOL. LXXXVIII.—No. 2756. SEPTEMBER 13, 1924.

We would ask our readers to remember that "The Garden" is produced for the benefit of all gardeners. We are always pleased to consider articles or notes on any horticultural subject. We are also here to answer questions.

About a century ago there was a craze in this country for the Cape heaths. The number of varieties in cultivation in greenhouses was enormous. Now, alas, most of them have disappeared. This illustration, however, shows one which is still popular, Erica hyemalis.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

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THE GARDEN

SEPTEMBER 13, 1924

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SEEDS AND PLANTS FROM OVERSEAS

II. - PLANTS.

THE problem with the despatch of plants to this country from overseas is entirely different from that of seeds, and is considerably simpler, for we know to begin with that there are numbers of plants which will not live through a long journey either in the temperate zone or through the tropics.

We know, for instance, that plants with storage capacity within themselves, like most orchids, and succulents like mesembryanthemums and cacti, withstand even the longest journey comparatively easily. We know too that corms, bulbs and tubers are perfectly happy if sent at the right time and packed dry. We also know that it is impossible to send leguminous and other plants of that nature.

The problem therefore resolves itself into three factors :- -

1. Is it possible or not possible to keep a plant alive on a long journey ?
2. What is the best time to send a plant ?
3. What is the best way to pack a plant ?

1. The first point depends largely upon point 3, and this will be explained in due course. As I said above, plants with storage and plants with root systems in the form of bulbs, corms and tubers, are comparatively simple. After that I should certainly say that ligneous plants were the easiest to send and also as a general rule perennials which die down to the ground in winter. Although numbers of bulbs and ligneous plants have been sent yearly from Japan with fair success for a number of years, little experience in the despatch of plants has been gained since the Wardian case has more or less fallen into disuse, but of this more in point 3.

2. The best time to send a plant is obviously when it is at rest, but then a resting period is often a long one and I should say that as a golden rule it should always be lifted at the beginning of the resting period and not at the end, for plants are creatures of habit and when they feel the necessity for growth come upon them they will come into growth wherever they may be, unless the checking is severe, and this brings me to No. 3.

3. Our grandfathers, with the help of a gentleman called Mr. N. B. Ward, used to transport living and growing plants in a contrivance called a Wardian case, which was nothing more nor less than a movable frame with glass top and sides. The whole secret of the contrivance was that it was practically airtight and so there was little or no evaporation of moisture while sailing through the tropics. It is known that on several occasions plants were shipped from China to England, via the Cape, and survived without even having been watered on the voyage. As I said the other week in an article on Robert Fortune, it was due to the Wardian case that he was able to start the tea industry in India. The top of the case was movable so that if condensation on the inside became excessive a little air could be let in to counteract it.

A Wardian case, however, was clumsy and liable to damage. Surely Dr. Cockayne's suggestion in his article last week is the logical solution of the difficulty of bringing home plants alive? He suggested that the cool-rooms of ships might be used, always supposing that the shipping companies would allow it. There is hardly a ship nowadays which has not got a room used for storing fresh fruit and vegetables for use on the voyage. It is kept between 33° and 35° and is surely an ideal place for all plants, except the most tender, on a long voyage. The temperature is always steady and if the plant is collected in the resting season there will be no stimulus to start it into growth on entering the tropics. Most plants could be lifted with a ball of the original soil around their roots, thus saving root disturbance, and either packed in a crate or simply in sacking and in the cool room it would remain undisturbed until its arrival in England. The only surprising thing is that this method of transportation has not been used hundreds of times already.

It also seems to me that transportation of seeds in a cool-room, or in the case of high alpines, in the refrigeration chamber of a ship, might improve the germination of seeds owing to their having travelled in a stable temperature. At any rate I am sure that by this method a number of plants from the temperate zone which have so far refused to reproduce themselves by their seed germinating in this country, might be lulled into a sense of security on the voyage. What they would do when they found themselves alive in our gardens is another story.

E. H. M. C.

A REMINDER.

Remember that this is the last issue which contains the coupon for our Rose Competition, and also that all entries must reach this office by Saturday, September 20th. The rules will be found on page 640 of this issue.

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CHRYSANTHEMUMS

THE GENERAL CULTIVATION OF THE PLANTS IN LATE SUMMER AND AUTUMN.

CHRYSANTHEMUM blooms may be obtained, on plants that are well grown, from late in June to the end of January—seven months out of the twelve. I do not think many cultivators would wish to have blooms over a longer period, not even the enthusiasts, as there is always so much pleasure in welcoming the new-comers when the various sections of plants unfold their flowers. But every part of the work in connection with the growing of the plants should be done well so that the very best blooms will result. The enthusiast, whether he is a cultivator of chrysanthemums, orchids, fruits or flowers, always takes a deep interest in the plants at all stages of growth, but the deepest interest comes when the flowers or fruits, as the case may be, are nearing perfection.

Splendid displays of flowers may be secured without the aid of glass and it is this fact that, perhaps, goes a long way towards earning for the chrysanthemum the title of "Autumn Queen." In every garden, in all kinds of soil, borders of these plants may be grown; there is, now, a wide range of colour and a great improvement in the habit of the plants and their blooms. Some of these gems are named below. But even the ideal plant may be spoiled if it is not properly treated. Staking of nearly every plant is essential now; some disbudding will improve many varieties, while those that are noted for their charming sprays should not be disbudded.

The staking should be just sufficient to support the plants and not mar their natural habit. Most of the single-flowered varieties that flower in the open border are taller-growing than the others and require more care in the staking. Frequently, one finds plants existing in borders, with all their lower leaves withered and the stems hard and wiry. They are starved, and have been throughout the summer months. Millions of blooms will develop during the months of August, September and October, and, perhaps, those most valued are the ones opening in the two last named months. The starved specimens may be improved considerably by the application of weekly doses of manure-water; two applications a week will be required by plants growing in a sandy or light soil.

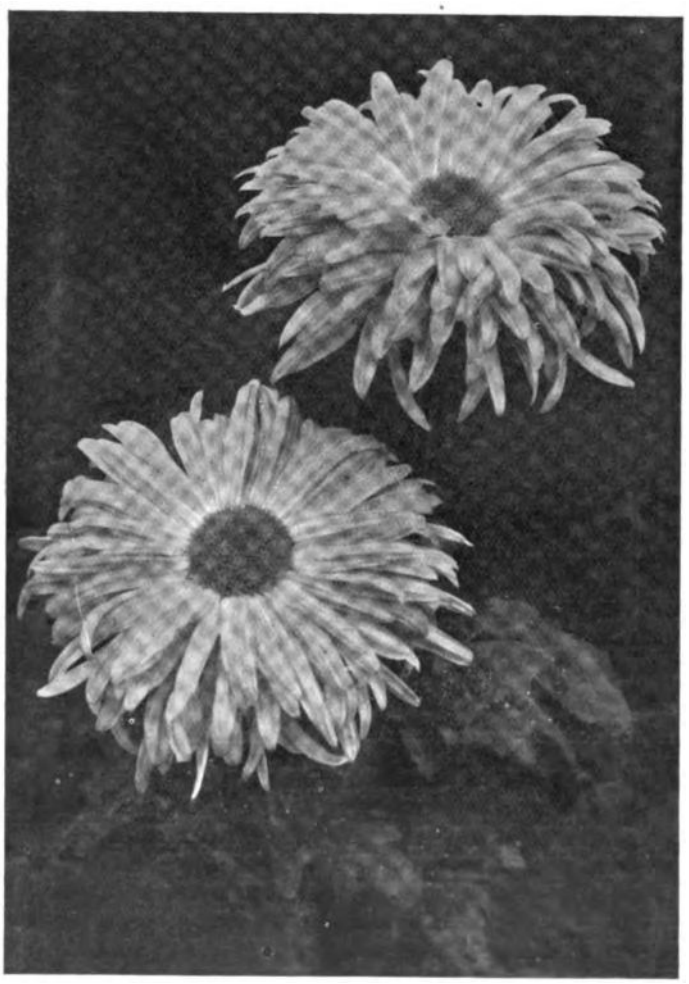
Note should be taken now of drawbacks, such as wrong positions, bad arrangements of colours and grouping, also of the various heights of the plants, so that all mistakes may be avoided next year when new arrangements are made. For the benefit of those growers who have not given the varieties a trial, I will name a few of the best of the newer ones here. I think the best effect is obtained by planting in masses and confining the colours, as distinct as possible, to about a dozen. Almirante, reddish scarlet; Cranfordia, yellow; Bronze Cranfordia; Countess, pure white; Emperor, crimson; Framfield White; Harry Thorpe, yellow, centre shaded fawn; Mrs. Marshal Field, hydrangea pink; Normandie, pale pink; Pink Delight; Silver Lining, silvery pink on white ground; and Verona, red. These are all real gems; so also are the following singles, suitable for the open border. Carrie Luxford, crimson; Dolly Thorpe, apricot and salmon; Early Mary Richardson, buff and gold; Fire King, crimson red; John Woolman, rose pink; King Cup, clear yellow; Midnight Sun, terra-cotta, shaded yellow; Pure Gold, deep yellow self; Resolution, deep rose-pink self; Simplicity, a very pure white; Shirley Crimson, velvety, good; Shrapnel, orange and terra-cotta.

Inexperienced cultivators wish to know when they should strike cuttings and plant out the resultant plants. Both sections, above named, should be propagated between the middle of February and the same time in March and should be planted out in the open border late in May.

PLANTS IN POTS.

Chrysanthemums are grown in pots so that they can be housed, and the blooms be available for cutting or for the furnishing of the greenhouse and conservatory after the open-air flowers have faded. Such plants are very precious at the present time and all cultivators of them should remember that the bulk of soil around the roots is small. Feeding is essential and must be attended to several times each week. Of course, it is advisable to keep the plants outside as long as safety from early frosts will permit. As the pots are now full of roots some nourishing food should be applied regularly, in weak doses often rather than in strong doses and at long intervals. In wet weather artificial manures, in powder form, may be applied and in dry spells liquid manure should be applied alternately. In country districts farmyard liquid manure will be available or the organic manures which can be placed in bags and soaked in tubs of water. In towns and their suburbs soot-water will be available and organic manures in some districts. Horse, cow, goat, sheep, fowl and pigeon manures are all suitable.

Only in cases where fairly large blooms are required on these small plants will it be advisable to disbud and retain crown buds; the greatest satisfaction is derived from the retention of the terminal buds. Here, again, we should



A SINGLE-FLOWERED VARIETY, CHRYSANTHEMUM PINK BEAUTY.
The form is more attractive than the colour.

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be careful not to disbud those specimens that bear blooms in spray form.

Earwigs are very numerous this year and a careful watch for them every night is necessary and the examination of traps every morning. The stems of broad beans, empty flower pots with a little moss in the bottom, placed on the ground, and old dahlia blooms fixed half-way up the stems of the plants all form useful traps. The plant bug, or hopper, eats the stems just below the bud. When first seen the plant bug jumps quickly, but if carefully watched it may be caught the second time, as it rarely jumps as quickly, but turns round on the leaf or other object. Every plant should be well cleaned, also pots, before they are placed under glass.

The varieties named below have given great satisfaction last year and this; they are suitable for both large and small greenhouses.

Framfield Glory, deep golden yellow, one of the finest for pots; Ivy Gay, clear pink; Lady Stanley, silvery pink; Lucie Loupee, pure white; Red Dragon; Mrs. Sydney Dove, rich pink; Pink Profusion, lovely for table decoration; Romance, yellow, old and still good; Lord Brooke, bronzy-orange; Mme. R. Oberthur, late white, always reliable; Pink Pearl, rich pink; Shirley Scarlet, one of the best; Thorpe's December Pink.

Single-flowered: Bertha Fairs, orange and bronze; Ceddie Mason, crimson; Flossie, bright yellow; Glorious, golden yellow; Jessica, red; J. J. Morrish, golden yellow in sprays; Mary Richardson, reddish salmon; Molly Godfrey, rose pink; Phyllis Cooper, golden yellow, superb; Sweet Auburn, orange and fawn, and Pink Beauty, the form of which is more attractive than the colouring. Mensa, best white.

A PRETTY LATE FLOWERING JAPANESE VARIETY, C. BRIGHTNESS.

INCURVED VARIETIES FOR DECORATION.

About thirty years ago the incurved sorts were extensively grown both as specimens and for cut flowers. Few of the varieties grown then are cultivated now, but there are several newer ones that are refined in flower and satisfactory in every way. The cuttings should be propagated early in February and the resultant plants flowered singly in 7in. and 8in. pots or three in a 9in. pot. Stopping is not necessary nor desirable. Practically all the plants grow bushy in form and bear the best blooms on terminal shoots; so it is only necessary to propagate at the right time, re-pot in due course, take terminal buds and feed judiciously during August, September and October. The flowers of the following are available from September to Christmas:

Romance, golden yellow; Golden Glory, deep buttercup yellow, a grand flower; Charles H. Curtis, clear yellow; Edwin Thorpe, pure white; Emblem Poitevine, golden yellow, late; H. W. Thorpe, pure white, November flower, easy to grow; Mrs. F. Judson, another grand white; Mrs. Sydney Dove, pearly pink, perfect; Percy A. Dove, white, end of November; Mme. Ed. Roger, sea green, a novelty; W. D. Parkins, rosy mauve; and W. J. Higgs, rich crimson.

Groups of these distinct colours embodied in perfectly-formed refined flowers will make a greenhouse attractive, or, as cut flowers arranged in tall trumpet-shaped vases, the dwelling-room or hall.

BUSH, OR SPECIMEN PLANTS.

I strongly advise cultivators not to attempt growing specimen bushes unless they are prepared to devote considerable time to training, etc. From the cutting to the flowering stage the plants must receive special attention. They should never receive a check to growth nor be allowed to get pot-bound before the final potting and, afterwards, feeding will be essential to success; throughout, extra care is needed in the matter of watering. Most of the plants will need stopping twice—in April and late in June—to induce a branching habit. William Turner, white; Edith Cavell, chestnut; Louisa Pocket, white; Mrs. G. Monro, Junr., deep crimson; Mrs. Algernon Davis, pink; Mrs. M. Sargent, greenish white; Mrs. R. Luxford, Indian red; Peace, buff yellow; Mrs. R. H. B. Marsham, white, all Japanese varieties; with H. W. Thorpe, white; Mrs. Sydney Dove, pink; Mme. Ferlat, white; W. J. Higgs, crimson, all incurved. Mensa, white; Glorious, yellow; and Ladysmith, shell-pink, are ideal singles for bushes.

LIFTING PLANTS FROM OUTSIDE BORDERS.

This is frequently done and the flowers serve a very useful purpose, but they do not last as long, quite, when cut, as those from pot-grown plants. If dry, the soil should be watered the day before the plants are lifted. Also, the plants are best when lifted soon after the buds have formed. The re-planting should be done quickly and in a border or in soil packed on a stage. Water forthwith, shade slightly for a week and syringe the foliage daily in bright weather, then gradually expose to light and sunshine, keep the foliage dry and ventilate freely. The plants may be lifted and placed in pots in the usual way, then treated as advised above.

GENERAL TREATMENT OF PLANTS UNDER GLASS.

Water early in the day. Ventilate freely in fine weather; use fire heat only to expel excessive damp and frost; catch earwigs at night, fumigate to kill black and green aphides, and use flower of sulphur to destroy mildew. Do not feed plants that bear blooms three-parts developed, clear water is sufficient then. Remove suckers till November 1st.

GEORGE GARNER.

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AUTUMN COLOUR in the SHRUBBERY BORDER

WHEN planting beds and borders of hardy shrubs for effect in autumn, there are three or four phases of plant beauty and interest to be borne in mind. Only a comparatively few shrubs flower in autumn, but the leaves of many deciduous shrubs assume gorgeous tints of colour before they fall. Some of these shrubs, particularly in the autumn sunshine, rival, if they do not surpass, many bushes in flower. In addition to these we have an increasing number of hardy shrubs with very showy fruits; the newer Chinese barberries and their hybrids being notable examples.

In gardens of private houses where the owners are usually resident in autumn and in public parks and gardens of holiday resorts, these shrubs possess a special value. Until midsummer, or a little later, there are so many and such a wide variety of shrubs in flower that it is easy to keep the flag of interest flying. There is no reason why, with a little consideration and planning, the shrubbery beds and borders should not be just as interesting from mid-July and onwards throughout the autumn.

While the amount of foliage-colouring and fruiting varies from year to year, with such a wide variety, the prevailing climatic conditions invariably suit a goodly number, and quite a nice list can be made of those of which it may be truthfully stated that whatever the weather, in flower, foliage or fruit they never fail to develop attractive features.

AUTUMNAL COLOURING.

Speaking generally the leaves of most deciduous shrubs change considerably in colour in late summer and autumn before they fall. The change from the varying shades of green to gorgeous tints of yellow, orange, red, crimson and intermediate colourings is most interesting to watch from day to day. The changeable conditions of the British climate have a considerable influence in varying from year to year the degree of rich colouring in certain shrubs. The nature of the soil also influences to some extent the intensity or otherwise of the colouring in different localities.

The hot dry summer of 1921 gave us a very good example of both climatic and soil conditions. On our light soil at Kew the colouring developed early and did not last as long as usual. Comparing notes with friends gardening on heavy rich soils came reports of the gorgeous colouring of many shrubs which under normal conditions called for no special comment prior to the falling of the leaves.

With a wide variety of shrubs from which to make a selection it is only possible to record here a few of the most striking and those which seldom, if ever, fail to attract attention.

The rhus or sumach family is of particular value, with R. cotinus the outstanding feature, a gorgeous study in crimson, scarlet and orange. A tall bush 8ft. to 10ft. or more in height, it colours best in the ordinary soil of the shrubbery border rather than deeply cultivated ground. The Japanese sumach, R. trichocarpa has attractive leaves more than 1ft. long, the leaflets of which change to brilliant orange-crimson. R. glabra, (rich red), and R. typhina, (orange and red) are very useful in the shrubbery borders of town squares.

As a lawn tree or in the shrubbery border Amelanchier canadensis is attractive in yellow and red. Half a dozen of the best deciduous barberries with us in autumn are Berberis concinna, B. dictyophylla, B. Thunbergii, a study in scarlet and gold, B. vulgaris, B. Wilsonæ and B. yunnanense, orange, red and crimson. In the autumn of 1923 we had nothing finer in colour than Enkianthus campanulatus, gorgeous in red and yellow leafage, fine in a mass. The best of the flowering currants are Ribes aureum and the variety aurantiacum with rich dark red colouring. R. americanum is also good.

Many of the deciduous hybrid rhododendrons (azaleas) change to rich tints of crimson, scarlet, red, dark orange and yellow before the leaves fall. R. dilatatum, orange red, is particularly showy among the species. Fothergilla major, golden yellow; F. monticola, yellow and red; Disanthus cercidifolia, many vacciniums, especially the dark red V. Arctostaphylos, Viburnum Opulus, Pyrus cratægifolia and some of the Japanese maples give to the borders a wealth of colour in autumn.

A few of the smaller trees will find a place in the background or as lawn specimens, adding greatly to the beauty and interest of the garden landscape. First on the list must be Parrotia persica, crimson, metallic red, orange and golden yellow; Nyssa sylvatica, red; several thorns, particularly Cratægus Crus-galli, and C. prunifolia, both gorgeous in orange and red, also C. Carrieri, rich in autumn foliage and fruit until near the end of the year; Oxydendrum arboreum, red; Ginkgo biloba, yellow, and Waterer's Scarlet Oak, Quercus coccinea var. splendens.

ATTRACTIVE IN FRUIT.

The value of berried shrubs for making an interesting and bright display from August onwards in the shrubbery borders and pleasure ground in general is annually receiving more attention. No family of hardy shrubs is more promising to-day in this respect than the barberries, especially the hybrids of Berberis Wilsonæ, B. polyantha, B. subcaulialata and B. Staphfiana, which originated at Wisley and elsewhere. In this respect, too, we must include B. vulgaris, B. aggregata, B. Pratti and B. Beaniana. Autumn rains and winds may damage the flowers of the garden roses, but the hips of the wild roses glisten brighter than ever in the sun after rain. In addition to the British Rosa canina, RR. Webbiana, Moyesi, sertata, omeiensis, Davidii and glutinosa, deserve special attention.

As large bushes, a blaze of colour with autumn fruits, the pyracanthas are very prominent, none more so than P. coccinea var. Lalandii, which is equally valuable as a bush or climber for the wall of the suburban villa. The cotoneasters, mostly with red fruits, viburnums in variety, especially V. betulifolium, V. dasyanthum, V. Henryi, V. Opulus, and the distinct yellow fruits of var. fructu-luteo and V. Lantana, with the fruits at first red, then black.

Altogether there is no necessity then for the shrubbery to look dull and dismal throughout late summer and autumn provided one makes a selection of shrubs from those given above. A. O.

ONE OF THE BEAUTIFUL COTONEASTERS WITH ITS HANDSOME BERRIES.

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NEW ZEALAND PLANTS FOR THE BRITISH ISLES

BY DR. L. COCKAYNE, F.R.S.

IN THIS ISSUE DR. COCKAYNE CONTINUES HIS SUGGESTIONS OF SEMI-WOODY NEW ZEALAND PLANTS WHICH MIGHT PROVE AMENABLE TO CONDITIONS IN THE BRITISH ISLES.

(*Continued from page* 616.)

4. Astelia.

A. Cockaynei (sea-level to 5,500ft., on fairly deep soil, often stony, in full sunshine, sphagnum bog, forest floor) is a handsome, easily grown, liliaceous plant forming large whitish patches of spreading leathery leaves, silky on both surfaces and marked with a conspicuous central and lateral brown lines. A. Petriei (3,000–6,000ft., in hollows where snow lies long) is similar, but the leaves shorter, glossy pale green and glabrous. A. monticola (4,000–6,000ft.), grows in similar situations to the last named, but the leaves are smaller still and gradually taper into long points; not yet in cultivation.

5. Celmisia (cotton-plant, mountain-musk for certain classes).

The genus consists of about fifty-five species and a number of natural hybrids, all of which are endemic, but Australia possesses an additional species. They are nearly all showy, often stately herbs, bearing, usually on long stalks, daisy-like flower heads, frequently of great size. Here the species are arranged into three groups.

(*a*) With large leaves covered beneath with a mat of hairs, often white, arranged in erect rosettes (the cotton-plants).

C. coriacea (3,000–5,000ft., on rather stony ground in full sunshine) has flowers up to 4ins. diameter and stiff, broad, silvery, lance-shaped leaves up to 2ft. long. C. Hookeri (sea-level to 4,000ft.), with fringed rays to heads equally large, has broad, soft, pale green leaves, white beneath. C. verbascifolia (1,000–4,500ft., from stony ground to sphagnum bog), is similar, but rather smaller. C. lanceolata (2,000–4,000ft., on wet mountains in the south), has moderately broad, dagger-like leaves marked by a median orange line; its heads are about 2ins. in diameter. C. Armstrongii is similar, but with narrower leaves. C. Petriei (4,000–5,000ft.) has also narrow leaves, but they are glossy green, satiny-white beneath, and ridged longitudinally. C. Traversii (3,000–5,000ft., rather stony ground) has soft, dark-green, broad leaves, margined conspicuously with velvety rust-coloured hairs, and the mat of hairs on the back of the leaf also more or less rusty. C. rigida (coast Stewart Island—2,000ft.; rock, stony soil) is similar, but the mat of hairs is white; it is very easy to cultivate. There are numerous hybrids in this group, in which C. coriacea, C. Lyallii, C. petiolata, C. Traversii, C. spectabilis and C. gracilenta are concerned.

CELMISIA ARMSTRONGII GROWING IN ITS NATIVE HABITAT.
The plant makes a firm and sturdy growth.

(*b*) Forming mats, often more or less circular, with spreading, rooting, leafy branches, and mostly linear, oblong or spathulate aromatic leaves, frequently in close rosettes; the flower heads 1in. to 2ins. diameter on slender stalks (the mountain-musks).

This class, not much in evidence in British gardens, would be a valuable addition to them; the species have the advantage of being readily propagated from rooted pieces of the stem. They mostly grow on stony ground at altitudes of from 2,000–6,500ft., and many are common on the drier mountains. The most beautiful and showy is C. incana (there are many forms) with its leaves covered with snow-white wool on both surfaces. C. intermedia is similar, but grey and not woolly on the upper surface. Other species are C. Sinclairii; C. Lindsayi (coastal cliff), larger in all its parts than most of its section and easy to grow; C. prorepens, with wrinkled, green, thin, glabrous leaves; and C. densiflora, similar to the last, but with a white kid-glove-like mat of hairs on the back of the leaf.

(*c*) Cushion plants with small leaves in close rosettes; flower heads rather small, but numerous.

These are frequently plants of stony ground at a high altitude—6,000ft. and more. C. Hectori makes wide circular mats, or cushions, of crowded, silvery rosettes of small, rather narrow leaves; the flowers are on short stems; it is an ideal rock-garden plant. C. sessiliflora (3,000–6,000ft., often abundant on wet peat) forms dense silvery cushions; the flowers are stemless. C. argentea (sea-level in Stewart Island to 6,000ft. in the South Island, wet peat) is similar, but the leaves and rosettes are smaller. C. laricifolia (3,000–7,500ft.; extremely stony ground), has tiny rosettes of very narrow, pointed, silvery leaves. C. bellidioides (1,000–4,000ft., wet rock faces) forms close, bright-green cushions of small glabrous leaves; its numerous daisy-like flowers are held well up on long stalks.

The sub-antarctic C. vernicosa belongs to section (*b*), but so wonderful a plant must stand by itself. The short, narrow, stiff leaves, in crowded rosettes, are like highly polished jade; the heads, 1½ins. diameter, are lovely with their spreading white rays and purple disc, or occasionally they are purple throughout. It grows on wet peat and is exposed to almost constant cold sleety gales, but the ground is barely frozen in winter, and the summers always cool. Evidently this delightful plant will be extremely difficult to cultivate. Possibly pot culture in a cold frame would succeed best. C. campbellensis is similar to C. vernicosa, but the leaves are lance-shaped.

6. Chrysobactron (syn. Bulbinella, Anthericum).

C. Rossii, growing under similar conditions to its sub-antarctic companions, well upholds the reputation of that wonderful little flora. It has a fleshy rootstock, from which arise yearly numerous broad hyacinth-like, fleshy, bright green leaves; the striking orange flowers, held aloft on long stalks, are in racemes, 4ins. long, the male being far the more showy. Hillsides in Campbell Island bedecked with this magnificent plant in its thousands are a treasured memory. C. Hookeri (sea level to 4,000ft., both extremely wet and equally dry ground) is smaller, its pretty flowers yellow and its cultivation simple.

7. Coriaria angustissima (1,000–4,000ft., stony river bed) is worth cultivation on account of its green, feathery foliage and masses of black fruits. As it dies to the ground in autumn it should withstand most frosts. In cultivation it requires a good soil of a fair depth.

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8. Cotula.

C. pyrethrifolia (3,000–6,500ft., on stable screes), makes dense mats of small, fleshy, aromatic, much-cut leaves; the heads are cream-coloured and 1-in. diameter. C. squalida, C. potentillina (Muelleri), C. Traillii (coastal), and C. Haastii, are pretty mat plants of rapid growth, with small fern-like green leaves. The sub-antarctic C. plumosa (coastal), has beautiful, erect, feathery leaves with filiform segments.

9. Donatia novæ-zelandiæ (sea-level Stewart Island to 6,500ft. in the South Island), builds large dense green cushions, made up in part of its rotting parts, dotted thickly with pretty white flowers. The species of Phyllachne, similar in form but the cushions smaller, are even more floriferous.

10. Drapetes Dieffenbachii (1,000–6,000ft.; stony ground in full sunshine), of easy culture, forms close, pale-green mats with minute leaves and abundant small white flowers, an excellent "alpine."

A DIFFICULT PLANT TO GROW, THE DENSE GREEN CUSHIONS OF DONATIA NOVÆ-ZELANDIÆ.

11. Gentiana (gentian).

The twenty species are all worth growing, but they are very difficult to establish. Possibly, were seed sown in a small pot and when the plants were pot-bound, should such good fortune come about, soil and all were transferred to a suitable position, the plants might be established. G. corymbifera (1,000–4,000ft., in fairly deep soil) is to be greatly desired, with its umbels of delicate white flowers, each 1in. diameter, raised 2ft. above the rather insignificant rosette of leaves. G. divisa var. magnifica (3,000–4,000ft., in clayey soil in full sun) forms rounded cushions 6ins. diameter, completely covered with large, snowball-like white flowers. G. bellidioides and G. patula are also excellent.

But the glory of these gentians culminates in the glossy-leaved, sub-antarctic G. cerina, with the flowers ranging from white to crimson.

12. Geum uniflorum (3,000–5,000ft.; on moist, shady banks, along with Celmisia Walkeri), is a beautiful evergreen, woody at the base, with brownish leaves in a rosette and stalks 5ins. long, bearing large, solitary white flowers.

13. Gnaphalium (cudweed).

G. Lyallii, G. trinerve and G. Keriense are pleasing, much-branched plants of similar appearance and requirements, forming depending mats with soft, green leaves, white beneath, on wet banks and in the drip of water; the numerous flowers are "everlastings." G. subrigidum (lowlands, wettish marl banks), less hardy, has much narrower leaves, and grows more slowly, but a charming plant.

14. Gunnera.

As the South American gunneras are the giants, so are the New Zealanders the pygmies of this genus. All the latter form carpets of small, broad leaves in rosettes. G. dentata, with red fruits on erect stems, reminds one of a grape-hyacinth. G. Hamiltonii is pleasing with its brownish rosettes.

15. Haastia.

Doubtless many would like to grow the great vegetable sheep (H. pulvinaris), a plant of screes at 5,000ft. and upwards on dry mountains, but, except for a piece kept alive in a greenhouse for some time, it has not been successfully cultivated. The desirable H. recurvum and H. Sinclairii, forming respectively brownish or greyish mats on screes at a high altitude, are amenable to culture, but not easy.

16. Helichrysum.

H. bellidioides is well known in British gardens, but there are many forms differing in the degree of silveryness of leaf. The North Island variety of H. prostratum, with its larger leaves, and more or less stalkless flowers, is of high excellence. H. Sinclairii (3,000–4,000ft., on shady rock faces; not yet in cultivation) is a charming, erect plant 1ft. to 2ft. high, with much-branched, white woolly stems, small leaves and bunches of everlasting flowers.

17. Jovellana (Calceolaria) repens (lowland and montane in drip of water), is a very pretty, small, mat-forming plant with the flowers 1in. diameter, white, spotted purple. J. Sinclairii (not so hardy), of a similar habitat, but will grow well in a dry situation, is of erect habit, and larger in all its parts.

C. VERBASCIFOLIA. AN ILLUSTRATION OF HOW CELMISIAS GROW IN THE WILD STATE

(To be continued.)

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SCOTLAND'S PREMIER FLOWER SHOW

GLASGOW SHOW is probably the premier Show in the British Isles after Chelsea. The reason is partly that Scotland is a land of gardeners and partly because of the Kelvin Hall in which it is held. This hall is the old machinery hall of the Glasgow Exhibition and without a doubt it is the finest hall in which a flower show could be held.

People who visit the Glasgow Flower Show for the first time will be amazed at the extent of space which it covers and the numbers of exhibits, for to my mind this is the ideal of what a flower show should be, a judicious blending of purely trade exhibits, and classes both open and limited to amateurs. In this way every class of the gardening world is catered for, and the consequence is that everybody is satisfied.

Naturally, in a show so large as this it is impossible to describe every exhibit or class, but to show the variety of classes open to amateurs I can mention twelve blooms of roses, forty-eight blooms of roses, the former divided into sub-sections of different colours, twelve begonias, six, twelve and twenty-four violas, a vase of double asters, six vases gladioli, three vases hardy herbaceous, numerous classes of early chrysanthemums, bowls of roses and vases of carnations and sweet peas for decoration, tables of fruit, table decoration, besides dozens of classes for fruit and vegetables. The standard was amazingly good considering the season, so good that it was very difficult to pick out individual merit.

Mr. James Smith staged six excellent vases of border carnations and picotees, among them Kelso and Mrs. Hawksbee, as well grown as I have ever seen. He gained a well deserved first prize for this exhibit. Among the rose exhibits Messrs. Adam and Craigmile of Aberdeen received first prize for forty-eight magnificent blooms, which showed first-class cultivation. Another well merited first was given to Mr. G. T. Anderson, gardener to the Earl of Balfour, for his table of fruit. The most disappointing class was that of table decoration, which followed the old stereotyped rules and lacked originality throughout. Among sweet peas Mr. John A. Grigor, Duff House Gardens, carried off several firsts for excellent vases well arranged.

A GLIMPSE OF MESSRS. ADAM AND CRAIGMILE'S MAGNIFICENT ROSE BLOOMS.

To my mind the premier exhibit in the Show was that of the Glasgow Corporation Parks Department, who staged a formal garden, a fountain surrounded by beds the whole flanked by herbaceous borders. The exhibit was in excellent taste and reflected great credit on Mr. Matthews and those under him.

It is exceedingly difficult to stage rock gardens on a hard floor and in a confined space, but almost all shown were successful. Mr. Maxwell M. Hart staged the most ambitious garden, a square rising in the centre to a little plateau, on which was placed a summerhouse, the one blot in an otherwise excellent exhibit. Messrs. Kent and Brydon were less formal and just as successful, while alongside their rock garden was a charming herbaceous border. Messrs. Backhouse of York showed a simple and well designed rock garden. As I have said, it is impossible to mention even a tithe of the exhibits. In roses Messrs. Samuel McGredy of Portadown had the most noticeable stand. As far as I could see there were no novelties, but what was staged showed very good cultivation. Another fine exhibit of roses was that of Messrs. Dicksons, the well known Edinburgh firm. Messrs. Forbes of Hawick had a fine exhibit of their well known phloxes and pentstemons.

Messrs. Isaac House of Bristol showed their charming perennial scabious. There are few flowers in the garden which have such perfect tones of blue and mauve. This exhibit was very successful and will no doubt go a long way towards making these flowers more popular in our gardens.

Dahlias were very much to the fore, and were surprisingly good considering the vile weather we have been having. Mr. Woolman had the most attractive exhibit, showing every kind and variety, closely followed by Mr. M. Campbell of Blantyre, who also showed carnations. It is not common knowledge that dahlias were first introduced into this country as an article of food during a potato famine about 150 years ago.

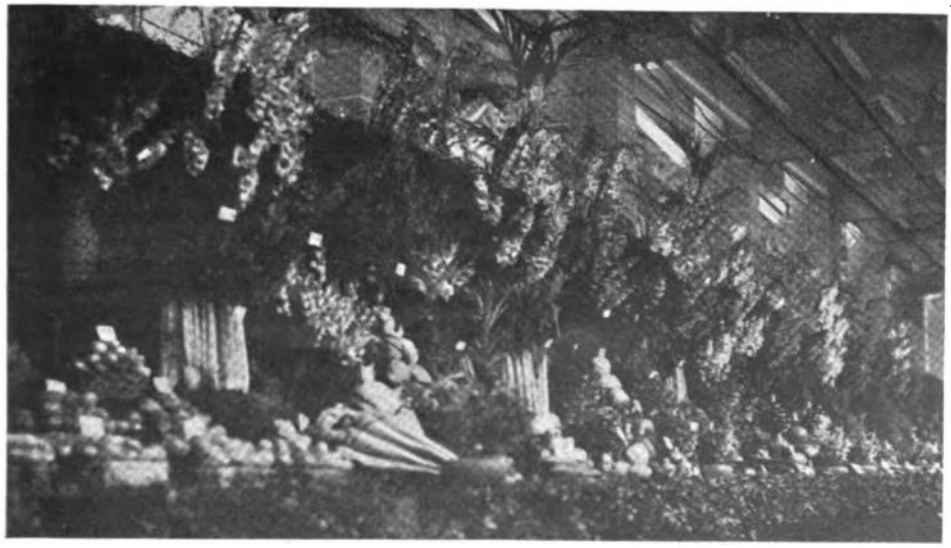
Mr. James Vert had a fine exhibit of his famous double hollyhocks. The colours are delicate and charming, among them I noticed particularly Olivier Chater, cream flushed pink, and Constance, salmon. Messrs. Lowe and Gibson again staged their fine strains of gladioli.

Fruit was more in evidence in classes than in trade exhibits, but The Carse of Gowrie Nursery Company and Messrs. Storrie and Storrie, both of them Perthshire firms, showed that Scotland is little, if any, behind England in the production of good table fruit. The fruit in both cases showed excellent cultivation and was well shown.

For vegetables the main exhibits were staged by Messrs. Sutton, Messrs. Kerr and Co., and Messrs. Austin and McAslan, the last firm also had an excellent exhibit of trees and shrubs, many of them distinctly uncommon; their exhibit of potatoes was also most comprehensive.

One other firm must be mentioned and that is Messrs. Dobbie, who had a large collection of everything which is in flower in our gardens at the present time.

Altogether this is one of the most successful shows that I have ever seen. This description is meagre, but I would not have missed visiting Kelvin Hall for worlds. E. H. M. C.



A WELL ARRANGED EXHIBIT OF VEGETABLES RAISED BY MESSRS. AUSTIN & McASLAN.

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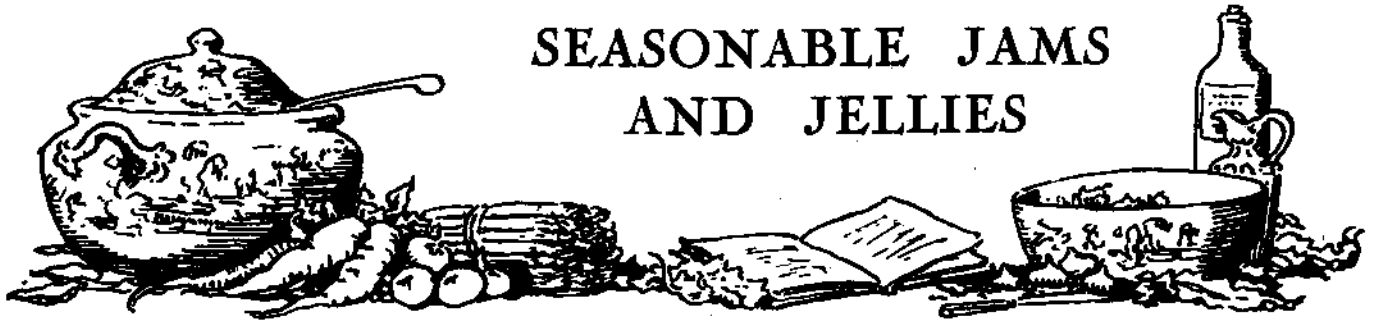

SEASONABLE JAMS AND JELLIES

THE "high summer" fruits are over, but there are still seasonable fruits, some growing wild, which may be gathered from the hedgerows and countryside, also vegetables which make excellent jams and jellies and are appreciated additions to the store cupboard.

It is not proposed to discuss here the general methods, apparatus and necessaries for making and bottling jams, of which most housewives have had experience, but just to give a few recipes, including those for jellies, which may be an addition to their collection of recipes. Jelly-making is one of the easiest methods of preserving fruit, and, as in making jam, the fruit must be *clean, dry, sound* and *not* over-ripe; this to ensure a good colour, full flavour and certainty of setting. Pectin, the body in fruit which enables it when boiled with sugar to set in the form of jam or jelly, is more abundant in *slightly* under-ripe than in *dead-ripe* fruit. Good preserving sugar is also essential and at the same time an economy, for it ensures clearness and less skimming. As in jam-making, sugar must be thoroughly dissolved before the fruit juice reaches boiling point. Absolute cleanliness is likewise a *sine quâ non* if good results are to be expected. A fairly coarse cloth or a fine hair sieve is required for straining. It is better to let fruit juice drip through overnight. Squeezing it causes the jelly to be cloudy.

DAMSON JAM.

Proportions.—To each pound of fruit allow ¾lb. to 1lb. of preserving sugar and ½pt. of water to every 6lb. of fruit.

Remove stalks, wash and dry the fruit, put it into the preserving pan with the water and let it stand over a gentle heat until some of the juice is extracted. Boil for ten minutes, then add the sugar, let it dissolve gradually, bring to boiling point and boil for another twenty or twenty-five minutes until it sets when tested. During the cooking remove as many of the stones as possible and just before removal from the fire add a few of the blanched kernels. Put into jars and cover in the usual way.

Plum jam is prepared similarly except that the fruit can be split and the stones removed, provided they come away easily, otherwise it is wasteful; if not, remove as the jam is boiling.

DAMSON CHEESE.

Proportions.—To each pint of pulp allow 12oz. to 16oz. of preserving sugar, according to acidity of fruit and individual taste. Remove stalks, wash and dry fruit, put it into a covered earthenware crock or jar, place in a pan of cold water, the water reaching rather more than halfway, or in a very slow oven and cook until the fruit is perfectly soft. Rub through a fine hair sieve; measure the pulp, put it into a preserving pan and add the sugar. Boil until the pulp becomes rather stiff, stirring very frequently and continuously as the liquid evaporates since at this stage it burns very readily. Turn into clean, dry, warm jars and proceed as in jam.

DAMSON JELLY.

Proportions.—Allow ¾lb. to 1lb. of sugar to each pint of fruit juice.

Choose ripe fruit, proceed as for damson cheese. When the fruit is quite soft strain through a cloth or fine hair sieve. Add the required amount of sugar, boil together until jelly sets when tested as for jam, skim if necessary.

BLACKBERRY JAM.

Proportions.—To every pound of fruit allow ¾lb. of sugar and nearly 1 gill of water.

The berries should be picked on a dry day; these should be ripe and juicy. Remove stalks and discard any unsound fruit. Cook the berries gently in the water for about twenty minutes. Heat the sugar in the oven (this hastens the period of boiling), then add the berries, allowing it to dissolve before the jam is brought to boiling point and boil for about forty minutes. Test in the usual way. Just before removal from the fire add a little lemon juice, about one dessertspoonful to 4lb. of fruit; this is an improvement to the flavour. Put into clean, dry, warm jars and cover at once.

BLACKBERRY OR BRAMBLE JELLY.

This being seedless, is often preferred to jam, particularly for children.

Proportions.—Equal quantities of fruit juice and sugar.

Put berries into an earthenware jar with a cover, stand in a pan of cold water and cook slowly until the fruit is quite soft and the juice extracted. Bruise them from time to time to extract it. Strain the juice through a jelly cloth or very fine hair sieve, bring to boiling point, boil for five minutes, add the sugar and boil until jelly sets when tested. Skim if required.

APPLE JAM.

When there are apple trees in a garden there is usually a certain amount of fruit (windfalls and others) which is neither suitable nor in a fit condition for storing, some of which may often be wasted if not quickly utilised. Such make quite good jam; but if apples are used alone it is rather uninteresting even when flavoured with ginger or lemon rind, whereas it is very palatable and of an excellent flavour if made with blackberries or cranberries, using half the quantity of either of these fruits to a given quantity of apples.

APPLE AND BLACKBERRY JAM.

Ingredients.—4lb. of apples, 2lb. of blackberries, 5lb. of preserving sugar, 1 gill of water.

Pick over blackberries, remove stalks and put into an earthenware jar with 1lb. of sugar and leave over-night; then cover jar, place in a slow oven or in a pan of water over a low heat, and cook gently until the juice is extracted, then strain. Peel, core and slice apples thickly, add the water and rest of sugar, let this dissolve, bring slowly to boiling point, add the blackberry juice and boil for about forty-five minutes, test on a cold plate, pot and tie down at once.

APPLE AND CRANBERRY JAM.

Later on, when cranberries are in the market, the following makes an excellent jam:

Ingredients.—Half the weight of cranberries to apples and 1lb. of sugar to each pound of fruit.

Peel, core and slice apples, add just sufficient water to prevent them from burning and cook gently until reduced to a pulp. Pick over the cranberries, wash and dry, add the sugar and bruise the fruit well to extract juice and flavour, add to the apples and boil together, stirring frequently. Test in the usual way, pot and tie down.

PEAR AND APPLE JAM.

Pears as a jam are flat and insipid in flavour, but combined with other more acid fruits, such as apples and plum, they make a delicious jam or conserve.

Ingredients.—4lb. of pears, 4lb. of apples, rind of 3 lemons, 2 oz. of whole ginger, ¾oz. of cinnamon stick, 2 pints of water, 1lb. of sugar to each pound of fruit.

Bruise ginger, pound with the cinnamon stick, not too finely, add to the water, and boil until reduced to half to extract the flavour. Strain, add the required amount of sugar, heat slowly and dissolve, then add the pears and apples peeled, cored and cut into neat pieces. Bring to boiling point and boil until the jam sets when tested on a cold plate in the usual way. Place in clean warm jars and cover at once.

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PEAR, PLUM AND APPLE MARMALADE.

Proportions.—Equal quantities of each kind of fruit, 1lb. of sugar to each pound of fruit and ½ pint of water to every 4lb.

Scald the plums, peel, cut into two and remove stones, peel, core and slice apples and pears. Place these with the sugar in layers in the preserving pan, add the water. Heat slowly to boiling point, cook gently, stirring constantly until the jam is smooth and thickens. Test in the usual way, pot and tie down at once.

Note.—To prevent marmalades and jams from catching, grease the bottom of the preserving pan lightly with fresh butter, or put in the pan two or three sterilised stone marbles or a silver coin (two-shilling piece).

BILBERRY JAM.

The bilberry, known in Scotland by the name of blaeberry and in some districts as the whortleberry, makes a good useful jam.

Proportions.—Equal quantities of fruit and of preserving sugar.

Wash the berries, which should be fully ripe or the jam is tasteless, drain well, put into the preserving pan and heat slowly. Add the sugar, dissolve and bring jam to boiling point. Boil gently, skim well and stir frequently. Test when it is done, pot, cover and tie down in the usual way.

Bilberry Jelly.—Equal quantities of fruit juice and of sugar. Proceed as for bramble jelly.

GREEN GRAPE AND ELDERBERRY JELLY.

This is an excellent way of using grape thinnings.

Proportions.—To each pint of green grape juice allow double the quantity of elderberry juice and 1lb. of preserving sugar to each pint of mixed juice.

Wipe the grapes, remove stalks, put into a preserving pan with just enough water to cover them and boil gently till soft, strain in the usual way for jellies. Gather the elderberries dry, remove stalks, put into an earthenware jar, and proceed as for damson jelly, stir and press the fruit from time to time to extract juice, then strain. Mix the fruit juices, boil for ten minutes, add the sugar and boil for twenty minutes or until the liquid "jells" when a little is poured on a cold plate. Skim while cooking if required.

Note.—Grape cuttings are often used alone for making jelly, which is suitable for serving with game and meat dishes.

CRAB APPLE JELLY.

Proportions.—6lb. of crab apples, 6 cloves, the juice and thinly peeled rind of 2 lemons. To each pound of fruit allow 1 pint of water and to each pint of fruit juice 1lb. of sugar.

Wash the fruit and with a silver knife cut each apple into two or three pieces without peeling or coring. Put the apples into the preserving pan, add the cloves and thinly cut lemon rind, cover with the water and cook slowly until the fruit is quite soft and broken. Strain through a jelly cloth, letting it drip all night. Add the necessary amount of sugar and the lemon juice to the fruit juice, let sugar dissolve, bring to boiling point and boil until the jelly sets when tested. Skim if necessary.

Note.—Later on in the season when cranberries begin to appear in the market their addition makes an excellent jelly. Allow 1lb. of cranberries to every pound of crab apples, adding them when the apples are half done.

ROWAN OR MOUNTAIN ASH JELLY.

Proportions as for jellies usually.

Use ripe berries, remove stalks, wash and put into the preserving pan with sufficient water to prevent them from burning, about ½ pint to every 2lb. of fruit. Simmer and stir constantly to extract the juice. When quite soft strain in the usual way; avoid squeezing the fruit. Measure the juice, heat the required amount of sugar, add it to the juice and boil quickly for about twenty minutes or until it sets when tested in the usual way. Proceed as for jams and jellies. This is often served with game or with mutton.

VEGETABLE MARROW JAM.

Proportions.—4lb. of marrow when peeled and with seeds removed, juice and thinly peeled rind of 2 lemons, 1½oz. of whole ginger, 4lb. of preserving sugar, pinch of cayenne, one wineglassful of brandy if liked.

Choose a fresh marrow of medium size, if old the preserve does not clear well. Wash, dry and peel the marrow, remove the seeds and cut into ½in. dice. Put the marrow and sugar in layers in a large basin, add the ginger bruised and tied loosely in a muslin bag with the lemon rind and leave for twenty-four hours. Put all into the preserving pan, add the cayenne and boil till the marrow is soft and transparent looking and the syrup is clear. Shortly before the jam is ready to be removed from the fire take out the muslin bag and at the last add the brandy. Pour into jars, cover and tie down.

TOMATO MARMALADE.

This can be made with either red or yellow tomatoes, the latter make the best marmalade.

Ingredients.—1 quart of ripe yellow tomatoes, 1 lemon, 2 oranges, 2lb. of preserving sugar.

Peel lemon and oranges thinly and without any pith, boil in a little water until tender, drain and cut into thin shreds. Blanch the tomatoes to remove the skins and cut into small pieces. Put the shredded orange and lemon rinds, tomatoes and sugar into the preserving pan, let sugar dissolve, bring to boiling point and boil until the marmalade is thick and the peel transparent. Test if done, pot and cover at once. This is an excellent way of using any superfluity of home-grown tomatoes.

S. E. N.

NOTES FROM CONTRIBUTORS

KAUFMANN S TULIP.

OF the tulip species straight from their native lands we have none more charming than Tulipa Kaufmanniana from Central Asia. There are, it is true, many wild tulips of more commanding presence and more gorgeous colouring, but none can surpass it in real loveliness. It has been aptly called the "water lily tulip" on account of its resemblance, when open, to a water lily, and the simile is quite an appropriate one. When the flowers open flat to the sun the blooms remind us of nothing so much as those of a charming nymphæa basking in the sunlight of summer. But the tulip long anticipates the summer days, and it is in reality one of the very earliest of all tulips. Its haste to give us its beauty before its sister flowers, sometimes leads to its undoing in some districts where the winters are wet and mild followed by sharp frosts in spring, which injure the foliage and weaken the growth so much that the bulbs dwindle away. But this can be avoided by planting the tulips where the sun does not reach them until about midday. It is, however, generally perfectly hardy. This gracious tulip, which is only about 6ins. high, is variable in its colouring, and several varieties are occasionally offered under distinct names. What is generally called the typical one has white and yellow blooms with the exterior striped with red. Some forms have a pretty zonation of red in the interior. A variety which finds favour with some is called Brilliant. It has glowing flowers of what is known as Turkish red. A charming one with white flowers and of very dwarf habit is named Gaiety. It is a great beauty, though, like the preceding and that which follows, much more expensive than the type. Then there is a pretty one called Primrose, which, as the name would suggest, is of a pleasing shade of primrose yellow. All these have wonderfully large flowers, charming in bud and still more delightful when fully expanded. They can be procured in autumn and planted in moderately heavy soil 2ins. deep, placing a little sand round the bulbs. The writer knows a garden where there is a fine group of nearly a hundred bulbs of this tulip with muscaris planted along with them, and very lovely does the combination look. But even a plant or two in the rock garden or border will give the greatest delight to all who will find space for Kaufmann's water lily tulip in their gardens.—S. ARNOTT.

PAPAVER PILOSUM.

WHILE the Iceland and Oriental poppies come in for a generous share of attention, this—a perennial, by the way—is hardly ever met with. In spite of this it is very showy with flowers that vary from deep orange to bright brick red, each petal having a white spot at the base. The leaves are pale green and densely clothed with fine hairs, a similar feature being noticeable on the flower-stems. The best way to procure plants is by saving seed, from which the plants come fairly readily. This seed is best sown where the plants are to grow, merely thinning them out to suitable distances apart when strong enough to see which are the best. In this way all difficulty of transplantation is avoided and so the plants grow vigorously right from the very start.—HAVELOCK.

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CORRESPONDENCE

ACACIA MONILIFORMIS.

SIR,—I am sending you a cutting from a most lovely acacia growing in the gardens here at Bussaco. I believe it is Acacia moniliformis, but I should be much indebted to you if you would have this verified. And will it grow in England? and, if so, where can it be obtained? It is a glorious sight here—graceful and very beautiful both in habit of growth and flower. I understand it is a native of Argentina. Bussaco stands high on the northern Portuguese range, with a heavy fall of snow in winter. It now lies basking in a glorious sun, but never too hot for pleasant walking in the Bussaco Woods, as there is always a cool breeze from the mountains. I write from memory of many years back, but I think I remember this acacia in Lord Grey's Howick garden, Northumberland. If so, Lord Grey's acacia must be almost a forest tree compared to the big bush growing here. May I congratulate you on the recent issues of THE GARDEN, which I have sent to me here. Your paper has always, to my mind, been the *Times* of the gardening world.—H. E.

[As far as we could judge from the specimen sent, which was rather crushed on arrival, the plant was Acacia moniliformis. Like other acacias, we should not imagine that this species will be hardy in this country, as the whole genus prefers a warm clime and cannot endure frost when out of doors save in some localities.—ED.]

GERANIUMS AS WALL SHRUBS.

SIR,—I enclose a photograph showing the height of the geraniums which grow against the wall of my house and wonder if it would interest the many readers of THE GARDEN. Shown in the illustration are two plants of pink geraniums (the two largest bushes), while the smaller bush is that of the dark red double geranium.—G. WYNDHAM.

BEAUTIFUL WALL BUSHES OF PINK GERANIUMS.

THE PURPOSE OF WISLEY?

SIR,—Your Leader of June 28th is very interesting and should cause the Wisley Committee of the R.H.S. furiously to think. I confess that the trials of vegetables do not appeal to me much. The trials of species and varieties of flowers do, but not so much the kinds usually chosen by the Committee, such as salpiglossis, godetias and other annuals. Ryders', Carters' or any other trade list will give you the information with regard to oddments of that kidney. The information I want is quite different, and not of a kind obtainable as a rule from the tradesman, who has to dispose of wares of sorts and with different names. What I want to know is whether the nursery names are accurate or mere tales of Lucian, or dreams of Arabian Nights? I think the Committee might devise a method of certifying stocks of the nurserymen as being true to name, by means of some form of certificate to that effect given from time to time by a R.H.S. inspector. I suppose during the year some nine to twelve catalogues from different firms come to my house. What guarantee have I that campanula this and primula that are not really something quite different? The late Mr. Farrer's "The English Rock Garden," is full of references to catalogue inaccuracies. For instance: "Primula viscosa is offered in catalogues under almost any other name than its own"; and under Primula hirsuta: "However, though the arch-breeder of confusion in catalogues," etc. Then under saxifraga: "There is not as yet any finality in the family, which lies at present in a fearful welter of confusion, largely owing to its popularity in the garden, which has impelled nurserymen to go on perpetually issuing unauthorised and synonymous and false species, as well as multiplying varieties with a zeal only to be paralleled by botanists themselves."

I think many will agree that here at the Wisley Committee's hand is material calling to the stars for remedy, and I am sure that most members of the trade would give all possible assistance in their power to the Committee in search of a solution to this pressing problem. A somewhat similar problem was brought to the notice of the National Rose Society by myself at the Annual Meeting in 1923. The number of roses, all too much alike, in the championship classes at the 1922 show at Regent's Park drew my notice to the situation caused by this multiplication of new varieties. "Fanny Smith" comes up again as "Mary Jones," in the same box, with, a little farther down, "Lizzie Green," all the same rose, perhaps even cut from the same tree. But in a rose catalogue you will see the same roses, one issued to a confiding public in 1890, another in 1902, and the third in 1911. What a game! And every catalogue of plants is full—too sadly full—of duplicates and inaccuracies such as these. As a concrete example, I got from one nursery two plants, one labelled Primula Matthioli, the other P. atriculata. The first I have placed, but it is not a primula at all; it is really cortusa! There is no trace of P. atriculata in Farrer's book. What is this new addition to the family? I can only wonder!

I was shown at Perry's Plant Farm two lots of primulas in a frame, and the foreman pointed out to me the two Edinburgh labels: P. Wilsonii and P. glycosma. Short of seeing the bloom, they were the same; same leaf, same plant, same delicious scent. The problem I leave to you and Father Time to solve.

Supposing then the R.H.S. were to attempt a solution of this problem, one wonders how far the trade would go towards assisting the Society, and whether they would be willing to scrap inaccurate labels and to place varieties and species where they really belong. It would involve considerable labour doubtless, but it would give clients much more satisfaction to know the true names of plants in their gardens, and would give them a chance of being able to grow them successfully, through knowledge (easily obtained by reference to a reliable text book) of how to place them in the garden.

As regards the distribution of plants, those that are given out to the members as plants or seed are either shrubs or varieties and species no self-respecting owner of a small garden can grow—rampers like iberis of sorts, arabis and aubrietia. If one tolerates their presence, one only grows them because once, in a foolhardy moment of indecision, they were introduced and cannot be got rid of. By a happy chance, and I am sure a fluke, last year I got a plant of Primula glycosma. One can also obtain abundance of seed of cotoneasters, barberries, and other shrubs and shrublings. But what I would personally prefer are some of the wonderful treasures, described so vividly by the late Mr. R. Farrer and others, from the Roof of the World. Why cannot they distribute P. vincæflora and the other omphalogrammas, the saussureas, Gentiana Farreri, G. sino-ornata, etc,. Rheum Alexandræ, the new delphiniums and all the other delights which make your eyes glisten. They do not seem to have a soul above a shrub, and we do not only want shrubs in small gardens. Do all these treasures go solely to Edinburgh?

I am afraid I have been somewhat prolific but I think that the importance of the subject warrants it.—P. A. HENDLEY.

ROSE COLOURED VERONICAS.

SIR,—I should be delighted to learn something from Mr. H. S. Thompson concerning Veronica longifolia, V. spicata and allied forms, hybrids, etc. (see pages 538 and 574). I have been puzzled with garden names and forms of these for more years than I care to mention. I mentioned V. spicata rosea on page 538, but it is also in cultivation under the name of V. longifolia incarnata. The entire-leaved specimens of V. hybrida from the St. Vincent Rocks, Bristol, are surprising. I have a specimen collected there on August 20th, 1921, and every leaf is serrate-crenate. With regard to V. rosea Desf., I can give the celebrated J. Gay's description of a plant from Desfont's herbarium: "Herb smooth or very loosely and finely downy. Stems very crowded, herbaceous, woody at the base. Leaves oblong-linear, pinnatifidly five-lobed (not divided to the midrib). Racemes axillary, many-flowered. Pedicels equal to or exceeding the bracts, very smooth. Calyx likewise very smooth, four-partite, with the two upper segments one-third shorter. Fruit desirable." The plant is similar in habit to V. prostrata, but the flowering branches are more erect. Notwithstanding Gay's description, I find a considerable amount of long falcate white hairs on both sides of the leaves, on the stems and rachis, and the sepals are ciliate or thinly hairy. I would also describe the leaves as oblanceolate, cuneate, with triangular, spreading teeth, varying from one to five on a leaf. Though comparable to V. prostrata, the branches are more erect and the leaves entirely different. It would make a desirable plant for the rock garden if hardy. The species is a native of various parts of Algiers, including the south and west of the province of Oran.—HORTULANUS.

FORTHCOMING EVENTS.

September 17th.—North of England Horticultural Society's Exhibition (three days).

September 23rd.—Royal Horticultural Society's Autumn Exhibition at Holland Park Hall (three days).

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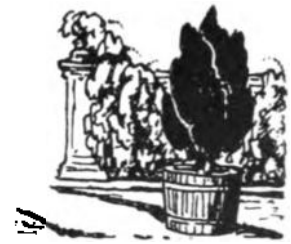
SIMPLE GARDENING



TEMPERATURES OF GLASSHOUSES.

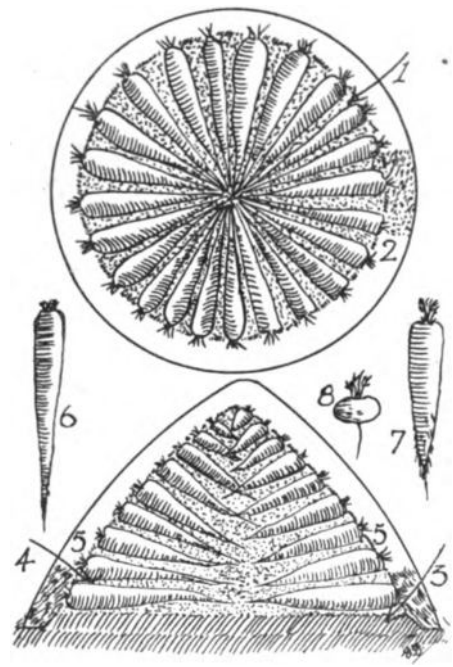
IT does not seem very long since we were concerned with keeping our plants under glass safe from late frosts. Now, our minds dwell on the same matter: how to keep them safe from early frosts and excessive moisture. In late winter and early spring young shoots were growing and we had to bear in mind the fact that a check to their growth would be very harmful. Now, we require some artificial heat—in certain cases—to help forward the ripening of the shoots made during the summer and also fruits such as grapes, late melons and peaches. This may be done with due regard to economy. Every morning, when the sun gains power, the ventilators may be opened a little wider to admit the warmed air and the fires may be put out or banked with damp ashes to keep them just alight. In the afternoon, about one hour before sunset, the ventilators should be finally adjusted for the night, the flue dampers drawn out and the lower doors, through which the ashes are drawn, opened wide to ensure the fire burning up brightly. Thus the heat in the pipes will be just right when that from the sun is waning in the house or houses. These hints apply where there are growing plants. But there are houses in which the wood of plants, especially fruit trees, is ripening and here very free ventilation night and day will be beneficial.

DRYING AND STORING ONIONS.

Last year, owing to the very dry summer, there was little difficulty in getting onions harvested in first-rate condition; the bulbs were small to medium in size and all such, when perfectly ripe, keep well in suitable stores. This year, owing to quite different weather conditions, the bulbs are large and, in many gardens, still growing. Of course, every effort should be made to get these big bulbs ripened sufficiently to ensure sound keeping during the winter and early spring months. By the middle of October, at the latest, all bulbs should be cleared off the ground; the harvesting generally begins at the end of August. The small bulbs, those resultant from spring-sown seeds in the open border, do not require any attention beyond that of lifting and drying for a short time on the ground. The larger specimens need assistance so that they will mature and not start growing again. To this end it is a good plan to remove the soil around the base of each with the aid of a pointed stick and the fingers, almost baring the roots themselves. Then those that show a tendency to make new growth should be lifted almost out of the soil and left for a few days prior to entire lifting. Place all in single layers with the roots towards the south. The best storeroom is one that is cool, dry and well ventilated. Store all large bulbs in single layers, on their sides or roots uppermost.

LIFTING AND STORING VEGETABLE ROOTS.

Leaving out potatoes, we may expect a heavy yield of vegetable roots this autumn. They are worth taking great care of and should be treated as shown in the accompanying sketches. Cool, dry sheds or dry positions in the open are suitable; hot sheds are not. Dry earth,



sand or ashes should be used to pack the roots in, and exclude light and air. Both long and round-shaped clamps will answer. No. 1 shows the basal layer of roots with sand between them; these may be carrots or beet. Smaller roots are packed near the top, and an outside layer of sand or ashes (No. 2) completes the work, with a wisp of straw at the top to ensure ventilation. The long clamp is also on a dry base, No. 3. No. 4, sand. Nos. 5, 5, outside covering of sand, ashes or soil. No. 6, shows a prepared carrot, and Nos. 7 and 8, prepared beets. Ease up the roots with a fork; cut off the tops of carrots and turnips and twist off those of beet. Do not wash the roots.

FRUIT TREES IN POTS.

Growing fruit trees in pots is very interesting work. Artificial heat is not necessary to successful cultivation, but the glass structure should be high enough to ensure several feet of air space above the branches. When the trees are at rest, as they will be soon, they should be placed close together on a bed of ashes, the branches fully exposed but the pots well encased in dry leaves or litter to prevent frost reaching the roots. This is the most important point. Before any protecting material is used, make quite sure that the soil in the pots is well moistened through. Perhaps some of the specimens will need re-potting, if so, put them by themselves, take the measurement of the pots and provide others quite 2ins. larger; 3ins. or so would be better. Also provide the new compost, which should be, mainly, fibrous turf cut and stacked about six months ago. A small quantity of old mortar rubble will be beneficial, especially in the case of stone fruits, and bonemeal can be added at the time of potting. When this work is done be sure that the drainage is sound and that the new soil is well firmed. If the weather is dry apply water; if wet, the exposure to rains will be sufficient. Usually the leaves fall at an early date and the pruning required may be done forthwith. Apples, pears, peaches, nectarines, cherries, plums and vines are the principal kinds to grow in pots.

SPRING-FLOWERING PLANTS.

Some of these are finally planted in the autumn while others are left till early spring. In either case the plants require attention now. It will not answer to leave overcrowded in small beds those that must wait until spring, as if so left they will not be as good in spring as they are now. Do not wait until the year is passing out before transplanting the young seedlings, but do the work now. The soil is warm, works well and is in just the right condition to ensure a little more growth and the establishment of the plants before real winter weather comes. I am particularly referring to such plants as wallflowers, giant-flowered daisies, polyanthuses and primroses, myosotis, etc. These are all small-growing plants except the first named and do not take up much room in the nursery quarters, but great numbers should be grown where several large borders are to be filled. Then there are the instances where the final planting can be done this autumn, and where the soils are light or well drained it is the most satisfactory way of dealing with the plants. Usually the beds are filled with summer-flowering plants and the soil will need enriching. If bulbs are also used, some well rotted leaf-soil, in addition to rotted manures, should be obtained and stored in readiness for use directly the present occupants are cleared from the soil. GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Lettuce.—Every effort should be made to keep up a supply of lettuce, because at this season there is a possibility of running short. Another sowing of hardy kinds can be made, both in frames and the open ground, while from the sowings made in late July and early August the seedlings should be planted out directly they are large enough.

Hoeing.—During the autumn months weeds make considerable headway unless they are kept down with the hoe. This season has been very wet and dull, which has entailed a lot of extra labour to keep the ground clean; on several occasions it was necessary to hand-weed the plots, and remove the weeds to the rubbish heap. Let us hope the autumn will afford a chance to employ the hoe freely. All decayed leaves should be removed from the winter greens and Brussels sprouts usually need attention more frequently, or the buttons will be poor in quality owing to lack of air passing through the plants.

FRUITS UNDER GLASS.

Peaches and Nectarines.—For the most part the fruit has been gathered, and on no account must the trees be neglected during the next few weeks. The ventilators should be opened to their fullest extent, both day and night. The foliage may be kept clean by an occasional use of the hose pipe, and where necessary give a spraying with insecticide. The most important factor, however, is a moist border, if this becomes dry at this period, next season's crop will suffer. Old trees and those that have not made much growth will benefit by liberal supplies of weak liquid manure. Remove any wood not required, so that light and air can thoroughly ripen the shoots that will bear fruit next year.

THE FLOWER GARDEN.

Rose Cuttings.—Nearly all the stronger growing roses will succeed on their own roots, and for planting in a semi-wild position the rambler section are much better on their own roots because the sucker nuisance is entirely removed. Select fairly mature wood for cuttings, which should be set in pots of sandy soil and given the protection of a cold frame. Early next month a batch could be inserted in the open ground, placing the cuttings in lines 1ft. apart. Here they will remain for twelve or fourteen months.

Pentstemons.—Owing to the damp season there are now plenty of young shoots suitable for cuttings, and having ascertained the quantity required they should be inserted in sandy soil placed either in boxes or a cold frame; the latter being preferable where a large number of plants are needed. P. Southgate Gem is excellent for borders if grown in large patches.

THE HARDY FRUIT GARDEN.

Morello Cherries.—The best time to prune these trees is immediately the fruit is gathered, and such work differs from the pruning of the dessert varieties. It is similar to the pruning of peach trees, the old wood that has borne fruit is cut out unless it is required to cover the wall. Where due attention was given to disbudding earlier in the year, the wall space will be covered with young shoots, and now these must be so distributed as to prevent overcrowding. It should be borne in mind that the current season's growth will bear fruit next year. If the soil has become exhausted it ought to be removed so that the roots are exposed, and then replaced with good quality loam to which is added a liberal sprinkling of mortar rubble.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Cauliflowers.—Plants raised from seed sown early in August should be set out 6ins. apart in firm, but not over-rich soil in a cold frame. The plants should be lifted from the seed bed carefully and with as much soil clinging to the roots as possible, then planted in the frame with a trowel. It may be advisable to shade from very bright sunshine for a few days, but otherwise keep the plants hardy.

Parsley.—Young plants set out in June should be a good size now, and those who require to keep up a supply throughout the winter should have a quantity of these plants lifted and replanted in a cold frame. Established plants in the open such as those raised from seed sown in July can be protected by having frame lights placed above them, to keep off the rain and snow. This biennial plant is not quite hardy, in fact the leaf-stalks in severe weather when unprotected appear to suffer first.

Tomatoes.—The plants have grown well and produced good clean crops, and have been free from the dreaded white fly. As soon as the plants are somewhat spent the remaining tomatoes should be gathered and placed on a shelf or hung from the wires in some of the other houses to ripen. The plants and the soil should then be cleared from the house, then the woodwork and glass thoroughly scrubbed and washed before any other plants are housed therein.

THE FLOWER GARDEN.

Lilium candidum.—This fine lily when in flower is much to be admired and more so when it is associated with old-fashioned border flowers. Bulbs when once established and doing well should not be dug up except when they get overcrowded. When planting fresh bulbs in beds or borders, it is advisable—except in light soils—to take out good sized holes at each station and fill them with a mixture of fresh turfy loam and old lime. This should be made firm in each hole, then sprinkle sand on the surface and dust the bulbs with sulphur before setting them on the sand; finish by covering the bulbs to the depth of 4ins. with the soil mixture.

Violets.—Plants need the protection of a frame in which to expand their blooms throughout the winter months. Preparation, therefore, should be made now for having the plants transferred to the frame. Chopped loam and leaf-mould in equal proportions and well mixed is a suitable compost to place in the frame. The plants should be well moistened at the roots previous to being lifted so that plenty of soil clings to the roots of each plant raised. The plants should be set free of each other and all within a few inches from the glass. Another good watering should be given to settle the plants in the fresh soil; but the frame lights need not be put on unless frost threatens. Plenty of air should be given on all favourable occasions, and a covering placed over the frame-lights in severe weather.

THE HARDY FRUIT GARDEN.

Apples.—Continue to gather apples and pears on all fine days when the fruits are dry, and as the different kinds approach the ripening stages. Handle the fruits carefully, then place and space them out on the shelves in the fruit room. Old and worn-out trees should be sawn over and the roots dug up; the branches and the roots should be taken to the back yard and burned.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Annuals in Pots.—Seed of hardy and half-hardy annuals which are now so popular for conservatory and greenhouse, should be sown about the middle of September. Among the most popular and useful sorts for sowing at this time are schizanthuses, of which there are a number of fine strains. Here I would suggest that more attention should be given to S. retusus and its varieties; it is very beautiful and distinct from the more commonly grown varieties, its stiffer, upright sprays of flowers being very useful for cutting. Clarkias and godetias in many fine varieties are also prime favourites. Godetia Lavender should be more generally grown as it is a beautiful colour and well grown plants make quite large bushes. Lychnis Coeli-rosa—more generally known as Viscaria—of which there are several varieties, is very graceful and remains in flower for a long time. Mignonette, of course, should not be omitted, but requires special care to grow it really well. Nemesias in many beautiful varieties are specially useful for small pots. Calendula officinalis, especially the variety Orange King, should be more generally grown, as its brilliant flowers are very useful for decorative work, and for this reason it has now become a popular market plant. Other useful species and varieties that may be sown at this time are alonsoas, ageratums, Collinsia bicolor, very quaint and charming, also the pure white C. candidissima. Larkspurs, the tall branching stock-flowered varieties being specially useful. The dwarf varieties of Phlox Drummondii are also very charming. As will be seen from the foregoing list there is plenty of variety to choose from, and they should all succeed under the same methods of cultivation. Seed may be sown any time during the later half of September or even the beginning of October, sowing the seeds according to requirements either in pots, pans or shallow seed boxes, standing them in cold frames and keeping them shaded until germination takes place. The compost in the seed boxes should be made moderately firm, sowing the seeds very thinly, as overcrowding means weak plants, and danger from damping off; if damping off starts, the remaining plants must be at once transferred to fresh compost. In any case, the young seedlings when fit to handle should be pricked off into pots or boxes, afterwards when large enough they should be potted off singly into small pots, or several in a pot, according to the class of plants; such things as schizanthuses being best grown singly, while more slender-growing plants, such as lychnis and collinsia, may have from three to six plants in a 48-sized pot, in which size they can be flowered. Most of them can be wintered in sixties or 48-sized pots, potting them on into their flowering sizes early in the New Year. They can be wintered in cold frames, but a cool, airy greenhouse or low heated pit affords the ideal cultural conditions. In such structures they can be kept well up to the roof glass and, what is of utmost importance, ventilation can be more readily given on every favourable occasion. Success depends almost entirely on cool, airy conditions and, of course, careful watering at all times. One must always bear in mind the fact that all the plants in question are more or less hardy, and the great aim throughout their cultivation should be to maintain a compact sturdy habit of growth. This I may say is very difficult in the immediate neighbourhood of London and other large towns, where winter light is too often at a minimum. Under such adverse conditions it is really best to defer sowing until early in the New Year.

J. COUTTS.
Royal Botanic Gardens, Kew.

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ANSWERS TO CORRESPONDENTS

THE FLOWER GARDEN.

Lavender Attacked (S. A.).—The plant is attacked by the fungus Phonia lavandulæ, which causes the disease known to lavender growers as "shag." The fungus is common, but it seldom causes serious damage, at any rate in small gardens. Diseased portions should be cut clean out and burned to prevent spread of the spores and the plants encouraged to make new growth.

TREES AND SHRUBS

Viburnum Carlesii (S. A.).—There is no sign of fungus on the leaves enclosed. The spots look more like burns, as if there had been acid fumes in the atmosphere washed on by rain, or it may be the work of an insect which has disappeared. Do not remove the leaves. Cuttings inserted now in sandy soil will root under a cloche or in a cold frame if kept close.

Planting an Ayrshire Garden (M. S.).—Flowering shrubs likely to succeed include Kerria japonica fl. pl., Philadelphus microphyllus, P. Lemoinei erectus, P. Virginal and P. Voie Lactee, Spartium junceum, Cytisus albus, C. scoparius and var. Andreanus, Genista hispanica, Potentilla fruticosa, Hypericum calycinum, Tamarix pentandra, T. tetrandra, Diervillas Eva Rathke, Abel Carrière and candida, Spiræa bracteata, S. japonica and var. Anthony Waterer, S. Margaritæ and S. Menziesii triumphans, the double gorse and Rubus ulmifolius bellidiflorus. Small specimen trees suitable for the lawn would be Laburnum alpinum, Prunus Avium fl. pl., double scarlet thorn, Cratægus Crus-galli, C. cordata and Pyrus aucuparia. Without seeing the actual site it is not easy to suggest a lay-out for a sloping bank of unequal outline. It depends on the position and its proximity to the house whether formal low brick terrace walls and paths would be preferable to undulating walks and rough crevice walls planted with alpine and rock plants with dwarf shrubs on the borders or wide ledges. Suitable shrubs might include Cytisus kewensis, C. purpureus, C. Beanii, Genista tinctoria fl. pl., G. procumbens, Cotoneaster microphylla, Daphne Blagayana, helianthemums, lavenders, callunas and ericas if there is no lime in the soil, also a few dwarf conifers.

THE GREENHOUSE.

Hardy and Half-hardy Plants for Winter-flowering (E. F. B.).—In addition to the kinds of plants you mention, the following would serve your purpose. Antirrhinum Nelrose, carnations, clarkias, godetias, Dielytra spectabilis, Spiræa japonica, marguerites, winter-flowering wallflowers, kalmias, azaleas, hydrangeas, Spanish and English irises. However, it would be necessary, at this late date, to procure forward plants of some, such as the wallflowers and carnations and plants established in pots, such as deutzias, kalmias, hydrangeas, azaleas, etc., stocks, Beauty of Nice in several colours, Empress Elizabeth, Brompton. Much would depend upon the weather, as without artificial heat some plants may fail in severe weather.

FRUITS UNDER GLASS.

Grapes Mildewed (Mrs. T., Saxmundham).—The berries are badly mildewed. Over-dryness at the roots, cold draughts and too much moisture, respectively, will cause mildew In the case under notice it is probably the latter this year. Flowers of sulphur dusted on the berries and leaves and afterwards syringed off with clean water will lessen the amount of mildew, but in any case the berries are spoilt for dessert purposes. Abol will destroy the mildew, but it also destroys the "bloom" on the berries. However, prevention is better than cure.

THE HARDY FRUIT GARDEN.

Strawberries and Spanish Irises (Miss N. W.).—The strawberry plants appear to be very old ones, judging from the number of side slips and crowns. They are in a bad state and not worth retaining. Destroy all of them and plant young ones in well dug ground enriched with rotted manure. Apply a dressing of soot first, enough to darken the soil, before planting. The Spanish irises may be lifted and re-planted forthwith, but not lifted and dried off. It is not advisable to disturb the roots of these irises too often, as new roots form before the old stalks have faded. A loose, sandy soil, porous, and well enriched with rotted manure, is an ideal one.

Gumming of Peach Clara Mercy (S. A.).—Nothing can be done to stop the gumming, and, unless very bad, the trees, as a rule, do not suffer. If crowded, thin the young shoots, removing the weakest, but do not shorten them.

Pears Cracking (J. de H.).—The pears sent for examination are badly cracked, the result of pear scab. This fungus also attacks apples and is more prevalent during a wet than a dry summer. The disease first appears on the leaves, and these should be syringed with Bordeaux mixture directly the dark brown spots show earlier in the season to prevent the spread of the disease to the fruits. When the season is a wet one, like the present, and the skin becomes contracted through disease, a sudden flow of sap from time to time causes wholesale cracking. If the trees are surface dressed with rotted manure and fibrous loam, a peck of lime per tree would be beneficial if applied in November.

VEGETABLES UNDER GLASS

Tomato Fruits not Colouring (A. M. R., Glos.).—Potash is necessary in the cultivation of tomatoes and, although wood ashes have been added to the compost, often these lose much of their strength through exposure and contact with moisture. The plants require heat but with free ventilation; a close atmosphere, or sudden exposure to a hot sun will also mar perfect colouring. In future mix the compost at an early date in the year. Good fibrous loam, basic slag or superphosphate, 6oz. per bushel of each. Also, if procurable, a 6in. potful of fowl manure. When the fruits have set on three trusses scatter 1oz. of nitrate of potash on one square yard of ground and wash it in with clear water. Two applications will be sufficient.

MISCELLANEOUS.

Novelties in Hardy Perennials (F. B., France).—If one had an idea of your fancy or taste, it would be easier to pick out what would be considered the best twelve. However, the undermentioned are excellent new varieties of their types: Chrysanthemum maximum Rentpayer (3ft.) and C. m. Mayfield Giant (5ft.) are the most up-to-date; other choice plants are Aster Amellus King George, Campanula persicifolia Telham Beauty (the largest, but more than five years old), Helenium Crimson Beauty, and Verbascum Amber Gem (the newest of this type). The above are obtainable from Messrs. Barr and Sons, King Street, Covent Garden, London. Iris Lord Lambourne, Iris W. C. Terry, Aster Snowdrift and Coreopsis grandiflora Perry's variety are offered by Mr. Amos Perry, Hardy Plant Farm, Enfield, Middlesex. Delphinium Sir Douglas Haig and Delphinium Millicent Blackmore are listed by Messrs. Blackmore and Langdon, Bath. Messrs. Waterer, Sons and Crisp, Limited, The Nurseries, Twyford, offer Lupinus polyphyllus Sunshine (golden yellow) and Campanula R. B. Loder (semi-double, pale blue, 6–8ins. high). Older but good are Verbascum Miss Willmott (white) and V. Caledonia (sulphur, shaded lake). The above are four more than the desired number, but the notes to some of them will give an opportunity for selection. Messrs. John Forbes, Limited, Hawick, Scotland, offer the last two verbascums.

Oriental Poppy Malformed (D. M. Y., S. Devon).—Non-fertilisation of the flowers is the cause of the peculiar formation. Instead of seed pods forming the flower would decay. Good cultivation is the remedy in the future. The plants require a deeply tilled, good rooting medium and, of course, a sunny position, with plenty of room for each specimen to fully develop. You cannot do more than this for the plants. The exudation has prevented fertilisation.

Names of Plants.—J. F. N.—Polygonum aviculare, "Knotweed." This plant is an annual and if prevented from seeding may soon be exterminated.

RULES FOR THE ROSE COMPETITION

A list of six (only) hybrid tea roses to be sent in in order of preference on a separate sheet of paper, with name and address of the sender clearly written on the top. NO ALTERNATIVES WILL BE ALLOWED, but readers may send in any number of lists.

Lists must reach this office not later than Saturday, September 20th (after that date no lists will be accepted) and must be accompanied by a coupon, to be found on page ii of this issue, and also in the issues of August 23rd and 30th, and September 6th.

The popular vote will be final, and no correspondence will be entered into over this competition.

Envelopes must be marked COMPETITION and addressed to THE GARDEN, 20, Tavistock Street, Covent Garden, W.C.2.

The Editor will not be held responsible for letters missing in the post.

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The Second Prize will be an order for £2 on any advertiser to be found in the pages of THE GARDEN.

The Third Prize will be a book, or books, from the *Country Life* Library to the value of £1.

The result will be announced in THE GARDEN in the issue of October 11th.

The Editor's decision on all points will be final and binding.

See THE GARDEN, *August 23rd, page 578.*

CATALOGUES RECEIVED.

Messrs. Chaplin Brothers, Waltham Cross, Herts.—Roses, Fruit Trees, Trees and Shrubs.

Dicksons Seeds Limited, Chester.—Bulbs.

Mr. D. G. Purdie, 6, Waterloo Street, Glasgow.—Bulb and General Nursery Catalogue.

Messrs. Edward Webb and Sons (Stourbridge), Limited, Wordsley, Stourbridge.—Bulbs.

Messrs. Fisher, Son and Sibray, Limited, Royal Nurseries, Handsworth, Sheffield.—Bulbs.

Mr. Dawkins, 408, King's Road, Chelsea, S.W.10.—Bulbs.

Messrs. Austin and McAslan, 89-95, Mitchell Street, Glasgow.—Bulbs, also List of Roses.

Mr. J. Lionel Richardson, Prospect Gardens, Waterford, Ireland.—Daffodils.

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THE GARDEN

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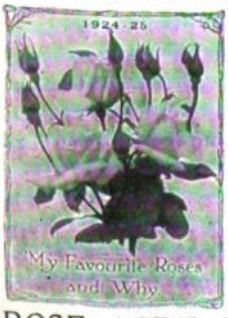

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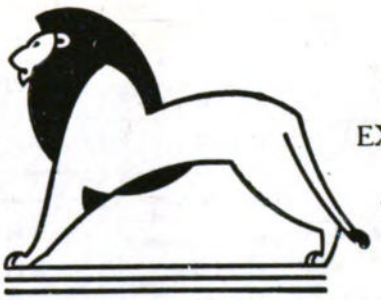

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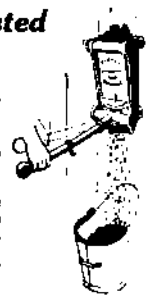

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SEPTEMBER 20, 1924

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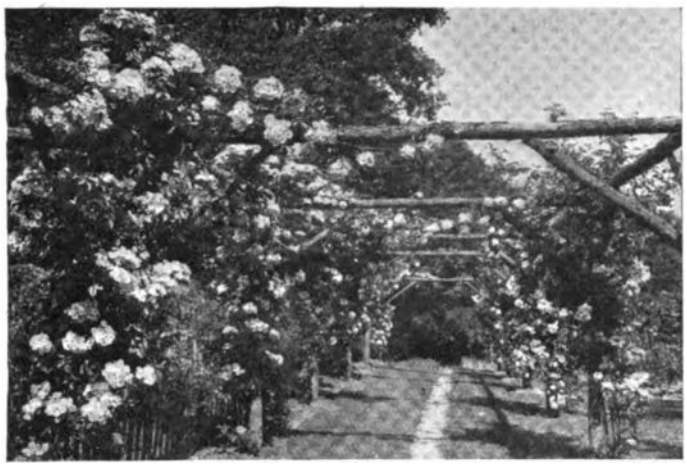

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BIRDS IN THE GARDEN

A FRIEND of mine was complaining bitterly to me to-day that the birds have never been so troublesome in his garden as this year. He is a great raiser of fruit, and he tells me that in order to save nearly every variety of fruit he has had to net the trees or bushes thoroughly. He was exceedingly bitter and venomous against the feathered world in general, not so much for eating the fruit, but for wanton destruction. He did not object to them pecking at a pear if they would finish it and leave the others alone, but they were quite indiscriminate and thoughtless; he likened them to a fox in a hen roost which delights in killing far more than he can ever eat.

Now, I am neither an ornithologist nor an entomologist. I like seeing birds flying about and hearing them singing. I always consider them the world's optimists. Most insects, on the other hand, leave me cold, and a few make me hot. I read all the numerous attacks and defences in the papers on starlings and rooks and am left little the wiser. Many claim, no doubt with reason, that in the majority of cases the bird pecks at the fruit or bud in pursuit of insects. Nevertheless, there is no gainsaying the fact that in the course of this pursuit they do more damage than the insect. A point which is of interest and which has never been properly answered is the problem of the increase of bird life. Do birds which frequent gardens increase at the same or a greater ratio than the area of ground transformed into gardens? I cannot believe that prior to the present popularity of gardening and the increase in the area of ground given over to gardens there was such a plethora of blue tits which, along with the bullfinch do more damage in a garden than any other birds. I should hazard a guess that these two marauders have increased beyond all necessary proportions, and yet misguided people attract more and still more tits by feeding them in the winter with coconut. I have watched blue tits in quantity sitting on a rhododendron bush stolidly and with the greatest determination attacking and destroying flower-bud after flower-bud. This seems to me to be a useless proceeding, for there is certainly no insect which damages the flower-buds of rhododendrons. I cannot think that rhododendrons are palatable, for they are poisonous, so I can only suppose that it is mischief, a trait which should be stopped at all costs. If it was for food there would be some excuse. That is one case of which I have personal knowledge, but owing to this knowledge I am suspicious of the work of birds in general in the garden.

Another side to the question is that of prior claim. If birds can prove that their ancestors lived on the spot before ever a garden was thought of, then they surely have a right of domicile, but having travelled in many parts of the world I can safely say that neither in New Zealand, Australia, Japan, India nor America have I ever seen such a plethora of bird life in gardens as in this country, and I believe that our crops suffer in consequence.

I have another friend who is a fanatic on the question of bird protection. He refuses to hear one argument against them and if cornered has one unanswerable retort, that he infinitely prefers one bird to a hundred flowers or fruits. On the whole I think that gardeners are more amenable and far more long suffering.

I am far from advocating the destruction of birds in the garden, but even the most ornamental can become too common. A bird of paradise is an admirable bit of decoration, but I can imagine that if you saw a hundred a day year in and year out you might become tired of them, while I have heard of a case of a man emigrating owing to the chorus of nightingales which kept him awake night after night. On the other hand, I think that birds are too much encouraged to frequent gardens by winter feeding, leaving fruit uncovered and so on, which seems to me to be an unnecessary inducement to birds to stay instead of moving on elsewhere. After all, a garden is a place in which to grow flowers, vegetables and fruit. It should not and it need not be an aviary. E. H. M. C.

IN OUR NEXT ISSUE WILL BE FOUND:

THE RAISING OF ANTIRRHINUMS.

NEW ZEALAND PLANTS FOR THE BRITISH ISLES.—IV.

VEGETABLES FOR AUTUMN ATTENTION.

REPORT OF THE AUTUMN ROSE SHOW.

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DELPHINIUMS: THE KING OF BORDER PLANTS

THESE PLANTS ARE NOW RECOGNISED AS INDISPENSABLE TO THE HARDY BORDER, GIVING AS THEY DO A CHARMING COLOUR EFFECT TO THE WHOLE SCHEME. THEY ARE, HOWEVER, SELDOM UTILISED TO THE BEST ADVANTAGE, AND THE FOLLOWING CULTURAL HINTS WILL ASSIST MANY TO OBTAIN BETTER RESULTS.

TRULY these are noble plants, kings of the hardy plant border, towering in splendour above all their rivals and supplying the gardener with quite indispensable material for the embellishment of the garden. Especially are delphiniums valuable in providing colours unobtainable from any other plant; giving as they do all shades of blue, from the palest sky blue to the deepest ultramarine, and among the newer varieties shades of lilac-mauve, lavender and rose to the richest violet and purple.

Seeing they are so important in all hardy plant schemes and also that they are seldom seen at their best, these few cultural hints are given to assist readers to a greater success in their culture and thereby to further increase the popularity of these glorious plants.

Delphiniums, as most other plants in the border, give the best effect when planted in bold groups of separate varieties, say three, five or seven to a group, according to the size of the border, allowing a space of 2ft. 6ins. between the plants. Advantage should be taken of the variation in height as well as colour, not forgetting those very short and useful Belladonna varieties for the foreground.

CULTURE FROM SEED.

Seed should be sown as soon as gathered, usually towards the end of August, in shallow drills an inch deep in the open ground, or in boxes. If sown in the open great care must be taken that the young plants are not devoured by slugs as soon as the seed germinates. For this reason boxes are the most satisfactory as they can be more easily watched, and the slugs more easily trapped. The boxes should be about 2½ins. deep. Make the soil, which should be of medium texture, fairly firm. Sow the seeds in shallow drills and place in a cool house or frame. When germination has taken place they should be put into a cold frame where they will require very little attention until spring opens and the seedlings begin to make new leaves. It should be remembered that the seedlings, however small, will most probably lose all their leaves during the winter months, leaving a small "crown" in the seedbox which springs into growth on the arrival of a few warm days in early spring. Plenty of air should be given when the new leaves appear, to keep the plants sturdy and hard, and at the end of April they may be planted in the open ground. The soil which is to receive these seedlings should have been previously prepared by being deeply dug and well manured. Some of them will give small spikes of flower during July, August and September, and will give really fine spikes the following season.

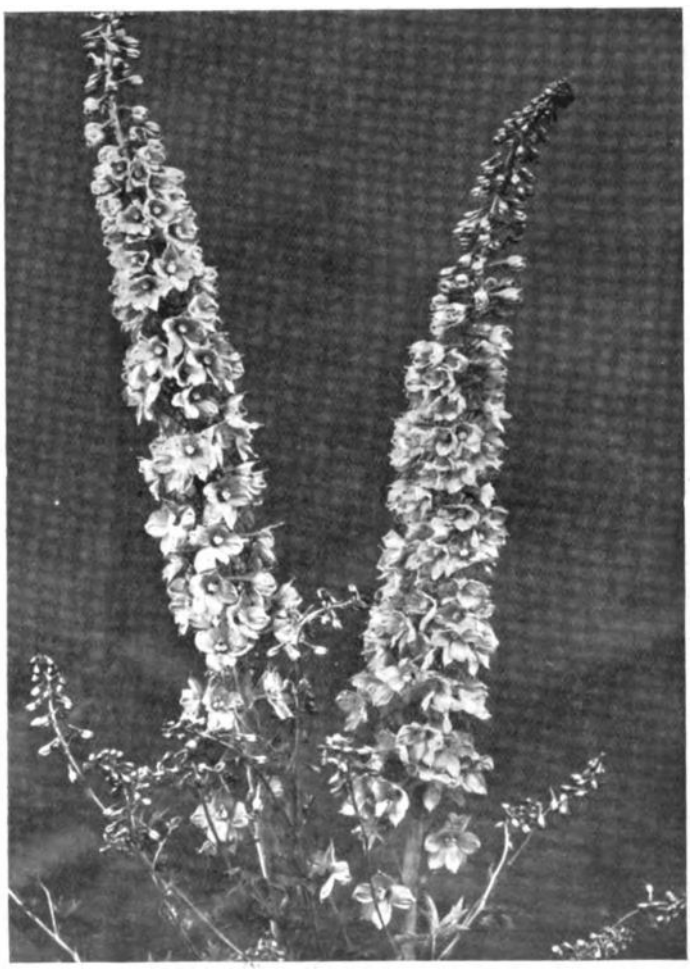
PROPAGATION.

There are two ways of doing this. Firstly, by division of the clumps which can be done either in early autumn (end of August or early September), or in spring (end of March or early April). On no account should they be cut about during the months October to March if growing in cold or heavy soils. In dividing old clumps the best tool is a strong and sharp knife. The work should be carefully done, retaining for each division two or three eyes or young shoots, and as much root as possible.

Secondly, by cuttings of the young shoots in early spring. These should be taken when about 3ins. long, exercising care to get the heel of the cutting by making the incision close to the root stock. These cuttings will root readily if inserted in sandy soil and placed in a cold frame, kept close and shaded until rooted, when they can be planted in the open ground. The year after planting they will make fine flowering crowns.

Delphiniums, more than any other hardy plants, generously repay first-class cultivation. They are gross feeders and delight in a deep, rich, loamy soil with which has been incorporated plenty of decayed cow manure. If possible, the soil should be worked to a depth of 2½ft. to 3ft., but where the soil is too shallow to allow this, holes can be dug out and a good layer of manure placed in the bottom and the soil replaced before planting. The eyes or crowns should be buried to a depth of about 2ins. Planting may be done either early autumn (early September) or spring (March or early April). Late autumn planting is a frequent cause of failure, especially in wet and cold soils. Neither should they be planted in February, when the soil is invariably very wet and cold. Delphiniums should not be expected to make a full display the first season, as it takes a year to get them well established, however large and strong the plants may be. An ideal plant for placing in the border is one which has a bunch of fibrous roots and two or three eyes. A plant possessing just a few large, thick roots is an old one and will take considerably longer to establish, even if it possesses a dozen eyes.

A question often asked is "How often should delphiniums be moved and divided?" It is safe to say they should not be left in the same place for longer than five or six years and then only if they have been well supplied with manure and are in good health. These old plants will make many more shoots than is necessary to furnish the plant, and these should be thinned out, when about 6ins. high, leaving an average of six or seven; if more be retained they will become crowded. A good mulching of decayed manure is of good assistance to these old plants and should be applied in April or May after growth has commenced. Water should also be given them freely in dry weather, remembering that it is the extremities of the root that need it, and that these not only extend 18ins. to 2ft. from the centre of the plant, but also are probably 2ft. in depth, so



THE BEAUTIFUL AZURE DELPHINIUM BLUE BOY. Characteristic of the single-flowered varieties.

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that a mere surface watering is practically useless. An occasional soaking of liquid manure will be of great help and the plants will respond very quickly to its application.

Delphiniums being such tall growers, staking is a very important and necessary operation. It should be done before there is any chance of damage from winds, when the plants are about a foot high. Good stout canes of various lengths are most suitable and three to each well grown clump should be used, being placed triangularly and not too close to the plant, leaving sufficient room for the spikes to sway a little during rough winds, as they will be less likely to break than if each spike is tied separately to a stick.

Many enquiries are made as to the best method of preventing slugs from eating the young crowns during the winter and early spring months. The best known method is to clear away all soil from the crowns and cover them with new cinder ashes to which a good dressing of soot has been added. Slugs will not attempt to burrow into the ashes and the young shoots will push their way through, being quite free from attack.

STATELY SEEDLING DELPHINIUMS IN ALL SHADES OF BLUE, INDIGO AND PURPLE.

A considerable diversity of opinion exists as to the ideal form of spike at which raisers should aim. "Millicent Blackmore" is, however, generally acclaimed to be the perfect delphinium, with its large circular semi-double flowers, symmetrically placed on a beautifully tapering spike, with no suspicion of crowding, and each flower standing well out on a stiff and almost horizontal stem. Other varieties which approximate to this form are:—The Shah, A.M.R.H.S, (1924), Lavanda, George Cochrane, Edward Bromet, Purple King and The Alake

Another distinct type is that represented by such varieties as Lord Lansdowne, Mrs. Townley Parker, Blue Boy, etc. The flowers in these varieties are quite single and conform to that of the true larkspur. It is in this class we get the best pure blues, and as delphiniums are valued so much for giving a range of real blue flowers, this group is indispensable. Let us hope that the time is not far distant when great improvements will be made in these real blues.

The undermentioned are a few really good standard varieties of robust constitution, from which all amateurs wishing to introduce delphiniums into their gardens could safely make an excellent selection:

Blue Boy, Colonel Sir Wyndham Murray, Lavanda, Lord Lansdowne, Lord Derby, Millicent Blackmore, Mrs. A. J. Watson, Mrs. Shirley, Mrs. Colin McIver, Mrs. Townley Parker, Queen Mary, Queen of Bath, Robert Cox, Rev. E. Lascelles, Sir D. Haig, The Alake, Willy O'Breen, Walter T. Ware, and in the Belladonna section: Capri, Lamartine, J. S. Brunton, Mrs. Thomson and Musis Sacrum.

DECIDUOUS BARBERRIES with BEAUTIFUL FRUITS

FOR COLOUR EFFECT IN AUTUMN AND GENERAL ORNAMENTAL PURPOSES IN THE SHRUBBERY, THERE IS NO FAMILY OF HARDY SHRUBS WHICH IS MORE PROMISING THAN THE BARBERRIES.

AMONG the ornamental shrubs of our gardens the barberries represent a group of the very first rank. During a long stay in the Arnold Arboretum I had a splendid opportunity of forming a good idea of the special value of a number of species. In addition, I took some photographs of fruit-bearing twigs, and I wish to call attention to some of the hardiest and best-growing species.

One of the best undoubtedly is the Japanese Berberis Thunbergii, a species which became very popular in North-eastern America shortly after its introduction towards the end of the last century. It has not been found in China. It is well marked by its purplish brown, deeply furrowed branchlets, and forms broad and dense bushes, measuring up to more than 6ft. in height. The compact habit makes it very suitable for small dense hedges, but it is seen at its best as a group of a few plants on a lawn. The flowers are small and of a pale yellow with reddish sepals. They are not as showy as the handsome bright red berries, which are single or in pairs. At the same time of the year the leaves become brilliant red, the whole plant often looking like a fire-bush. The species does not do as well in England as in North-eastern America and on the European continent. Nevertheless, it certainly is one of the best deciduous barberries for our parks and gardens. There are several varieties, as var. minor (var. Dawsoni) and var. pluriflora. The first has a more compact habit, while the inflorescences of the last bear from three to five flowers. Most of the plants in our gardens of the so-called var. pluriflora belong, however, to B. ottawensis, a hybrid between B. Thunbergii and B. vulgaris. Under the name B. Maximowiczii, a form of B. Thunbergii may be found which hardly differs from the type except by the leaves being almost greenish, not glaucous beneath.

Another species of which the leaves are beautifully coloured in the autumn and which usually bears the fruits single or in pairs is the Chinese B. diaphana. It is a native of the northern and central provinces of eastern China, and forms rather compact and dense bushes probably not over 5ft. in height. The branchlets are yellowish brown, the leaves larger

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than those of Thunbergii, distinctly toothed, and the fruits larger and of a more diaphanous colour. It seems not to fruit so profusely, but it is quite hardy. The ovaries contain from eight to twelve ovules, and consequently the fruits enclose more than two seeds. The species is still rather rare in our gardens. An even rarer but closely related one is the Chinese B. æmulans, differing principally by its red or purplish twigs.

The third species I wish to call attention to is B. koreana from Korea, introduced only a few years ago. I have seen bushes in Korea up to 5ft. high with red-brown, distinctly grooved branchlets. The dark green leaves are of a rather firm texture, and gain a beautiful colouring in autumn. The globose fruits of a rather yellowish red, somewhat reminiscent of ivory, form a distinct feature. They persist until the following spring. This is a remarkable and perfectly hardy species.

One of the most lovely barberries, both in flower and in fruit, is Berberis Vernæ (B. Caroli var. hoanghoensis) from north-eastern China. If I remember rightly, it was introduced by the late Mr. Purdom, who sent seeds to the Arnold Arboretum, where the plant flowered for the first time during the war. In its habit it resembles B. Poiretii, the so-called B. chinensis of gardens. The leaves and the flowers are, however, much smaller, the latter forming dense, almost stiff racemes, bearing quite a number of small salmon red fruits the colour of which is much like that of B. aggregata mentioned below. It is certainly one of the finest deciduous species known to us from China.

While the foregoing species have few or many-flowered racemose inflorescences, B. aggregata belongs to a different group. It has short and dense panicles which are erect and not pendent. They appear rather late in summer, and the fruits are smaller than those of B. Vernæ, and also differ from them by their distinct style. In its habit B. aggregata is much more like B. Wilsonæ, which is the most widely spread Chinese species in our gardens. Wilson's barberry has very delicate fruits, too, and is probably one of the best ornamental deciduous plants that its discoverer has introduced from China.

I could easily mention a good many more deciduous barberries bearing handsome fruits, but at present I have confined myself to a few desirable species which have engaged my special attention during recent months.

[CAMILLO SCHNEIDER.

UNDOUBTEDLY ONE OF THE BEST OF THE DECIDUOUS BARBERRIES, THE JAPANESE B. THUNBERGII, WHICH IN AUTUMN RESEMBLES A FIRE-BUSH WITH ITS HANDSOME RED FOLIAGE AND BERRIES.

BERBERIS AGGREGATA, WITH ITS SHORT, ERECT CLUSTERS OF SMALL FRUITS, EACH OF WHICH BEARS A DISTINCT STYLE.

A REMARKABLE AND PERFECTLY HARDY SPECIES, B. KOREANA. ITS FOLIAGE ASSUMES A BEAUTIFUL COLOURING IN AUTUMN.

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NEW ZEALAND PLANTS FOR THE BRITISH ISLES

BY DR. L. COCKAYNE, F.R.S.

IN THIS ARTICLE DR. COCKAYNE TREATS OF A FEW MORE NEW ZEALAND GENERA WHICH MAY SOME DAY ADD THEIR CHARM AND BEAUTY TO THE ENGLISH ROCK GARDEN. MANY OF THESE NEW ZEALAND NATIVES, SUCH AS RAOULIAS, MAKE IDEAL ROCK-GARDEN PLANTS.

(*Continued from page* 633.)

18. Leucogenes (Helichrysum).

L. Leontopodium (North Island edelweiss, 4,000–6,000ft; more or less stony ground and rocks), one of the most lovely of alpine plants, has stems up to 9ins. high, covered closely with shining, silvery leaves. The heads on stout stalks are surrounded by spreading, snow white, flannelly bracts. L. grandiceps (South Island edelweiss, 3,000–7,000ft., on rocks and sub-alpine coarse screes) is similar, but smaller in all its parts. Both rarely flower in cultivation.

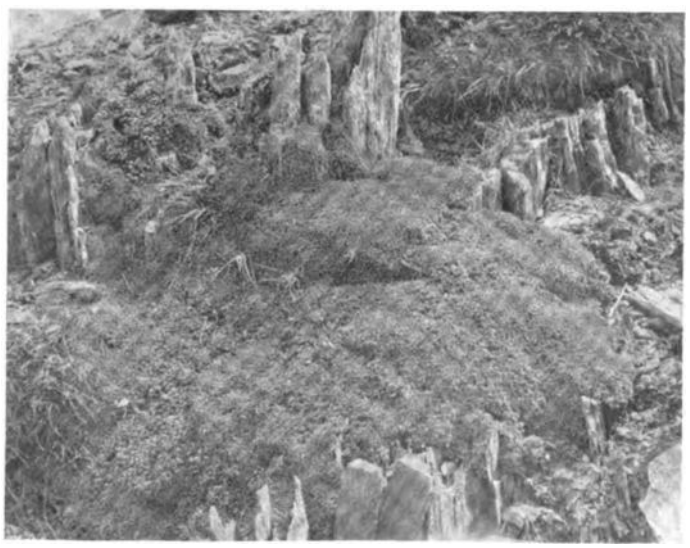
19. Linum monogynum (coast, 2,000ft., dunes, rocks) is well enough known in British gardens, but its exquisite variety chathamicum, the delicate white flowers striped or flaked with pale blue, is not in cultivation.

20. Mazus radicans (almost sea-level to 3,000ft., in wettish places) forms dense patches, the leaves brownish and blotched with purple, and the showy, fairly large flowers white with purple lower lip and yellow in the throat.

21. Myosotis (forget-me-not).—New Zealand is rich in forget-me-nots with white, yellow, blue and bronze flowers. All are beautiful except M. pygmæa, but this in some of its forms is most quaint. The sub-antarctic M. capitata is the chief of the group with its brilliant large heads of an intense blue held well above the rosettes of velvety green leaves. It is apparently more difficult to procure than to grow, for its ally, the cream-flowered, coastal M. albiflora, is easy enough. M. australis (1,000–4,000ft., in rather dry places in tussock grassland, probably not identical with the Australian species of the same name) is a slender, erect herb with fair-sized bright yellow flowers. M. explanata (3,000–5,000ft., on stones in shady river gorges) has delightful, large, white flowers. M. macrantha (3,000–5,000ft., wettish rocks) has large, yellowish-bronze blossoms. M. saxatile (4,000–5,000ft., on dry rocks) is a captivating small plant with white flowers. M. Colensoi (syn. M. decora, 2,000–3,000ft., on dry limestone screes) is a fascinating little cushion plant with its good-sized, solitary white flowers on very short stalks. MM. saxosa, Monroi, Laingii, Traversii, Lyallii and the low-growing sub-antarctic blue antarctica are one and all most desirable plants for alpine gardens.

22. Nertera depressa is well known in British gardens. N. Balfouriana (sea-level to 3,000ft., sphagnum bog, sandy peat), covered with pear-shaped yellow fruits in great abundance is equally good.

23. Ourisia.—This genus equals celmisia and ranunculus



RAOULIA HECTORI AT AN ALTITUDE OF 5,000 FT.

A BEAUTIFUL ROCK GARDEN PLANT, OURISIA MACROPHYLLA.

in the beauty and suitability of its species for the rock garden. All spread by means of creeping and rooting stems. O. macrocarpa (3,000–5,000ft., with Ranunculus Lyallii and other herbs in full sun) consists of the two varieties cordata and calycina, which have the flowers, each 1in. diameter, white with yellow eye, in five to eight superposed whorls—after the manner of Primula japonica—on stout stems up to 18ins. high. O. macrophylla (lowlands to 5,000ft.), easier to grow, is similar, but with rather smaller flowers. O. cæspitosa (2,000–5,000ft., often in more or less shade) forms dense mats of small, bright green, glossy leaves and puts forth on slender stems innumerable flowers of dainty loveliness, white with yellow eye. O. sessiliflora (3,000–7,000ft.; in stony or peaty ground) is certainly a gem with its large flowers (for its size), two to eight on a stem, standing out of the pale green, hairy rosette of crinkled leaves. The variety splendens (name not yet properly published) is still better with its more hairy leaves and larger flowers. O. Cockayniana, O. glandulosa and O. prorepens, all high mountain species, forming floriferous mats, are eminently desirable plants.

24. Oxalis lactea (lowlands to 4,000ft., moist banks, open forest on sphagnum) is a pretty wood sorrel with delicate white flowers.

25. Phormium Colensoi (coastal to 4,000ft., all kinds of growing places) has yellow flowers, stiff or drooping leaves according to the variety, and drooping, twisted, pointed seed-pods. It is smaller and far more hardy than the well known P. tenax.

25. Pleurophyllum.—The sub-antarctic P. speciosum is the most stately and likewise handsome species of the flora, as also one of the finest herbaceous plants in the world. Briefly, it is a glorious gigantic Michaelmas daisy. The four or five fleshy, corrugated, hairy, ovate leaves, each about 2ft. long by more than 1ft. broad, looking like pale green velvet, lie on the wet ground as shallow goblet-like rosettes, out of which in December (early summer) rise the massive flower-stalks for 3ft., carrying about fifteen heads, each 2ins. in diameter, with dark purple disc and pale purple rays. This glorious plant grows in its hundreds, exposed to the bleak, sunless climate, on deep wet peat in close company with its still taller relative, P. criniferum, Anisotome latifolia, Chrysobactron Rossii, Stilbocarpa polaris, Gentiana cerina, certain great tussock grasses and the dark-leaved fern Polystichum vestitum, while a few sea lions lie half-hid among the rich foliage. Surely this is a wonderful natural garden at almost the limit of flowering plants in the Southern Hemisphere but equidistant from the equator only as Tavistock in Devon! Near the

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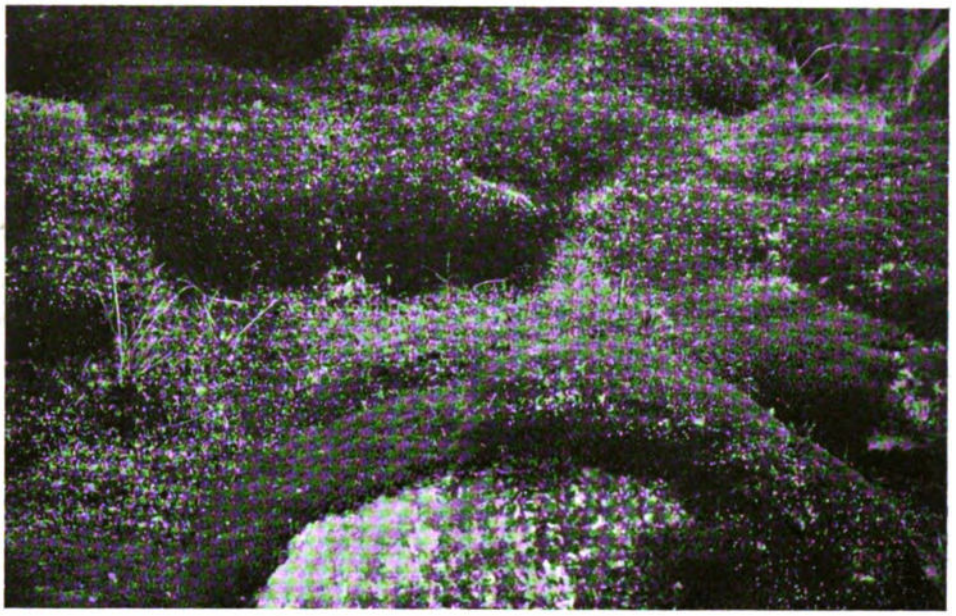
summits of the hills grow the smaller, more celmisia-like Pleurophyllum Hookeri with its silvery rosettes, and mats of the exquisite Celmisia vernicosa and abundance of the supremely lovely Myosotis capitata.

26. Pratia angulata (sea-level to 4,000ft., in wettish places) is a pretty white-flowered, mat-forming lobelia with good-sized purple fruits. P. macrodon (3,000–6,000ft., stony ground), its longer flowers tinged more or less yellow, is more hardy.

27. Ranunculus (buttercup).—The big New Zealand buttercups are the aristocracy of the genus. The celebrated mountain lily (Ranunculus Lyallii) stands supreme with its great saucer-like, peltate, smooth leaves raised high on long stalks, the broad, massive rhizome partly out of the ground, and the erect, branched peduncle carried far above the leaves, bearing from thirty to sixty pure white, sometimes semi-double flowers, each the size of half a crown. Its commonest habitat is fairly well drained soil exposed to the full sunshine (the heat is sometimes great) at from 3,000ft. to 4,000ft., but it likewise grows in open places among shrubs and in shaded places where peaty soil has accumulated on rocks. R. Buchanani (4,000 – 6,000ft., stony ground), also with white flowers, is almost as beautiful. R. Matthewsii is a hybrid ranging in character between the two. R. insignis (3,000–5,000ft.; somewhat stony ground), with many brownish hairs on its great leaves, has huge golden yellow flowers in profusion. R. Godleyanus, another yellow-flowered giant, has smooth leaves. The most readily grown of these lordly buttercups is R. lobulatus, but its abundant yellow flowers are smaller than in its relatives.

28. Raoulia.—Many of the species of this genus play much the same part in alpine gardening as the mossy saxifrages. They form mats, or low dense cushions, some green, others silvery; the small flower-heads are conspicuous through their abundance, and they give forth a delicious honey-like fragrance. Most grow on stony river-beds in the full sunshine. The following are the best: R. australis (silvery), R. Parkii (similar but with white bracts to the heads), R. lutescens (dense, silvery cushions), R. tenuicaulis (silvery and green, of rapid growth), R. subsericea (green) and R. glabra (similar to the last). R. grandiflora greatly resembles a silvery cushion celmisia with its large flower-heads with white petal-like bracts. It is an ideal rock garden plant. Then there are the more difficult R. Hectori (purely alpine, silvery) and the dense green cushion plant, R. Haastii. Some of the species form gigantic cushions, but they are extremely difficult — perhaps impossible — to grow. R. eximia shares with Haastia pulvinaris the name "vegetable sheep."



THE DENSE GREEN CUSHIONS OF RAOULIA HAASTII.

RAOULIA EXIMIA, APTLY CALLED THE "VEGETABLE SHEEP."

(*b*) SHRUBS AND SMALL TREES.

Here only a few high mountain woody plants are dealt with, especially those but little known in the British Isles. Many equally good have to be omitted, nor is anything said about the fine evergreens, so suitable for the warmer parts, some of which with but slight protection succeed in colder localities.

1. Carmichælia (New Zealand broom).—The dwarf species of stony, dry ground are excellent, uncommon-looking shrubs, 1in. or 2ins. high, with their green or yellowish, flattened stems and pea-like, purple-striped flowers. C. nana, C. Enysii, C. Monroi and C. uniflora are well worth attention. C. compacta, a bushy, leafless shrub of arid hillsides, 2ft. to 3ft. high, is extremely floriferous and graceful.

2. Cassinia albida (almost sea-level to about 4,000ft., dry ground, forming low thickets), about 4ft. high, is pleasing when well grown with its rather small, viscid, dark green leaves, whitish beneath and masses of flower-heads. The var. canescens is more or less hoary, or almost white in one excellent form not in cultivation.

3. Clematis afoliata (sea-level to 2,000ft., dry places, rocky ground) forms curious, entangled masses of leafless, rush-like stems and bears abundance of fragrant, yellow flowers. The male, as in all New Zealand species of clematis, is far the more showy. Seed takes about a year to germinate.

4. Coprosma brunnea (500 – 3,000ft., stony ground in the full sunshine) is of exquisite beauty when the wiry, procumbent stems resemble strings of beads, covered as they are with translucent, jewel-like drupes, in colour sapphire blue, darker blue, pale blue and white.

(To be continued.)

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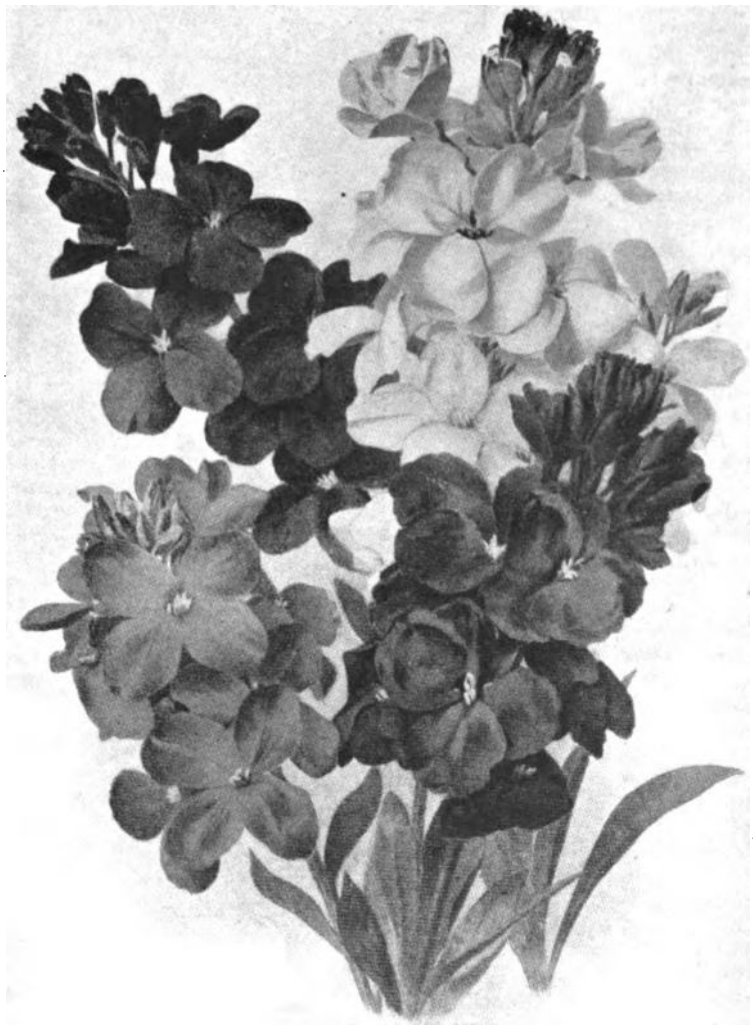
THE CULTIVATION of WALLFLOWERS

THE common wallflower (Cheiranthus Cheiri) is one of the oldest cultivated plants, the date of its introduction from South Europe being given as 1573; yet it never grows old nor loses its fascination among garden lovers generally. Old-time sentiment, early flowering, bright and varied colours, delicious fragrance and an abundance of large flowers are sufficient to account for its popularity. It is usually grown as a biennial, and doubtless the finest flowers and the greatest quantity are obtained from it when so treated; but it is a true perennial and even sub-shrubby when allowed to grow undisturbed for a number of years. This habit can be well seen when it grows upon old castle walls in various parts of the country, or on the chalk cliffs of Kent, where the flowers are small and yellow, but delightfully fragrant. Like the antirrhinum it is a true wall flower, with its very dwarf and woody stems when growing under such conditions, while it never looks more natural nor suffers from the severest of our winters. Its extended cultivation upon old walls would be appropriate.



A CHOICE GROUP OF WALLFLOWERS.
These plants owe their popularity to their early flowering, bright and varied colours, and their delicious fragrance.

CULTIVATION.

For spring bedding and garden adornment generally, the biennial system of treatment is best because the largest flowers and the greatest quantity of them can be obtained in a given space, and on dwarf and bushy plants. Any good or average garden soil, if well drained, may be made to give perfectly satisfactory results. Clay soils and those of a very peaty character are the worst, though it will grow quite well in either, if a sufficient quantity of sand is well mixed with them. Rich and damp soils encourage rampant and soft growth which is ill calculated to withstand a severe winter. Open situations are best for most of the modern varieties, but exposed and windy positions should be avoided or the large flowers will be liable to injury. From this point of view the value of shelter is well demonstrated in the front gardens of villas, or when narrow borders close to the walls are occupied with these flowers.

The seeds should be sown thinly in lines, 12ins. apart, in a reserve part of the garden, to give facilities for hoeing and keeping down weeds. This should be done in May or up to the first week in June, to allow time for the plants to mature and flower well the following spring. As soon as the seedlings are one or two inches high they should be transplanted to a piece of prepared ground, in lines 12ins. apart, and 6ins. to 9ins. between the plants. If the ground requires digging, it should afterwards be trodden firmly to ensure dwarf, sturdy and bushy plants, which are the best for all purposes. This stage is the most critical in the rearing of the plants. If the seeds were sown thickly, and the seedlings neglected till they get tall, they get drawn up in spindly fashion with a single stem. Some resort to pinching to make them bushy, but that means loss of time, and the plants are unable to produce strong branches before autumn, with the result that the flowers are few and poor the following spring. The results are equally or more disastrous when leggy plants are inserted too deeply in heavy, clay soils. In severe winters most of those plants die, and have an unnatural, planted appearance as long as they continue to exist. Small seedlings can be dibbled into lines quite speedily; but somewhat larger ones with plenty of roots are best planted with a good trowel, alongside the garden line.

FINAL PLANTING.

This can be done in September or October, the latter month being the most convenient, if the wallflowers have to occupy beds filled with summer-flowering plants, which often remain gay till well into the autumn. In any case, autumn planting is best, because the wallflowers have time to get partly established before winter. Late spring planting is the worst, because they lose a great part of their foliage, and the flowering period is upon them before they have time to make sufficient roots to support a full display of flowers. Wallflowers take kindly to a good deal of bad usage, however, and that tends to make some people remiss or careless. A bed may be filled entirely with wallflowers, or they may be planted sufficiently far apart to allow a groundwork of arabis, aubrietias, forget-me-nots or polyanthuses to be seen. A good contrast can be made by planting them more closely and filling the interspaces with daffodils which will just show themselves above the wallflowers in spring.

SINGLE WALLFLOWERS.

The original colour of the wallflower was pale yellow; but now the shades of colour or mixtures of them are more

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numerous than the average cultivator generally imagines, while improvement still continues. In my opinion Fire King is the greatest advance at present in commerce, by virtue of its rich vivid orange colour which shows up clearly from a distance. It is by no means the darkest. The flowers reach their greatest perfection when sheltered by a wall. Orange Bedder is dwarf and is rich orange when it first opens, shading off to apricot.

The yellow shades are the most conspicuous of all at a distance, and are the last to disappear in the gloaming. Their names indicate the shade of colour in most cases, namely, Cloth of Gold, Rich Yellow, Golden Monarch, Primrose Monarch, and Apricot. A distinct and pleasing pale yellow is that of Faerie Queene; while Old Castle is the pale yellow wild form that takes care of itself on old castle walls and ruins.

YELLOW WALLFLOWERS ARE HANDSOME EVEN AT A DISTANCE.

Crimson is represented by Vulcan and Giant Vulcan, while Blood Red and Giant Blood Red are of another shade of reddish crimson and much valued by many cultivators. Darkest of All is of a rich maroon and makes a striking contrast with the green foliage in bright weather when the sky is clear.

Ruby colours are represented by Ellen Willmott (pure ruby), Ruby, Purple, and Purple Queen (purple to ruby). An early-flowering variety named Harbinger has brown flowers. Light Brown is the old iron brown wallflower of Thomson, the author of "The Seasons." A few of the varieties have what I look upon as fancy colours. The most popular, perhaps, is Eastern Queen, the flowers of which open of a light apricot or chamois hue and change to rosy pink. Rosy Gem originated as a sport from Fire King and has deep rose-carmine flowers. Ivory White and White Gem are strains from which the colour has almost disappeared, leaving the flowers of a creamy white. These two are best raised in cold frames, because of weak growth at first.

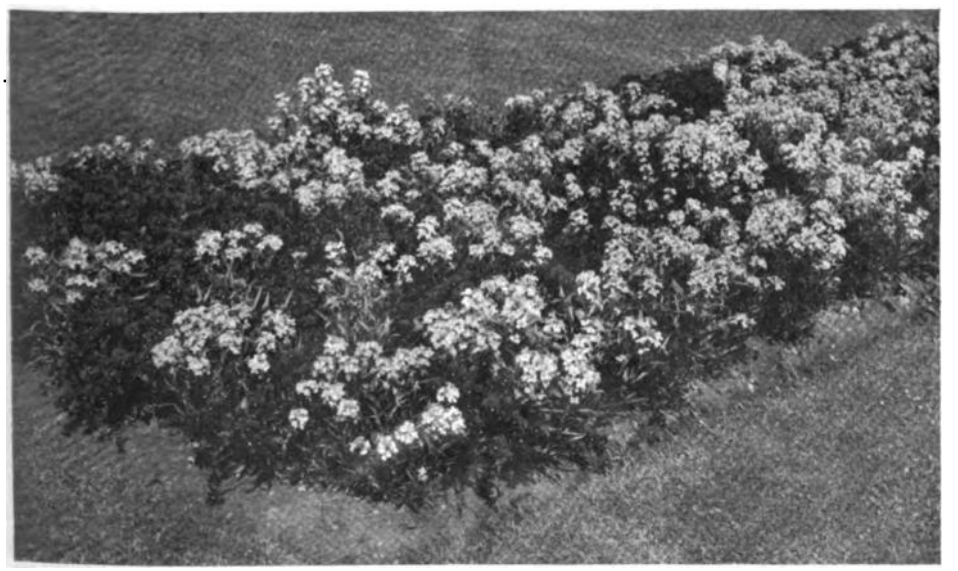
The old Parisian Early Wallflower was a variety that commenced to bloom in four months from seed and kept on for some months. In the hands of British nurserymen it has been developed into a considerable number of coloured forms, of dwarf habit, but not all as equally early as the original. Sown in May outdoors, they commence blooming in autumn with me, and some of them in uncultivated ground have bloomed for three years, continuing in flower, weather permitting, till May, and sowing themselves. The yellows are very handsome even at a distance, and include Yellow Phœnix, Belvoir Castle, Dwarf Yellow and Primrose. Phœnix itself is dark brown, and Dwarf Red and Vulcan are other early varieties.

DOUBLE WALLFLOWERS.

There are two strains of the above, the old double which bore a tall single spike of very fragrant double flowers. Improved Double is an advance upon it. A newer strain, named Double Dwarf Branching, is of bushy habit, with many short spikes of double flowers. The double yellow wallflower Harpur Crewe can scarcely be omitted here by reason of its suitability for planting on elevated parts of the rockery. It is propagated by cuttings.

One meets with many intermediate forms between the typical single-flowered varieties and the strains of the true double kinds. The latter, although in every way handsome in appearance, do not seem to have the same attraction for one as the real old sorts. No doubt, sentiment to a certain extent accounts for this, due, in no small measure, to the fact that the wallflower, as already pointed out, is one of our oldest garden flowers in cultivation. It is well not to lose sight of these plants, with all their old associations of the long ago days, as they serve to make one appreciate all the more the trend of our modern plants and gardens.

J. FRASER.



CHEIRANTHUS ALLIONII, PLANTED EFFECTIVELY WITH A GROUNDWORK OF VIOLAS.

FORTHCOMING EVENTS.

September 23.—Royal Horticultural Society's Autumn Exhibition at Holland Park Hall, Shepherd's Bush (three days). A great autumn show of flowers, with a display of autumn foliage and berried plants.

October 1.—Glasgow and West of Scotland Horticultural Society's Meeting.

October 4.—Blackburn Horticultural Society's Meeting.

October 7.—Royal Horticultural Society's Fortnightly Meeting (two days).—Royal Caledonian Horticultural Society's Meeting.

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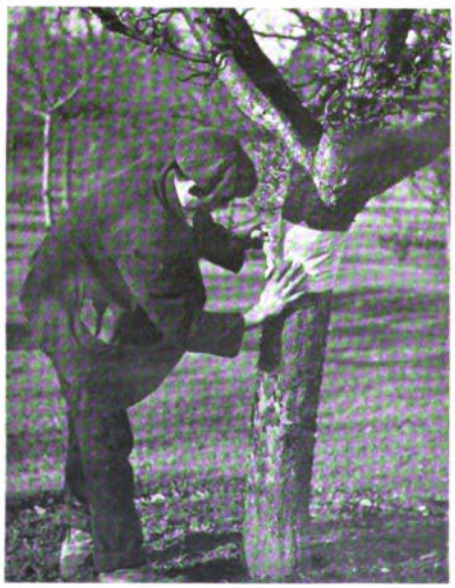
GREASE-BANDING OF FRUIT TREES

DURING recent journeys through commercial fruit-growing districts, widely varying conditions of crops have, as usual, been noted, and by inquiring into details of culture one discovers that there is generally a fairly well defined reason which is tendered as an excuse for severe attacks of the common pests of the orchard. Thus the owner of an orchard whose apples and pears are suffering very badly from scab explained that owing to the illness of his foreman he did not manage to get the lime-sulphur spray used. Another whose heavy crop has been sadly diminished by maggot, which has caused the fall of the bulk of the fruit, regretted that through one cause and another his grease-banding had last autumn been so long delayed that the wingless moths had reached the upper branches of the trees before the deterrent was applied; while yet another was similarly suffering because he had read that it should not be considered essential to grease-band every year, but that if one season the bands catch a heavy crop of moths the trees will probably be clear for the next two or three years. His bands had been thickly coated with moths in the winter of 1922-23, and he had economised by dispensing with grease-banding during the winter 1923-24. His apples are now in very bad plight. I have a considerable amount of sympathy with that man, for I recall the reading of the article which, in urging the necessity of rigid economy in commercial fruit culture, had erred in advising too hasty a suspension of preventive measures.

It is undoubtedly very essential that even in matters of combating pests and diseases the grower for profit shall exercise judicious care in expenditure of cash on materials and labour. Had the advice been to discontinue grease-banding after one season had passed with the bands remaining clean on the trees all might have been well, but when the



A GOOD STOUT BAND BEING APPLIED WITH PASTE.

SCRAPING THE STEM.

bands are thickly covered with captured moths it may be taken for granted that some have still escaped destruction, for even the carcasses of the dead will form a bridge over which later moths may pass without getting their feet entangled in the adhesive grease.

Private garden owners who have only a few fruit trees, the crops of which they desire for use in their own households, are not so seriously concerned with the actual cost of preventive and curative measures, and in order to make doubly sure that crops once set shall be protected from ravaging foes it is prudent to grease-band and to spray persistently and thoroughly until the time arrives when the trees are known to be perfectly clean.

It is, moreover, wise to begin grease-banding at an early date. The several species and varieties of wingless moths become active at varying dates or periods during autumn, winter, and even until March. The recognised "opening" of their active season is early October, but if grease-bands are not applied until October it is quite possible that a day previously one or two precocious insects may have passed up the trunk and reached the branches of a tree, and even one moth will deposit sufficient eggs to produce a destructive horde of larvæ. It is surely infinitely better to get the bands on the trees before the possibility occurs of even the first moth escaping the trap. Mid-September is not too early to start.

The application of grease-bands to standard trees is quite a simple matter, but bush trees involve a deal more labour, since the only really effective plan is to band each main branch separately. Here again the advice is sometimes given that in view of the greater labour involved it is well to omit grease-banding bush trees and rely upon spraying with lead arsenate. However sound this may be in regard to commercial plantations, it is poor advice for the private garden owner. Often his fruit is underplanted with small crops, and there is risk in the use of lead arsenate where cauliflowers, kale or lettuce may be growing within reach of the poisonous spray, and where one's horticulture is a hobby and recreation, the time involved in effectively grease-banding has not to be reckoned at its cost per hour.

Let the band be of good, stout, grease-proof paper. Be careful that it is wrapped very smoothly round the tree, and tied quite securely. A carelessly wrapped band may leave a fold which provides a safe tunnel under the paper through which some moths will make their way. The raffia used for tying must be broad and strong.

Use a good grease, and lay it on the band evenly. It would be out of place for me to advise one particular brand of grease. The manufacturers are well aware that it is only by producing a really good article they can successfully compete with other brands, and any of the advertised greases sent out by well known firms are efficient if properly handled.

Much depends upon the weather. Prevalence of drying winds may form a dry film or skin over the surface. Rain should have little or no effect for a while, but long continued or frequently recurring heavy storms may eventually reduce the adhesive power of the best of preparations, and it is well to go over the trees at frequent intervals for the purpose of recoating any bands that may have dried out.

Should it happen that from any cause a band perishes, necessitating the application of a fresh band, it is well to place it just above the previous band, for it cannot be said that the covering of a complete ring of bark for a period of six months or more is exactly a good thing for any tree, and when a change has to be made it is as well to release the old spot from its covering and give the second period a change of position.

PUTTING ON THE GREASE.

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About 3ft. from the ground is near enough for the bands. If the trees are grown on dug ground a band at a lower position may become bespattered with mud during heavy storms, and on grass a tall stem may provide a ladder up which an energetic moth may travel to reach the tree trunk above the band.

Brown paper is sometimes used, but unless well glazed it is generally sufficiently absorbent to take a proportion of moisture out of the grease.

It is well to state that grease-banding must not be considered an all-sufficient substitute for spraying. It cannot prevent attacks of aphis, nor has it any power against fungoid diseases, but as a means of arresting the wingless females of the winter moths, the umber moths, the March moth, etc., grease-banding is a thoroughly practical and highly essential item in the fruit grower's programme. As such it should not be overlooked or neglected. A. J. MACSELF.

GLADIOLI AT VINCENT SQUARE

IN spite of the recent wet weather, the numerous exhibits of gladioli and dahlias at the fortnightly meeting of the Royal Horticultural Society on September 9th were exceptionally good. The presence of so many dahlias was due to the fact that the National Dahlia Society was holding its Show the following day.

Messrs. Kelway and Son had an extensive collection of large-flowered hybrids. Of outstanding merit were: Kelway's Masterpiece, ruby crimson, dark spot; Sunset, rosy pink, suffused violet; Purple Rod, purple with yellow blotches; Edward VII, scarlet crimson; Duke of Richmond, rose, large white spot; Sir Edward Carson, mahogany, shaded maroon.

In Mr. Alfred Edwards' exhibit the following primulinus hybrids were conspicuous: Fire Queen, scarlet; Yellow Standard, deep yellow; Constance, creamy pink; Souvenir, yellow; Ethel, soft salmon pink. Among the large-flowered varieties we noted Lord Nelson, orange, shaded yellow; Panama, deep pink; Faust, deep crimson; Baron Hulot, indigo blue; and Clear Eye, scarlet, white blotch.

Messrs. R. H. Bath, Limited, had a large exhibit. Noteworthy large-flowered sorts were Baron Hulot; Love's Fire, scarlet; Yellow Hammer; Red Canna; and Orange Queen.

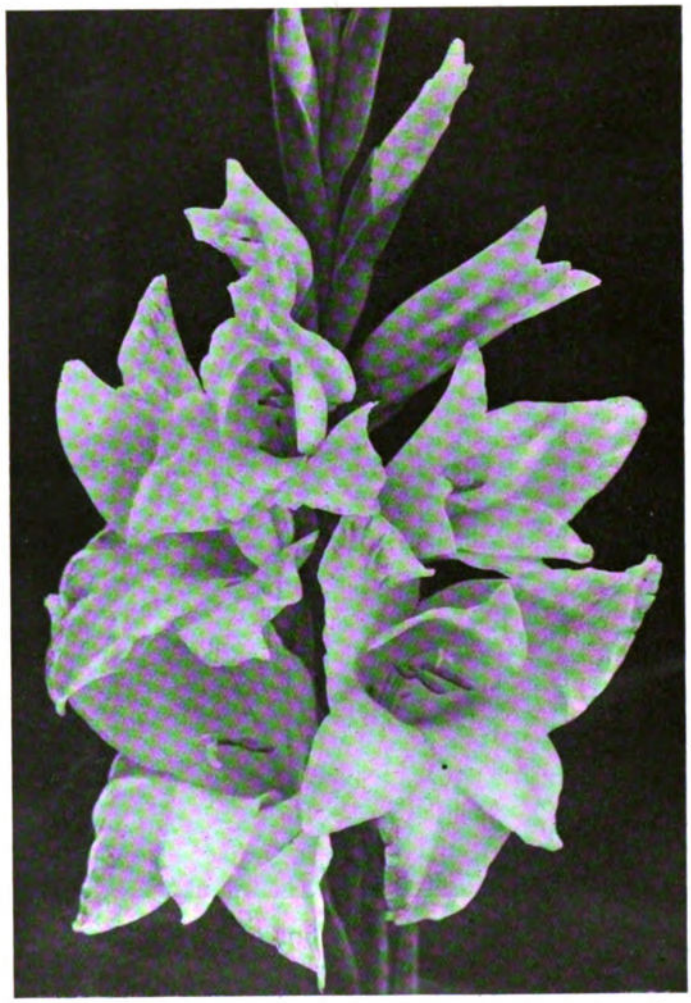
Messrs. Velthuys and Co. of Hillegom, Holland, who are wholesale nurserymen, showed a well arranged exhibit of large-flowered "glads." Of outstanding interest were Master Wietse, violet blue; White Giant; Pink Perfection; Orange Brilliant. They also showed dahlias.

A very large collection of gladioli was staged by Messrs. W. Artindale and Son. Here were such sorts as White Giant; Golden Drop; Empress of India; Marechal Foch, salmon pink; Brimstone, sulphur yellow; Prince of Orange; Maiden's Blush; Apricot and Pink Beauty.

In Messrs. Lowe and Gibson's exhibit we noted such large-flowered sorts as Catherina, pale blue; Rev. Ewbank, lilac; Nora, light blue; Mr. Mark, lilac, dark blotch. Good primulinus sorts were Souvenir, Black Pansy and Sappho. This firm also showed some very promising seedlings.

Besides the gladioli there were many exhibits of other flowers and plants.

Messrs. J. Cheal and Sons had a very interesting exhibit of flowering and fruiting shrubs. Here were well fruited sprays of Leycesteria formosa, Viburnum Opulus, V. rhytidophyllum, Cotoneaster frigida and Symphoricarpus racemosus. Among the flowering shrubs we noted Fuchsia Riccartonii, F. americana elegans, Potentilla Farreri, Hedysarum multijugum, Buddleia Pink Pearl, B. magnifica, Tamarix odessana, Choisya ternata and Hydrangea paniculata grandiflora.



A FINE SPIKE OF THE LARGE-FLOWERED GLADIOLUS WHITE GIANT.

Mr. T. Carlile showed herbaceous phloxes, Delphiniums Dusky Monarch, Norah Ferguson, Daphne and Millicent Blackmore. He also showed a few spikes of red-hot pokers (kniphofias).

Perpetual-flowering carnations, perpetual borders and Dianthus Allwoodii were staged by Messrs. Allwood Brothers. Mr. C. Engelmann and Messrs. Stuart Low and Co. also showed perpetual-flowering "cars."

A large collection of chrysanthemums was staged by Messrs. Keith Luxford and Co. Here were to be seen such excellent sorts as September White, September Yellow, Autumn Beauty, Verona, Framfield White, Goldfinder (an excellent yellow variety) and Improved Masse.

Bronze-coloured "mums" were exhibited by Messrs. Scott and Wickham.

Several dishes of apples and pears were shown by Messrs. Laxton Brothers.

Messrs. Daniels Brothers showed their new September Black Currant, together with apples and pears.

Black and white grapes were staged by Mrs. Reed of Devizes.

Hardy plants were shown by Mr. F. G. Wood, Messrs. B. Ladhams, Mr. William Yandell, Messrs. Reamsbottom and Co., the Misses Hopkins, Messrs. Rich and Co., Messrs. Isaac House and Son, and Mr. Amos Perry.

Mr. J. J. Kettle exhibited Violet Princess Mary and his perpetual raspberry Lloyd George. The only exhibit of roses was by the Rev. J. H. Pemberton.

Dahlias were exhibited by Messrs. Sutton and Sons, Messrs. Dobbie and Co., The University College, Reading, Mr. J. B. Riding, Messrs. Carter Page and Co., and by members of the Netherland Dahlia Society.

Messrs. R. and G. Cuthbert showed giant-flowered streptocarpus and a large quantity of Nerine Fothergilla major.

Messrs. L. R. Russell and Co. showed clematises grown in pots, also evergreen and berried shrubs.

As noted elsewhere, this was a gladiolus show, and competition in the classes provided for this flower was much keener than is usual at Vincent Square. The Foremarke Cup offered by the Royal Horticultural Society for the best twenty spikes (distinct kinds) was won very handsomely by Mr. D. Whitlaw, of Stationhouse, Laurencekirk, whose spikes were, however, very obviously opened under glass. The remaining exhibits were all from outdoors, and that of Major Geo. Churcher, especially, was very creditable and well deserved the silver Banksian medal awarded. The National Hardy Plant Society had some eighteen classes for large-flowered and primulinus varieties and table decorations, and all except those for new varieties attracted fairly good entries. The bloom shown was representative, although in some cases a little battered, which, considering the inclement weather, was not surprising. The principal prizewinners were Major Geo. Churcher, Mr. W. Kitchener, Messrs. Lowe and Gibson, Messrs. D. Prior and Son, Mr. A. E. Amos, Mr. A. Amos, Mr. S. H. Gregg, Messrs. Artindale and Son and Mr. A. Edwards.

The Show would suffice to prove to any in doubt the rapidly increasing popularity of the gladiolus, and particularly of the graceful and decorative primulinus varieties.

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NEW AND RARE PLANTS.

HIBISCUS WAIMEÆ.—The large white flowers of this temperate-house species are remarkable for the long crimson staminal column. The leathery foliage is oblong and rather congested, and the plant perhaps more interesting than beautiful. Award of merit. Shown by the Director, Royal Botanic Gardens, Kew.

DAHLIA MRS. SKEVINGTON.—A yellow-pink, peony-flowered variety of good size, beautiful colouring and exquisite form. The flowers are borne on long, stiff stems. Shown by Mr. A. J. Cobb.

ORCHIDS.

CATTLEYA JOYCE HANMER.—An attractive hybrid of unknown parentage, but possibly derived from C. iridescens (bicolor × El-dorado). Flower of medium size, bright canary yellow, labellum of slightly deeper tint and bordered with soft crimson. Award of merit. Shown by Mr. R. Gerrish.

ODONTIODA JUANITA (Oda. Brewii × Odm. Pharos).—This novelty carried an erect spike bearing six flowers, well above the average size for this section, of reddish chocolate colour, the broadly developed labellum having a crimson over-tint and bright sheen. Award of merit. Shown by Mr. R. Gerrish.

SOPHRO-LÆLIO-CATTLEYA ISABELLA VAR. VIVID (S.-L.-C. Marathon × C. Fabia).—The spike bore a couple of well developed flowers, roundly proportioned, of soft rosy buff tint, the labellum having a marginal area of deep ruby-crimson, with a gold venation in the central area. Award of merit. Shown by Mr. H. T. Pitt.

BRASSO-LÆLIO-CATTLEYA J. M. BLACK (L.-C. Firminii × B.-L.-C. The Baroness).—A fine addition to the yellow section, the present novelty being of buttercup yellow, the sepals lightly spotted on the exterior with crimson-red, the labellum having the central area of ruby-crimson, and a narrow band of the same colour on the extreme margin. Award of merit. Shown by Messrs. Flory and Black.

LÆLIO-CATTLEYA VEGA (L.-C. rubens × L.-C. Soulange).—A handsome flower with all the segments broadly developed, of rosy purple colour, the wide labellum royal purple and with the margin prettily crisped. Award of merit. Shown by Messrs. J. and A. McBean.

THE NATIONAL DAHLIA SOCIETY'S SHOW

THE Annual Show of the National Dahlia Society, which was held in the Royal Horticultural Hall, Westminster, on September 10th, was the most successful held by the Society of recent years. The hall was pleasantly filled with dahlias of good quality. H.R.H. Princess Louise performed the opening ceremony in a gracious and charming manner, and there was a good attendance.

The enthusiast, on entering a flower show, always looks first for the newest or for something novel, and these were to be found *en masse* at the New Plant stand and in the large exhibit so tastefully arranged by Messrs. Sutton and Sons. Our remarks on the new varieties are herewith appended. The novelty of the Sutton exhibit lay in its being composed solely of blooms from seedling plants.

All possible types of dahlias were represented, and these included so many really excellent blooms that a gold medal was awarded for the group. Large vases of mammoth decorative dahlias, dwarf singles, show singles, cactus dahlias, dwarf pompons, collarette dahlias and such were equally well represented.

Of the general trade collection of dahlias the outstanding exhibit was that so charmingly arranged by Mr. H. J. Jones, and this won the premier award of a large gold medal. Mr. Jones has been awarded many gold medals for exhibits of different flowers, but none has been more fully deserved than this one. Not only was the collection composed of very representative high quality blooms, but the arrangement was most artistic throughout. No matter whether it was a tall stand of such large decorative varieties as J. G. F. van Tets, Orange Boven or Princess Mary, a basket of mixed pompons, or cactus, or the old show varieties, each separate receptacle was as artistically satisfying as may be conceived. Evidently realising that at this Show "the dahlias are the thing," Mr. Jones eschewed the use of large foliage and wisely contented himself with graceful sprays of late-flowering Michaelmas daisies, Gypsophila paniculata, thalictrum and similar plants in sufficient quantity to soften the outlines and add grace. He is to be congratulated on a most successful display.

These large trade collections were an important feature of the Show, and often illustrated in a fascinating manner the great decorative value of dahlias when arranged boldly. The baskets delightfully arranged by Messrs. Wm. Treseder, Limited, and Mr. Jarman were notable examples, while Messrs. Dobbie and Co. had a large collection of collarette varieties, many of their own raising. Another valuable group was that from the University College Gardens, Reading, and in this Mr. A. J. Cobb set out admirably a large number of decorative varieties raised by himself. They were mostly of the miniature peony-flowered type which becomes a medium-sized plant with a minimum of foliage and plenty of lovely flowers well set up on long, slender, but stiff stems.

MR. JONES' LARGE GOLD MEDAL EXHIBIT, REMARKABLE FOR THE EXCELLENT ARRANGEMENT OF THE INDIVIDUAL VASES.

As garden plants these miniature peonies are unequalled among dahlias. They do not require a deal of space, they flower early and continuously till frosts come, and are most charming cut flowers. A delightful variety at the Show was Mrs. W. M. Childs, of golden buff colouring heavily tipped with clear rose pink. For those who prefer a more solid bloom of medium size there are the miniature decorative varieties, which are fully double and of satisfying colours. The most substantial of all the dahlias are the old show and fancy varieties. These had a long vogue with fanciers, then, with the swing of the pendulum of floral fashions and changes, much ink and breath were wasted in deprecating their formality. But it must be admitted that this type has distinct value, as was to be seen in the vases of Mr. H. J. Jones and in the splendid first prize exhibit of Messrs. Wm. Treseder, Limited. These latter were, of course, shown in the old style on boards. It was a superb exhibit and included such sorts as Tom Jones, John Walker, Gracchus, Prince of Denmark and George Charlton.

The dainty little pompon dahlias were seen to perfection in several exhibits, though we would prefer them without the stiff wire arrangement so many exhibitors affect. The real charm of the pompons was best seen in the delightful dinner-table decoration by Mr. D. B. Crane, which, however, did not find favour with the judges. There seems to be a general impression that pompon dahlias make a preponderance of foliage which hides the flowers and so are not good garden plants. This is not so, unless the ground is heavily manured. With perhaps the exception of the white-flowered varieties, the pompons, under sensible cultivation, show their flowers well. The following were selected at the Show as being a good selection for all purposes: Mars, scarlet; Nero, very dark maroon; Adelaide, pale

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lilac ; Nerissa, rosy mauve ; Clarissa, yellow ; Little Jim, bright maroon.

In the search after size of bloom and, most particularly, for length of flower-stem in order to obtain varieties which will disclose the blooms when on the growing plant, we are rather inclined to the opinion that the newest cactus dahlias have lost a deal of the charm of form possessed by the older sorts. Many of the newer varieties have straight, though rolled, florets and, to us at any rate, are not so fascinating as when they are curved. We are at one with those who desire a race of cactus dahlias which will be beautiful in the garden as well as when cut, and no doubt it is only a question of time when length and strength of stem will be combined. Champion, orange scarlet ; John Riding, deep vermilion ; Lavinia, scarlet ; Canary, yellow ; Bonny, white, tipped with lilac ; Gigantic, orange buff ; Valour, vinous crimson ; Abbotsford, yellow, heavily flushed with rose at the tips, were good examples of the cactus varieties on show.

In the open classes the chief prizewinners were Messrs. Wm. Treseder, Limited, Messrs. James Stredwick and Son, Messrs. J. Cheal and Sons and Mr. H. Woolman, all of whom staged exceedingly good blooms.

Among the amateurs Mr. W. G. Cramp, Streatham ; Mr. A. Brown, Leagrave ; Mr. M. Howard, Chesham ; Mr. F. Chennetts, Wheathampstead ; and Mr. S. Amos, Colchester, won most of the first prizes.

The decorative classes were very popular, and many admirable arrangements were to be seen. Mr. D. B. Crane, with a charming table of a soft yellow shaded with rich terra-cotta variety, won the first prize in the dinner-table class restricted to star varieties, and was also first with glorious blooms of Dazzler in the class for three vases for sideboard decoration.

In the dinner-table class, where star dahlias must not be used, Messrs. Wm. Treseder used Mary Poynter, a lovely rose shaded miniature peony variety and deservedly won the first prize. Mrs. Courtney Page was second with a very artistic arrangement of Dahlia Picture, fruiting sprays of berberis, and trails of Virginian creeper. Mrs. E. M. White won two first prizes with well arranged vases of dahlias, and Messrs. Wm. Treseder had the best bowl.

NEW DAHLIAS.

The Joint Committee, composed of members of the National Dahlia Society and the Royal Horticultural Society, met in the morning to consider the merits of a large number of new seedling dahlias. A liberal selection was made for "trial at Wisley," and of these we consider the following to be the most valuable :

BURSTOW STAR.—A very pretty little variety of the useful star type. The rosy mauve florets are gracefully rolled and the flower has a definite deep crimson zone. The name of the sender was not given.

IRVINA.—This is a very decorative, small peony-flowered novelty. The bright rose pink flowers are borne on long slender stems. The name of the sender was not given.

MARY.—A medium-sized peony-flowered variety with plenty of rich velvety maroon florets. The colouring is very uncommon and it found many admirers. The name of the sender was not given.

MRS. EUSTACE BERRY.—An uncommon collarette dahlia. It is a very round bloom of good substance. The florets are a rich velvety crimson, while the milk-white quills, which stand out well, are striped with crimson. The name of the sender was not given.

NIGRA.—This was the most uncommon new dahlia in the Show. Long shoots were included to show the habit of the plant, which seems to be exceptionally graceful, and this variety would be well worth growing if only for this graceful habit and rich purple foliage and stems. It belongs to the small peony-flowered section, and the round, velvety crimson flowers have two rows of petals, which are touched with rose at the tips. Shown by Mr. A. J. Cobb, University College, Reading.

SHINFIELD STAR.—Although a trifle large for a star dahlia, the vivid, sparkling colour of this novelty makes it very desirable. The orange-scarlet colouring shades outwards to a rich rosy purple. Shown by Mr. A. J. Cobb.

ANSWERS TO CORRESPONDENTS

THE FLOWER GARDEN.

Colour Scheme for a Herbaceous Border (J. F.).—The primary colours are blue, red and yellow. Harmony results by shades formed by a mixture of these primary colours. Orange harmonises with red or yellow and contrasts with dark blue. The primary colours, placed together, produce a glaring effect ; this should be avoided by having softer or cooler colours between them. One example : Blue then white, pinks to vivid crimsons as a centre, with orange, pale yellow, purple and lilac, in this order, from the vivid crimsons. White may always be placed between two primary colours if other shades are not available. A herbaceous border should be planted in masses so that there will not be any big gap in the flowering season in any part of it. A good selection avoids this. Lift and replant Armeria maritima any time when the soil is not too wet.

Herbaceous Borders (J. G.).—You could not do better than have clematis and climbing roses on the wooden fence at the back of your border, but as these are not in flower till later in the year it would be well to add Early Dutch Honeysuckle, which flowers in May, and Clematis Flammula for September. For tall plants at the back of the border, the best are delphiniums, Anchusa Opal, Thalictrum flavum and T. aquilegifolium purpureum, white foxglove, Verbascum phlomoides, double perennial sunflower, and Helianthus sparsifolius (the finest of the H. rigidus class) ; white Epilobium angustifolium, Helenium striatum, Pyrethrum uliginosum, any of the Michaelmas daisies, Anemone japonica, Campanula lactiflora, hollyhocks and dahlias. Next in height will be Doronicum plantagineum, Campanula persicifolia and the good white variety of C. macrantha, phloxes, Echinops Ritro, tritoma, galega, Papaver orientale, Lychnis chalcedonica, yellow and double orange day-lilies, Œnothera Fraseri, Eryngium Oliverianum, Spiræa Ulmaria double and S. venusta, Gypsophila paniculata, flag iris in variety, especially the fine I. pallida dalmatica, montbretias, Centaurea montana, Buphthalmum salicifolium and Anthemis tinctoria. Then for plants of 2ft. and under : Geranium ibericum, Helenium pumilum and H. cupreum, Tradescantia virginica, Statice latifolia, Dicentra eximia, Rudbeckia speciosa, Doronicum austriacum, Sedum spectabile and Nepeta Mussini. For the front edge : Double arabis, aubrietia, pinks, Campanula carpatica, helianthemum, myosotis, Viola gracilis and Polygonum affine. Good kinds of phlox are : Mrs. Jenkins, white ; Coquelicot, scarlet ; Hodur, palest pink ; Mrs. Oliver, middle pink ; and Meteor, deepest pink.

Treatment of the Cape Forget-me-not (E. S.).—The young plants should be grown fully exposed till there is danger of rather severe frost and then placed in a cold frame in which they can be protected during the winter months as required. If they are to be flowered in the open border, do not re-pot ; but if in pots, then re-pot in February using a compost of loam, leaf-soil and a small quantity of well rotted manure.

TREES AND SHRUBS.

The Treatment of Yuccas (H. F. T.)—When the flowers have faded and the stem is withering, the latter should be cut off about 2ins. from its base ; then, after being allowed to shrivel up, the remainder of the stump should be pulled out. Very careful treatment will be needed in lifting and replanting the specimen to avoid damage to the roots. The work should be done now for preference, or not later than the middle of October this year.

THE ROSE GARDEN.

Rose Rust and Rose Black Spot ("Spot").—The leaves are infected with orange rose rust and black spot, respectively. As this is the end of the season, remedies need not be applied beyond the careful sweeping up and burning of all leaves as they fall or are shaken off. Next year the young shoots should be syringed with sulphide of potassium at the rate of half an ounce to a gallon of water before the rust has an opportunity to spread again, but not before the leaves are well developed. Repeat syringing once a month at a time when there are no flowers open. See also Mr. H. L. Wettern's letter on page 654.

MISCELLANEOUS.

The Use of Field Telegraph Cable (Miss D. E. L.).—The cable referred to would answer the purpose well enough and, if painted dark green, there would be no danger of harm resulting to the fruit tree branches. Galvanised wire is extensively used for this purpose. But we think that the painting of the cable wire would be an improvement and the work may be done in a very short time.

Preparing Ground for Garden Crops (Owner).—The position of the land is an ideal one, and as the ground has been under grass for two years, it will be improved on that account. A good heap of turf should be secured for potting purposes and the planting of choice fruits and shrubs in the future. All the soil devoted to fruit trees and vegetables should be trenched at least 2ft. deep, loosening the subsoil but keeping it below. The cleanest lawn and the most economical to make would be the one resultant from sowing seeds next March if the present turf is not good enough. If seeds are sown, the lawn ground should be cleaned and prepared during the autumn, but not deeply dug. Division screens between the vegetable, fruit and flower quarters may be made attractive by planting ornamental shrubs and roses on arches and trellis. Each quarter should be as bold as possible and not cut up into many little features.

Names of Plants.—G. S. F. N.—1, Lysimachia vulgaris ; 2, Lathyrus sativus ; Asplenium Adiantum nigrum.——T. N., Bucks.—Solidago missouriensis montana.——C. A. H.—Rose Coquina (Wich.).——"Limington."—Polygonum cuspidatum.——S. T.—Hemerocallis fulva var. flore plena.——C. N.—Hibiscus syriacus.

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CORRESPONDENCE

BLACK SPOT ON ROSES.

SIR,—The common desire of all true garden lovers to join their forces in making known, for the benefit of all, the success of any line of attack upon ruthless and persistent diseases which ravage our gardens and destroy so much patient endeavour, is the writer's apologia for making known the following facts.

Discouraged and disheartened by repeated attacks of the insidious disease known as black spot, experiments were made with most of the remedies on the market. A substantial measure of success was only obtained with a preparation known as "Tarbol," manufactured by the Chemical Union, Limited, of Ipswich.

With this, as with all other remedies, patient and systematic applications are essential, and continued sprayings are necessary almost all the year round. The material is a strong and highly concentrated fluid disinfectant, and the greatest care must be exercised in its application, more particularly in the spring and early summer, when too strong a mixture would quickly destroy the tender young shoots and foliage.

As a result of our trials we found that not only should the plants, both stems and leaves, be thoroughly sprayed, but during the winter months the ground beneath should be sprayed continuously, to secure the extermination of dormant germs in the soil.

One word upon the results obtained: This year plants and beds treated in the manner above described are practically free from this disease, while, unfortunately, and at the same time, other beds not so treated have been attacked.

The results obtained from this germicide have been so positive and reassuring that its use is being extended, and further beds, previously untreated, are now being subjected to the process.—HERBERT L. WETTERN, *Oxted*.

ROSES IN MEADOW GRASS.

SIR,—Has your correspondent, E. F. (page 592, August 23rd), tried Rosa Moyesii? We have one about ten years old and 7ft. high. Every year it is covered with bloom and in the autumn with its beautifully coloured fruits. It has had no attention since planting (six or seven years ago), and looks quite happy and at home in the long grass, making new strong growths every year.—M. C. B.

PLANTS GROWN IN SLATE.

SIR,—It may not be generally known to your readers that a lot of reputedly difficult plants may be very successfully grown in a mixture composed largely of broken-up slates, especially some of the lime-haters. I recently procured a quantity of broken oddments of the thick green Cornish slate so seldom seen in this part of the country, and discovered that by mixing them to a proportion of two-thirds ground-up slate to one-third leaf-mould and silver sand, I was able to ensure the happiness of a number of my treasures, such as Saxifraga lilacina and some of the rarer and more difficult androsaces, and I am now about to try to grow that most tricky of all alpines, viz., Eritrichium nanum, in this compost. If the special slates cannot be easily procured (and they are rather difficult to get hold of) the ordinary housing slates will do very well mixed to about the same proportions. I think that a scree composed of this material would be a great adjunct to the garden of the keen grower and lover of these extra special treasures, and need not occupy much space or be at all expensive, as the slates may usually be obtained for the trouble of carrying them away.—W. A. Th. INGWERSEN, *Herts*.

A NATURAL ROCK AND WATER GARDEN.

SIR,—I send you this photograph which I hope may prove of interest to your readers. It represents to my mind what should be aimed at by the maker of a rock and water garden. As a matter of fact, it is an old unused country quarry away in the solitudes of County Down. It is surrounded with tall ragworts, purple knapweeds and many of the Umbelliferæ, as well as by many of the smaller bright wild flowers. The great golden heads of the ragworts cast their shadows in the water, and if this spot was planted with tall marsh-loving garden plants and aquatics no further construction would be necessary. What spoils most rock and water gardens is their formal and unnatural appearance.—WALTER SMYTH.

AN INFORMAL ROCK AND WATER GARDEN IN COUNTY DOWN.

ENGLISH ANNUALS IN KENYA COLONY.

SIR,—I see in your Editorial of April 26th that you ask for information regarding the advisability of growing English annuals in a Nairobi garden. Unfortunately, I cannot speak as one who has actually possessed a garden in Nairobi itself, but at the same time it is more than likely that flowers which do well in other parts of the Colony—at approximately the same altitude as Nairobi—should do equally well there.

Of the annuals which can be grown without any difficulty at altitudes of 5,000ft. and upwards with a reasonable rainfall, the following are probably the most prolific: Antirrhinums, larkspurs, salvias (red and blue), verbenas, cosmos, nigella, sunflowers, gypsophila, eschscholtzias, balsam, stocks, phloxes, salpiglossis, gaillardias, African marigold, nicotiana, dianthi, asters, zinnias, nasturtiums, clarkias and night-scented stock. Of this list, the first two have so far, in my own limited experience, always given the largest return and the most brilliant show.

There are, of course, many other well known annuals which do excellently in some parts of the Colony, but seem, for reasons which I cannot explain, to be a complete failure elsewhere at the same altitude and in much the same sort of soil. Aquilegias, for instance, have at times been more than easy to grow, but at others they have come to nothing beyond mere germination. Sweet peas in the same way; though with these it seems necessary to be most drastic in confining the plants to only one or two shoots—they are inclined to send out an abnormal number and to go entirely to leaf, if not so restricted. Again, lupins have done excellently at times though they seem to require a greater rainfall than is sometimes available for them.

Up to the present delphiniums and wallflowers have come to nothing, though I understand that the former have been grown with remarkable success in the really high altitudes; the latter seem to grow most healthily, but never flower (any suggestions as to how this should be dealt with would be most welcome).

In this country one is always experimenting, and this year some more English annuals are being grown in the garden for the first time. Whether or not they will be successful it is at present impossible to tell. At the moment the dimorphothecs, godetia, browallia, annual carnation, Swan River daisy, scabious, phacelia and Alyssum minimum look very healthy. It is, however, uncertain whether nemesia and lavatera will survive the shock of being bedded out towards the end of the rains.

It is unlikely that all this will be of interest to your Nairobi correspondent, but it is just possible that some of your home readers will be interested to hear that many of the flowers they love are also gladdening the eyes of those who live in what you are pleased to term "the back of beyond."—F. C. JACK, *Kenya Colony*.

ALONSOA WARSCEWICZII.

SIR,—For several years I have grown a charming form of this annual known as compacta, but never till this season have I seen it so fine. The seeds were sown in a cold frame in March, pricked off in boxes, and transferred to their flowering quarters in May, and now for the last two months a wealth of bright scarlet flowers have been on view. The plants are from 1ft. to 18ins. high, and they will continue to bloom for some weeks. The plants were never allowed to become starved, especially in the seedling stage, and it ought to be borne in mind that stunted seedlings never give such fine results as those afforded more liberal treatment. This plant is also excellent for pots; the seeds are sown in September and grown cool, the same treatment being required as given to clarkias, stocks and schizanthus.—T. W. B.

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SIMPLE GARDENING

CLEANING HERBACEOUS BORDERS.

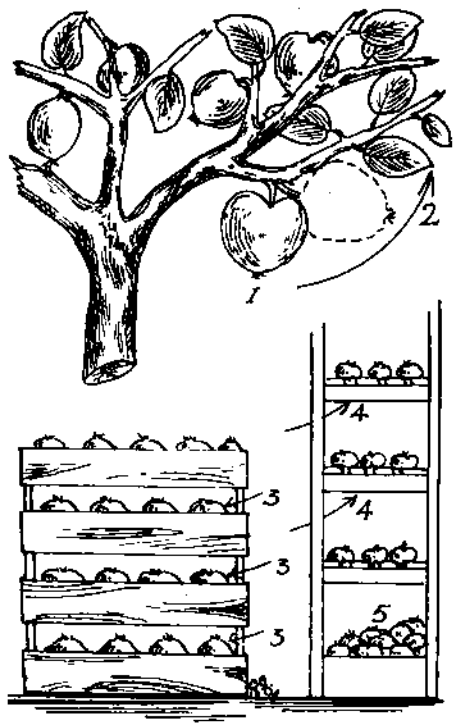
WE all know how soon a neglected garden becomes an untidy wilderness. There is no part of a garden that shows neglect more, or sooner, than the herbaceous border. I heard an amateur cultivator remark recently that he had given up, or was giving up, the growing of herbaceous plants because they entailed so much labour in maintaining the border in good condition, and, furthermore, that he intended growing roses instead. Well, I think there is room for both sections and all entail labour. Without the latter we should not value the plants as they deserve. To clean a herbaceous border thoroughly, begin the work now. Many plants in it cannot be moved every year, neither is it desirable to do this, and if we attack underground-rooting weeds, such as couch, and others that lose their leaves in the winter, we are able to trace and clear them out. Of course, it is a very easy matter to Dutch hoe the soil and rid the surface of seedling weeds, but even this work is not always timely done. But merely for the sake of tidiness do not cut off the stems of herbaceous plants prematurely; be sure that such are ripe for removal and examine closely the clumps, removing all foreign matter collected there.

PLANTS UNDER GLASS IN THE AUTUMN

Amateurs who grow plants outside during the summer months and transfer them to the greenhouse in September often find it difficult to maintain them in a good healthy condition during the dark days of winter. We should remember that the difference in atmosphere and temperature under glass is very great compared with open-air conditions from which the plants have been taken. The right thing to do, then, is to try to maintain the outside conditions for a time after the plants are placed in the greenhouse. As much air as possible should be admitted to the structure, not in the daytime only, but also at night. Very careful watering is essential as the plants are not producing many new roots, so that, practically, all that is required is the maintenance of the health of roots and leaves. The arum lily is always benefited by overhead syringings on bright days. Azaleas and similar hard-wooded plants should be placed on their sides and forcibly syringed prior to placing them under glass to get rid of insect pests, chiefly red spider and thrips. The drainage of all pots should be examined, too. Primulas, cinerarias, cyclamens and calceolarias are best placed on a bed of old coal ashes. Ashes on slates will answer the purpose equally well.

GATHERING AND STORING APPLES AND PEARS.

In some districts these fruits are good average crops, in others they are scarce. In both cases as much care as possible should be taken in carrying out the work of gathering, grading and storing. This work is not done as it should be in many parts of the country, especially that relating to grading. When the apple is raised from No. 1 to No. 2, as shown by the dotted lines, and then readily parts from the branch, it is ripe enough to gather. The fruits should be gently placed in baskets and not in



"bagged" aprons, and graded into three sizes, the finest specimens in single layers in flat-bottomed baskets. The store-room should be cool, dry and well ventilated, and not subject to sudden and extreme changes in temperature. The fruits may be laid in clean boxes, fixed one above the other so that air can reach the fruits as shown at Nos. 3, 3, 3, or in a fruit-room on lattice shelves as shown at Nos. 4, 4, those fruits for immediate use being placed at the bottom, No. 5.

HOME-MADE PROTECTORS AGAINST FROST.

It is advisable to make due provision for protecting plants in cool houses, in frames and in the open air during the winter months. Loose litter is always useful, but becomes untidy unless regularly swept up and prevented from blowing about. Straw hurdles are splendid and not difficult to make. First "draw" the straw by hand to straighten it, rejecting loose ends. Procure some light laths, lay them on the ground 1ft. apart, and then the straw neatly and evenly on them. Place top laths directly over the ones beneath the straw and with tarred twine bind top and bottom laths together so that the straw is compressed and held firmly. Trim off loose ends and very neat handy protectors will be available. All protecting material should be kept as dry as possible when not in use. Rushes, reeds, coarse grass (made into hay condition) and even evergreen branches of a close feathery nature will answer as plant protectors. Loose or short litter should not be discarded, but formed into conical-shaped heaps to ensure dryness. In due course the frosts come and not only penetrate into the frames through the glass lights but also the sides of the frames. Here we have a good use for the short litter, and it should be closely packed against the sides of each frame, about 1ft. in thickness.

PLANTING EVERGREEN SHRUBS.

Some cultivators lift and replant shrubs when it is wrong to do so, others refrain from transplanting them when a shift to another border would be beneficial both to the shrubs and the general appearance of the garden. Where it has been decided to lift and replant any evergreen shrubs, the work may be done now. Very frequently inexperienced cultivators are worried after such replantings when many leaves fall off. For the benefit of such I may say that the falling of some of the leaves is not a bad sign, the plants usually do well afterwards, But when all the leaves adhere to the stems—I may mention, in particular hollies—then frequently the plants die, the leaves turning brown but still adhering. Having decided as to the new positions, make the necessary holes large enough and thoroughly water the soil round each specimen, well saturating the roots. Begin by taking out the soil far enough from the stem, gradually working towards the stem, but leaving a reasonable quantity of soil adhering to the roots to be moved with them to the new position. The placing of the soil around the roots should be done with extra care and each specimen should be duly staked, whether in bush or tree form, in exposed positions to ensure steadiness till new roots grow. When choice, large specimens are lifted, it is a good plan to wrap flannel bands round the main stem and keep moist by syringing daily.

GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Cauliflowers.—These are coming to maturity, and to preserve the colour and protect them from slight frosts the outer leaves should be bent over the curds. Those not required for immediate use may be lifted and placed near a north wall or hedge, and the roots again covered with soil. This method will prolong the supply for a week or two.

Lifting Crops.—The time has arrived when such work will need attention, and it ought to be carried out with care. Potatoes in many gardens are the chief crop, and should be stored in a cool, dry, but frost-proof shed. Onions need to be well dried before being placed in store, and on a wet day they may be tied in small bunches and suspended from the roof. Carrots and beetroot may be laid in a bed of ashes. When lifting the latter, care should be taken in removing the leaves. A good plan is to screw them off with the hand, but if a knife is used see that the foliage is not cut too near the crown of the roots, or they will bleed and be useless. Parsnips and celery are best lifted as required.

FRUITS UNDER GLASS.

Pot Trees.—Where it is intended to grow fruit trees in pots, now is the time to make a selection. The kinds usually grown are peaches, nectarines, plums, figs, cherries and, often, apples and pears. Apricots are too generally a failure to warrant their being grown in quantity. To be a success a house should be set apart for their accommodation when the time arrives for placing them inside. It is useless to grow them in vineries and peach houses where the roof is covered with foliage. Unfortunately, in some private establishments this is done. When the various fruit trees are received they should be potted at once, using pots just large enough to take the roots; for the most part receptacles 10ins. to 12ins. in diameter will be quite large enough. Good quality fibrous loam will form the staple, to which is added a liberal sprinkling of old mortar rubble. The pots should be provided with ample drainage, and the soil made fairly firm. Place the trees in the open and see that they do not suffer from dryness at the roots. If desired established trees in pots can be bought; several fruit nurseries specialise in this particular branch.

THE HARDY FRUIT GARDEN.

Arrangements for the Future.—Now is a good time to look over the fruit plantations, and note any work that needs doing during the next few months. Some young trees may require root pruning to induce them to produce fruit buds, while trees that consistently refuse to bear fruit ought to be uprooted and replaced with a reliable kind. Fruit pergolas that have become overcrowded will need thinning and such operations can be carried out directly the leaves have fallen. In the meantime prepare a quantity of broken bricks for drainage where such is necessary and mortar rubble for mixing with the soil. Overcrowding in the fruit quarters is a great mistake. Light and air are important factors and although in winter the trees appear to have plenty of space for further development, yet when clothed with leaves much necessary light is excluded. Hence the reason for making plans now. If new trees are needed, the order ought to be sent off as soon as possible, and it is a good plan to have each tree named with a zinc label. At this season the plantations may be cleared of all weeds, and with the ground so wet in many districts, it is advisable to remove the weeds at once to the rubbish heap.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Celery.—Further tying and earthing up should be given the early plants. Among the later batches cleaning, tying, watering at the roots if need be, and earthing up should be attended to.

Spinach.—Now is a most suitable time to make sowings of the prickly variety so that good pickings will be obtained early in April.

Trenching.—When the old strawberry plants have been cut over, and cleared away or burned with the straw, the ground should be given a good dressing of farmyard manure, especially if the plants have been grown on the ground for some years. The alleys and all around the area should be properly hoed and raked and the surface weeds thus collected should be spread over the ground, and buried as the work of trenching proceeds. Ordinary trenching is fairly simple, but on heavy land or where the subsoil is very poor double digging is sometimes best. This kind of trenching allows of the good surface layer of soil being turned over but kept on top. It is quite easily done, but the uninitiated really require to be shown on the spot how to perform such work.

THE FLOWER GARDEN.

Bedding Plants.—It is not safe to leave boxes or pots filled with such plants as ageratum, geraniums and heliotrope, etc., in the open. The plants should be cleared of all decayed leaves and extraneous matter, while the base of the boxes and pots should be examined to make certain that no slugs are hidden underneath. The boxes should be placed in frames or into some of the houses from which the fruit has been cleared. Such bedding plants do not require heat meantime, but they should be set where frost will not reach them.

Herbaceous Borders.—On borders where no renovations are taking place weeds will require to be kept in check by hoeing and hand weeding, while plants which have passed out of flower should be partly cut over, especially if they have grown above the stakes and are hanging over, or appear in any way untidy. Verges on lawns and around flower beds should be kept cut, and now that tinted autumn leaves are falling, lawns and walks will require occasionally to be swept clear of them, so that everything is kept in trim order. Long grass in and around the shrubberies should be cut with the scythe so that leaves will be more easily raked and cleared throughout the winter months.

Lilies of the Valley.—This is the time to proceed with the planting of these roots, or with the digging up of old and crowded beds. Oft-times lily of the valley beds get overrun with perennial weeds, such as bishop's weed or couch grass. If these roots get established in the ground, nothing can be done to clean the beds properly except digging everything up. The lily roots should be picked out and cleared of all weeds, then replanted on clean ground, which has been well manured and previously cropped. The plants should be set 2ins. or 3ins. distant from each other in lines 8ins. or 9ins. apart with the points of the crowns very little below the ground level.

FRUITS UNDER GLASS.

Vines.—The rods of the intermediate house should have the side growths cut back leaving 8ins. or so of wood to be pruned later when the vines are dormant.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.)
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Liliums.—The first consignments of Lilium longiflorum are now on the market, the variety offered being L. longiflorum var. formosanum: the variety Harrissii that used to be so largely grown being seldom offered now, although I understand that the industry in the Bermudas is now in a position again to supply healthy stock. Lilies when received should be unpacked at once and carefully sorted over, any decayed scales being removed. As lilium bulbs suffer quickly from exposure to the air, they should be potted up at once. If for any reason this cannot be done, they should be laid in boxes and covered with leaf-soil or some such material to keep the bulbs fresh and plump. The potting compost should consist of a good medium loam, with the addition of a little well decayed leaf-soil and sand. According to requirements the bulbs may be placed singly in 48-sized pots, or three or four in 6in. or 7in. pots. As Lilium longiflorum is a stem-rooting species, the bulbs should be placed well down in the pots, to allow room for the development of stem roots. When potting, room may be left for adding a top-dressing later on, or the pots may be filled right up at the time of potting. After potting they should be stood in a cool greenhouse or cold frame, very little water being given until they have made a quantity of new roots, when they may be introduced to a higher temperature for forcing purposes. If it is not desired to force them, they may be allowed to come on gradually in an ordinary greenhouse temperature. Lilium speciosum, L. auratum and their varieties will not, of course, be available for some time yet, but when on hand they should be given the same treatment as advised for L. longiflorum; but as a rule they will require larger pots. Healthy plants of L. auratum and L. speciosum that have been used in the conservatory should not be neglected, as they are often at their best the second year. At present they may be stood outdoors at the bottom of a wall; later on, when the stems have died down, they may be given the shelter of a cold frame or may be plunged in ashes outdoors. When starting them next year, if in good condition at the root, re-potting should not be necessary, but a portion of the top soil should be removed and be replaced with a top-dressing.

Sweet Peas may now be sown in cold frames, in pots or boxes according to the quantity required. If intended for growing throughout in pots, four or five seeds may be sown directly into large sixties or 48-sized pots. The seed pots should be filled with a compost of good loam with enough sand to keep the whole open and porous. Leaf-soil is not necessary unless the loam is heavy. The soil should be made fairly firm in the pots. Stand the pots in a cold frame and keep them shaded until germination takes place. They must also be guarded against attacks from mice, either by covering the pots or seed boxes with pieces of glass, or dressing the seeds with red lead before sowing. This latter method is a very useful precautionary measure and should be borne in mind. After germination takes place the plants should be given plenty of air on every possible occasion, pulling the frame lights off whenever the weather permits, as the chief object is to keep the plants as strong and sturdy as possible during the winter. The plants may be kept to a single stem or, if so desired, the young plants may be pinched and several shoots taken up.

J. COUTTS.
Royal Botanic Gardens, Kew.

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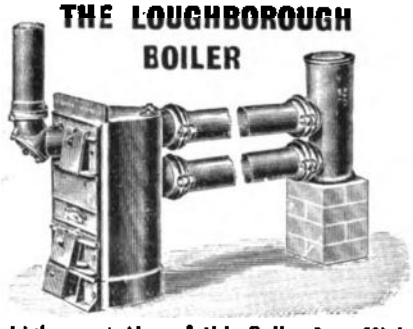

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BOOK REVIEW

AN exceedingly valuable little booklet has been issued for the London County Council on their activities in London parks and open spaces. ("London Parks and Open Spaces," University of London Press, 1924, 1s. net.) In 1855 only nine parks were under control of H.M. Office of Works, and of these only one was in the poor and crowded East End. On March 31st, 1924, the L.C.C. had 117 parks, gardens, churchyards and open spaces of 5,183 acres under their control, with a permanent outdoor staff of 1,161 and an annual cost of maintenance of £300,000, surely an enormous and a worthy increase.

This little volume, which consists of 115 pages, describes each park or open space in detail, with additional paragraphs on subjects like animal and bird life, bands, bathing, games, fountains and statues. It is well illustrated throughout and there is a useful map at the end. We can heartily recommend this work to all who are interested in their London.

To Iris Growers and Breeders.—All iris growers and breeders are requested to forward at once their varieties of 1923 and 1924 introduction to the Head Gardener, New York Botanical Garden, Bronx Park, New York City. The plants received will be planted under number and become eligible for judging in 1926. Upon request all increase will be returned to the donor. A silver medal and five awards of merit are available for distribution among varieties introduced each year and certified numbers will be assigned other less worthy introductions. The Garden Club of America offers the first medal for the finest variety introduced in 1923, an American Iris Society medal is offered for the finest variety introduced in 1924. The two year period gives the plant time to become well established. The awards are few and will be given wide publicity. It is to the interest of the introducer to secure such official recognition for a variety and to the interest of the amateur gardener to take advantage of these recommendations. Foreign growers may import under permit from the New York Botanical Garden, but must bear all costs of duty and transportation.

Horticulture at Wembley.—One of the brightest and most restful spots in the huge area covered by the British Empire Exhibition is that of the section devoted to the horticultural exhibits. Within this section is to be found a plot of which the purpose is to keep in memory those who fell in the great war. The idea was conceived and later organised by a body known as the Circle of Hope. This plot is now known as the "Garden of Remembrance," and may be continued for a longer period than the Exhibition, if circumstances permit. Messrs. Geo. Jackman and Son, of Woking Nurseries, Surrey, whose exhibit is to the forefront, well arranged and excellently displayed, appealing to the artistic eye, readily gave their support to this movement and now visitors may easily find this particular plot dedicated to the fallen. Within the exhibit is to be found a small pavilion, well designed and built of stone, while the surroundings set it off to distinct advantage.

Importation of Plants into Canada.—The Ministry of Agriculture and Fisheries desires to inform exporters of plants that the Canadian authorities have issued an Order, which comes into force on October 1st, 1924, prohibiting the importation of merchandise packed in hay, straw or other fodder from all countries other than the United States. Exporters should, therefore, arrange to [illegible] other forms of packing material [illegible] consignments to be sent to Canada.

The Gardeners' Royal Benevolent Institution.—The Prince of Wales [illegible] promised to preside at the seventy-ninth anniversary festival dinner in aid of the funds of the Gardeners' Royal Benevolent Institution on November 25th next.

CATALOGUES RECEIVED.

Messrs. Geo. Bunyard and Co., Limited, The Royal Nurseries, Maidstone.—Fruit Trees.

Messrs. James Carter and Co., Raynes Park, London, S.W.20.—Bulbs.

Messrs. Dickson, Brown and Tait, 57, Corporation Street, Manchester.—Bulbs.

Messrs. W. Drummond and Sons, Limited, 57 and 58, Dawson Street, Dublin.—Bulbs.

Mr. F. Payne, Crookham, Timsbury, near Bath.—Border Carnations.

Messrs. McHattie and Co., Chester.—Bulbs, Roses and Fruit Trees.

Mr. R. Murrell, Rose Acre, Shepperton-on-Thames.—Roses.

PUBLICATIONS RECEIVED.

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THE GARDEN

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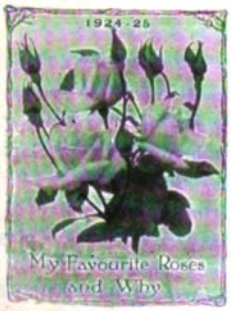

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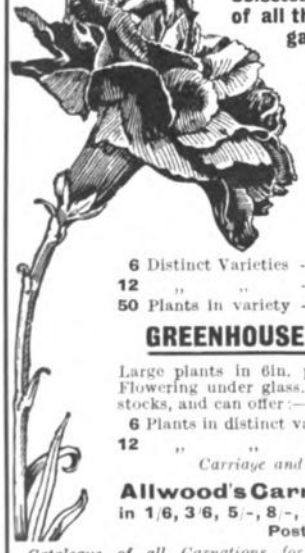

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THE GARDEN

VOL. LXXXVIII.—NO. 2758. SEPTEMBER 27, 1924.

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Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

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there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

All communications should be addressed to the Service Department, THE GARDEN, 20, Tavistock Street, Covent Garden, London, W.C.2.

PLEASE REMEMBER TO MENTION "THE GARDEN" WHEN ANSWERING ADVERTISEMENTS.

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THE GARDEN

SEPTEMBER 27, 1924

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IDENTIFICATION OF PLANTS

IN this issue will be found a letter from Mr. Laurence J. Cook in reply to one from Dr. P. A. Hendley in the issue of September 13th on the Purpose of Wisley. Mr. Cook does not mention Dr. Hendley's main theme, but confines himself to attacking Dr. Hendley's strictures on the correct naming of plants in catalogues and elsewhere. It is not our policy to interfere in a debate between correspondents, but this appears to me to be an exceptional case, for neither of the correspondents—one a well known amateur and the other an important member of the trade—appears to realise the difficulties which beset both the trade and amateurs over the correct naming of plants.

It is, perhaps, easiest to tabulate a few of these difficulties:

A.—IDENTIFICATION OF SPECIES.

(1) The internationalism of botany. Herbariums exist all over the world and no herbarium is complete; therefore it is next to impossible to avoid duplication of names. Dr. Handel Marzetti, an Austrian, may have collected a new meconopsis in China. It is named in Vienna. Mr. Forrest may find the same plant, which is sent to Edinburgh. With no published description of Dr. Marzetti's plant, Edinburgh are unaware of its existence: therefore, for several years the plant is saddled with two names. This has happened not once but many times in the history of plants.

(2) The different methods of systematic botany in use in various parts of the world. There is no real standard or rules upon which botanists can work. Germans and Americans are inclined to split species on the slightest variation in the structural form of the plant, with a consequent multiplication of names. This, of course, makes the correct identification of many genera—*i.e.*, rubus and cratægus—of extreme difficulty.

(3) The fact that a botanist overlooks an old plant and inadvertently gives the same plant a new name when collected many years after. Rhododendrons Kyawi and facetum are cases in point.

(4) The difference in the juvenile and adult appearance of the plant.

(5) The variation in form of a species which is not entirely fixed; *i.e.*, that it varies slightly according to the locality in which it is found. This also applies to plants which differ slightly from the type when transported to our gardens.

B.—GARDEN VARIETIES.

(1) The fact that many genera—*i.e.*, berberis, saxifraga, etc.—cross naturally on the slightest possible occasion. Indiscriminate sowing of this seed causes innumerable forms to appear.

(2) The difficulty of definitely deciding if a plant is a species or a hybrid.

(3) The fact that many hybridisers are trying to effect results from crossing the same strains. This is bound to cause duplication in many cases.

(4) The indiscriminate hybridising and naming of hybrids, carried on alike by the trade and by amateurs, which causes a multiplication of names often not justified by the worth of the plant.

(5) The keenness to place new hybrids in general cultivation at the earliest opportunity with fancy names attached, before their worth has been proved.

These are only a few of the difficulties attached to identification of plants, but they are sufficient to show how hard it is to keep plants in a garden correctly named. Dr. Hendley, perhaps, forgets all the troubles and tribulations over correct nomenclature with which the trade has to contend. Mr. Cook, on the other hand, is inclined to gloss over the fact that, although names are important for the amateur, they are doubly so for the nurserymen through whom most of the plants in our gardens are obtained.

One concrete example came to my notice in my own garden. A larch arrived, carefully labelled "Larix davurica japonica." There was no mark of a cross on it. There is a Larix davurica and a Larix japonica, otherwise leptolepis—entirely different species. In order to find out which it is I have to wait until it is old enough for identification: surely an unnecessary waste of time.

E. H. M. C.

IN OUR NEXT ISSUE WILL BE FOUND:

MICHAELMAS DAISIES. By the Rev. J. Jacob.

A SELECTION OF ORCHIDS FOR THE AMATEUR. By Mr. Gurney Wilson.

FULL REPORT OF THE GREAT AUTUMN SHOW AT HOLLAND PARK.

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ANTIRRHINUMS

THE DAY OF THE NAME "SNAPDRAGON" IS PAST AND "ANTIRRHINUM" HAS TAKEN ITS PLACE, BUT THIS GARDEN FLOWER STILL RETAINS ITS POPULARITY.

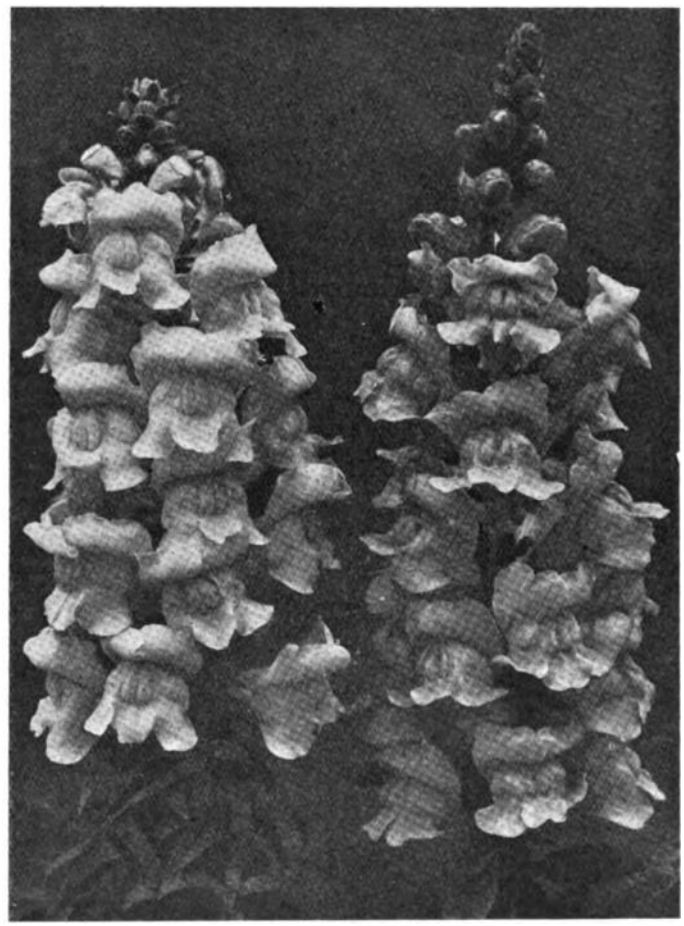
THE time is ripe for a review of the progress that has been made with antirrhinums, and for consideration of the future prospects of the flower. It would be just vapid inanity to make general declaration that the antirrhinum has made vast strides, etc., for readers of THE GARDEN are fully conversant with that obvious fact. The production of new varieties has proceeded apace, and the planting of antirrhinums has extended to well-nigh all British gardens, but—to express entire satisfaction with the trend of things as concerning antirrhinums would simply reveal the outcome of a superficial survey rather than careful investigation. The progress made has not been as directly forward as it could and should be, for it has not been as great as the plant deserves.

The greatest handicap to the straightforward march of progress has, thus far, been an undue prevalence of mediocrity in stocks which ought not, in view of the existence of superior stocks, to be grown at all.

Superb varieties are plentiful, and as distributed by raisers and specialists are fine in every way, but to keep a stock of an antirrhinum at high-water mark is a task for the constant care of experts, and many a first-class stock, having got into inexperienced hands, has deteriorated until it bears small resemblance to the variety whose name it carries. The obvious safeguard against disappointment from this cause is to be careful to obtain seed only from real specialists.

Further disappointments are far too commonly the result of faulty treatment of young plants. Thousands upon thousands of antirrhinum seedlings are distributed which, for the sake of cheapness, are treated in a manner that destroys their chances of real success. The antirrhinum is so tenacious of life and so eager to produce bloom that, despite many hardships endured, it will struggle into bloom, but the best it can give is miserably poor as compared with the production of a plant that has been carefully and well grown from germination onward. There are no intricate mysteries in regard to the raising of good antirrhinum plants; it is simply a matter of rational treatment and watchful care. It must be patent to all that under existing conditions no plants can on any nursery be granted continuous, watchful care unless a reasonable price can be realised for them, and to hanker after the lowest possible price must inevitably mean the sacrifice of quality. Even the best of antirrhinums may be obtained at far lower cost than many other plants which give far less return in the way of flowers, and it is no exaggeration to say a dozen really fine antirrhinums are infinitely better than a hundred spindly, starved and indifferent plants. Nevertheless, it is the latter which have been allowed to hamper the pace of progress of one of the most remarkable floral developments of our time.

The present is an opportune moment to discuss methods of raising antirrhinums, for it is the season for autumn sowing, and autumn-sown antirrhinums are far and away the best.



FOR BEAUTY THE FINE SPIKES OF ANTIRRHINUMS ARE DIFFICULT TO BEAT.

Permit just one reiteration of the importance of securing a reliable *stock* as well as a pleasing variety, for without the best seed labour will be futile.

Where to sow is the first question. In more gardens than is generally supposed September-sown antirrhinums would be better in the open than under cover. October is too late to be safe except in specially favoured gardens on very porous soil.

One of the dangers which menace the future well-being of the antirrhinum is the tendency to coddle it and to grow it to a far greater extent than is good for its naturally hardy constitution under glass.

There are places where antirrhinums perish in winter, and these are not generally the places where frosts are keen, but where soil is wet and plastic, where atmosphere is prone to be humid and stagnant, and where, as around London and manufacturing towns, the foliage becomes coated over with grime and sooty deposits. Where such conditions prevail it is wise to make up a seed-bed in a cold frame, but it is not wise to sow in an artificially heated greenhouse. Whether in the open ground or in a frame, the seed-bed should be made firm. Antirrhinums cannot grow well in loose or spongy soil. It is not a good plan to manure a seed-bed freshly, especially in autumn.

Sow the seed very thinly in rows, allowing what distance between the rows area will permit, 6ins. being better than less because it admits of a small Dutch hoe being run between the rows. The seed requires no more than ⅛in. of soil covering, and it will be an advantage if a liberal dressing of coarse sand has been previously raked into the surface. The plants may remain in the seed rows through winter.

If circumstances necessitate sowing in boxes, see that these are 3ins. deep. Provide plenty of drainage holes and place 1in. of rough porous material over the bottom of the box before filling in with an ordinary potting mixture of a rather sandy character. Make the soil perfectly firm and sow the seeds very thinly. It is a good plan to keep the seed-boxes in the open during good weather, only placing under cover when inclemencies necessitate.

The choice of varieties is essentially a matter of personal preference, and the range is ample to meet all tastes. It may, however, be of some assistance to describe a few which possess merits in the way of form and habit as well as colour.

The brilliant fiery shades are universally popular, and of these Flame is one of the finest. I recently saw a wonderful plantation of this variety which had been reselected to a point of perfection, and in all respects it is remarkable. The pips and spikes are good, the colour intense, and the plants beautifully symmetrical.

Exquisite is a novelty, and is a very delightful flower. The colour is of the shade of pink closely associated with

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perpetual-flowering carnations, and the spikes are of superb form. It is a variety of which large masses should be planted.

Eclipse will delight the lovers of a rich velvety crimson. The colour is brighter than either Empress or Monarch, but the last named will still hold its own as one of the very finest of the really tall antirrhinums. The spike is of remarkable length, and the individual flowers are models of form and of great size.

Silver Queen commands attention by reason of its exceptional size and form of flower and beautifully built spike. Its unusual shade of mauve with a silvery sheen is decidedly attractive, but it must be admitted that the magenta tint which flushes the tube has robbed it of much affection.

The Fawn and Prima Donna have not yet been surpassed in their particularly fascinating apricot and peach tints so subtly suffused. The former excels in individual bloom, but the latter bears the finer spikes and makes the sturdiest plant.

Rembrandt, if it can be still obtained true, is a wonder for colour effect. The flaming scarlet and orange gleam proved irresistible, but I fear it is one of the varieties doomed to annihilation through careless distribution of impure stocks.

We have made no wonderful advancement in good self yellows nor in clear bright pinks. For some reason the white tube seems well-nigh inseparable from a real pink, and there is room for the clear self pink of reasonable height, or even a very tall one.

Purity and The Bride are both good bedding whites, but a pure white equal in size and stature to Monarch would be a very welcome addition, the tallest at present being the old favourite Queen of the North, which is rather small in pip and frequently gappy in the arrangement of flowers on the spike.

Torchlight is good as a tall flame-coloured variety, and its long, erect spikes fully justify its name.

The future of the antirrhinum is full of possibilities, but there are also pitfalls which its guardians must be careful to avoid. The rigorous reselection of stocks must be untiringly persisted in, and those who have good stocks must spread abroad the information, for otherwise the buyers are at a loss to know where safety lies. Much more energy and enterprise are necessary in the exhibition of antirrhinums. Only a very small number of trade specialists stage exhibits that can be credited with helping to popularise the flower, and unlike the sweet pea specialists who in the younger days of the vogue helped to encourage amateur exhibitors by putting up some attractive prizes for competition, the antirrhinum specialists have held their hand and relied too much upon popularising their flower by its cheapness.

I am no advocate of steep sensational prices for improved varieties, but I am positive the improvement of stocks and the production of healthy, sturdy plants for distribution will be met with cheerful readiness on the part of buyers to pay fair prices for good value.

The remaining danger which must be carefully guarded against is allowing the hardy robust constitution of the antirrhinum to be undermined until it falls a prey to destructive disease.

As already remarked, coddling is a mistake, and unnecessary. Give the antirrhinum as little greenhouse culture as possible. Feed systematically and judiciously, adopting the use of organic manures rather than chemicals, except that carefully chosen chemicals may be used in conjunction with natural manures to stimulate and hasten development—this being the legitimate use of wisely selected chemicals.

Some disease does occasionally afflict antirrhinums, and it is of urgent importance that prompt and drastic action be taken immediately upon the first appearance of collapse in a plant. Never leave a withering plant on the offchance of its recovery; in that way lies danger of the spread of a serious scourge. Uproot and burn the first collapsing plant discerned.

A. J. MACSELF.

NEW ZEALAND PLANTS FOR THE BRITISH ISLES

BY DR. L. COCKAYNE, F.R.S.

IN THIS FINAL PORTION DR. COCKAYNE DEALS, AMONG OTHER PLANTS, WITH OLEARIAS AND VERONICAS, WHICH ARE AMONG THE MOST POPULAR OF NEW ZEALAND PLANTS IN OUR GARDENS.

(Continued from page 647.)

5. Cyathodes Colensoi (2,000–5,000ft., dry stony ground in full sunshine) forms wiry mats, or open cushions, with short, stiff, brownish leaves, numerous small white heath-like flowers and white or claret-coloured drupes. C. empetrifolia (sea-level in south to 5,000ft., sphagnum bog or wet peat) makes small, reddish, heath-like mats bearing abundant red drupes.

6. Dacrydium laxifolium (pygmy pine; sea-level in Stewart Island to 4,000ft. in the South and North Islands; wet ground, sphagnum bog, or even dry pumice) is somewhat heath-like, and forms greyish, dense mats or straggles over low shrubs. It is perhaps curious rather than beautiful, but its striking contrast to its near relative, the yew, or to its *confrères*, the massive timber trees of New Zealand, will certainly make it a desirable acquisition for many.

VERONICAS, CORDYLINE AUSTRALIS AND PHORMIUM TENAX IN THE AUTHOR'S GARDEN IN NEW ZEALAND.

7. Dacrophyllum Menziesii (3,000–5,000ft., in sub-alpine scrub in an excessively wet climate) is a beautiful and strange-looking miniature tree, 1ft. to 3ft. high, with a short, rigid, slender stem, crowned by a rosette of stiff, sword-like, reflexed, reddish leaves with long, tapering points. It is rather difficult to procure and to establish, and its growth is painfully slow.

8. Gaultheria.—G. oppositifolia (sea-level to 3,000ft.; dry pumice) when in full bloom resembles a shrubby lily of the valley

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It may attain a height of 6ft. G. rupestris (almost sea-level to 7,000ft.; rock, sub-alpine and river-bed scrub), almost as beautiful, is a small tree where the climate is extremely wet, but a shrub 1in. or 2ins. high in the alpine belt. G. depressa (snowberry; lowlands to 4,000ft., generally wettish ground or sphagnum bog) forms low dark-coloured mats, bearing a profusion of big, showy, milk-white, succulent berries.

9. Gaya (Plagianthus).—The showy G. Lyallii (mountain ribbonwood; lowlands in very wet localities to 4,500ft., low forest on stony ground, sub-alpine scrub), a small tree of rapid growth, has been figured more than once in the gardening Press, but its near relative, G. ribifolia, an equally beautiful tree, which grows naturally under far drier conditions, is less known. Its leaves are somewhat hoary and not drawn out into long points; the seeds are frequently much damaged by some insect.

10. Helichrysum coralloides (the coral shrub; 3,000–6,000ft., sunny or shady rocks in the drier mountains) has rather thick shoots after the manner of a whipcord veronica, but the leaves are reduced to glossy, green tubercles, separated from one another by closely matted white hairs. When established it is a striking shrub of unusual appearance which cannot fail to attract attention. The seedling with its flat, rather large, woolly leaves is most distinct from the adult. H. Selago is similar, but with more slender shoots, and in the allied H. microphylla they are more slender again.

11. Leucopogon Fraseri (sea-level to 6,000ft; dry stony ground, rock).—This tiny epacrid, a few inches high at most, which spreads by its underground stems, is worth growing on account of its small white flowers, its general appearance and its yellow drupes.

12. Muehlenbeckia axillaris (sea-level to 5,000ft., stony ground, rock) is quite a good mat plant for covering bare, rather dry parts of the rock garden.

13. Olearia (tree daisy).—This genus consists in New Zealand of forty-one high-class garden shrubs belonging to four distinct classes. The species with great flower-heads, the discs purple and the spreading rays white (purple in O. semidentata) and thick, more or less lanceolate, toothed leaves, white beneath, are noble plants, but, unfortunately, not hardy enough for general cultivation. The high mountain species of the genus, however, are far hardier. Of these O. Haastii, rare enough as a wild plant, is the commonest in British gardens. O. lacunosa, with narrow leaves, 6ins. long, clothed beneath with a dense mat of rust-coloured hairs, is a most striking shrub. Still more remarkable is O. Crosby Smithiana, of somewhat similar appearance, but with far narrower leaves; and then there is O. excorticata with leaves wider than those of O. lacunosa. O. moschata resembles O. Haastii, but the leaves are almost white on both surfaces. O. lineata is of a different class from any of the genus in general cultivation. It is an extremely graceful small tree with semi-weeping, twiggy branches, bearing abundance of extremely narrow, small, soft leaves and innumerable sweet-scented flowers. Dry, poor soil suits it perfectly. Perhaps the most effective olearia for garden purposes is O. arborescens (syn. O. nitida) with its beautiful, ovate, toothed leaves, satiny white beneath, and its huge masses of small white flower-heads.

14. Pimelea.—The fifteen species of this genus, with their showy, daphne-like blossoms, are all excellent garden shrubs, but perhaps the finest is P. Gnidia var. pulchella. The charming P. aridula (syn. P. Lyallii var. sericea), in form greatly resembling Veronica Traversii with small silky white leaves, grows naturally in the most arid sitations New Zealand can offer. For the rock garden the small, erect P. Traversii, the rather taller P. buxifolia, the prostrate P. prostrata (syn. P. lævigata), the mat-forming P. Lyalli (coastal only) and the extremely hairy cushion plant, P. sericeo-villosa, are eminently suitable. It may be pointed out with regard to pimeleas in general that seed in any quantity takes a long time to collect. The species are almost diœcious and the males the most showy.

15. Rubus parvus (almost sea-level to 3,000ft.) is a first-class carpet plant with long, trailing and rooting slender twigs, narrow leaves, 2ins. long, of many colours, but generally more or less bronzy, and very large red fruits. The supposed hybrid R. Barkeri, with broader compound leaves, is a still fine foliage plant. Unfortunately, it is only half-hardy.

OLEARIAS AND SENECIOS IN THE QUEENSTOWN PUBLIC GARDENS

OLEARIA TRAILLII, A HYBRID BETWEEN O. ANGUSTIFOLIA AND O. COLENSOI.

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16. Senecio (shrub groundsel).—All the nineteen shrubby species are excellent. S. cassinioides (2,000–4,000ft., sub-alpine scrub), with small, strongly aromatic, narrow green leaves, whitish yellow beneath, one mass of golden yellow when in full bloom, is gorgeous. The recently discovered S. Spedeni, a near relative to the above, is a most welcome addition to the garden flora. Other species of high excellence are the small SS. lapidosus, Monroi and compactus.

Veronica (Hebe).—To deal satisfactorily with the New Zealand members of veronica or hebe, call them which you will—I am now using hebe in scientific writings—would require more space than has already been filled in these articles. The names as used in gardens, both here and in the British Isles, are in a state of wild confusion, nor is this surprising when no two botanical taxonomists are agreed as to the limitations of the species, and when amateurs add to the muddle by distributing plants under names, sometimes unpublished, sometimes most incorrect. Many so-called "species," again, are collections of different true-breeding forms, their hybrids and hybrids with other species (*e.g.*, VV. salicifolia, buxifolia, pinguifolia, Buchanani, monticola). Evidently there are frequently several different plants suitable for gardens called by the one comprehensive name. Baron von Mueller once upon a time got over the difficulty of veronica nomenclature by lumping all together under the comprehensive name V. Forsteri! There are many absurdities of this character—but none quite so great—in floras generally; every gardener encounters such daily. Here I deal only with a few species out of many rare or unknown to the gardens of the British Isles.

Veronica annulata (3,000–5,000ft., on dry rock faces) is a whipcord veronica, 6ins. high, or rather more, with its very slender, short, pale green shoots (round in cross section) arranged in four rows on the sides of the main stem, and with minute, obtuse, scale-like leaves. V. Poppelwellii is another dwarf whipcord veronica, but its shoots are square in cross section and the leaves triangular, darker green and marked with parallel veins. The whipcord veronicas and those with glaucous leaves are the most hardy. Of the latter there are many distinct forms belonging to that elastic group V. pinguifolia, of which there is no type, for Hooker included in his original description a number of different plants (*e.g.*, the "species" as originally defined is "4ins. to 4ft." high and "erect or decumbent"). So in seed of veronica sent from New Zealand there is no telling what may come forth, and so with seeds of all the "variable species" of floras. V. pimeleoides var. minor (quite different from V. pimeleoides of floras which is almost certainly not that species) is a prostrate, quite small plant with glaucous leaves and charming blue flowers. V. Biggarii, another prostrate, glaucous-leaved species, produces abundant racemes of rather small, white flowers.

I hardly dare to suggest for British gardens the exquisite, rather straggling blue V. Benthami of the Lord Auckland group, since, like its sub-antarctic companions, it is hard to come by and perhaps equally hard to grow. But the related V. Raoulii (1,000–3,000ft., dry rocks) with its elegant, oblong-spathulate leaves, margined with red, ¾in. long, and corymbs of pretty pinkish flowers, quite pink in the bud, is both procurable and readily grown. So, too, with the dainty V. Lavaudiana, another rock dweller, but it is less hardy.

An excellent method of using our shrubby veronicas for the rock garden is to root cuttings of the flowering shoots (nearly all strike as readily as willows), large enough for planting out the succeeding year, when they will bloom. In this way all the less hardy species may be pressed into garden service anywhere. All that is wanted is a constant supply of cuttings and a place to winter them where the frost will not exceed, say, 6° F.

But why be content with circumventing the decrees of Nature? Rather coax her to our will and by aid of crossing raise veronicas far more hardy and with richer colours. So, too, with the species of these genera common to the Northern Hemisphere and New Zealand—*e.g.*, ranunculus, myosotis gentiana—working principally in the direction of hardiness and colours other than white and yellow, and so in time a hardy, easily grown race of mountain lilies and golden yellow forget-me-nots might grace the rock gardens of the British Isles. But when all is said and done, is not Nature the supreme artist, and her wild flowers—children of a primeval world—should they not be the best beloved of garden plants?

GARDEN FOLK-LORE: THE DOCTRINE OF SIGNATURES

BY F. A. HAMPTON, M.B.

Omnes herbæ, flores et arbores aliaque e terra provenienta sunt libri et signa magica ab immensa Dei misericordia communicata.—OSWALD CROLLIUS.

All herbs, flowers, trees and other things that come out of the earth are books and magic emblems given us by the infinite charity of God.

THE belief that the form or habit of a plant affords an indication of its use and virtues is a commonplace of folk-medicine and examples may easily be found from the earliest times to the present day; thus Galen recommends the yellow juice of the greater celandine as a cure for jaundice (and not long ago a French physician advocated carrots for the same purpose), and Albertus Magnus in the thirteenth century recommends the flowers of the almond tree "against inflammation of the subtle humours in the Spring time" because the leafless twigs burst into such abundance of flower at the very beginning of spring.

In the sixteenth century this belief crystallised into the Doctrine of Signatures, with Gian Battista della Porta of Naples, encyclopædist and writer of comedies, and Oswald Crollius, Court Physician to Prince Christian of Anhalt, as its chief expositors. The two men were very different, almost opposite, in character, della Porta specialised in the marvellous, and the encyclopædia that he wrote, it is said at the age of fifteen, is a farrago of fantastic recipes and incredible phenomena. His introduction to a late edition is a masterpiece of self-glorification and contains the very disingenuous warning that his directions for the more remarkable experiments, such as the transmutation of metals, etc., are purposely given obscurely so that they may not be understood by unworthy persons. In the doctrine of signatures he found a congenial field in which to exploit the marvellous and indulge an exuberance of mysticism; on the other hand, to the quiet piety of Oswald Crollius it seemed a reasonable example of the providence of God—that for every ailment there should be a remedy and that remedy stamped with the indications for its use. The doctrine, in a highly mystical elaboration, formed an integral but only subsidiary part of the philosophy of the great Bombastes Parcelsus, though it is with his name that it is chiefly associated.

The essence of the doctrine was the conception of a mystic correspondence between man and the world in which he lived, using the old philosophic language, man was the microcosm, the little world, in whom the whole universe (the macrocosm), with all its parts and phenomena, was represented. Thus, the heart shape of the leaves of the trefoil was not only a "signature," or label, to be read "this is a remedy for heart-disease," but was an indication that both the plant and the human heart were of the same essential nature and were, in consequence, clothed with the same form by Archeus, the quickening World-Spirit.

In the light of this theory the chief task of pharmacy lay in the discovery and right interpretation of the signatures, which might represent either a part of the body or the disease for which the plant was specific; and here a great deal of ingenuity came into play. Crollius saw in the walnut "the whole signature of the head": the green rind represented the scalp, the shell represented the skull, the convoluted kernel the brain and the skin covering it the meninges. Preparations of the rind, shell, etc., were therefore to be used for wounds or diseases of corresponding parts of the head.

St. John's Wort was sovereign against night terrors, for "just as the sun of Heaven drives away by its light all evil spirits that delight in darkness, so Hypericon, which is to be reckoned chief among all herbs of the sun and is called by Paracelsus 'Sol Terrestris,' gives proof of the same power." St. John's Wort, putting out its wealth of miniature suns about the time of the summer solstice, probably played a part in the midsummer rites and was transferred to St. John, together with the bonfires and the feast, when the cult was taken over by the Church.

That the roots of the comfrey were brittle but quick-growing was an indication that they were to be used (as,

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indeed, they always had been) for the treatment of wounds and of broken bones. Here, it is interesting to recall that when an investigation was being made, some few years before the war, of certain substances that were believed to have the property of promoting cell-division, it was found that one of the most active was allantoin, a compound that occurs in considerable quantities in comfrey root, and a preparation of it had a short vogue in the treatment of indolent ulcers.

Many other examples might be given, and they will all appear equally fantastic to our modern way of thought; but if we are to gain any inkling of how this doctrine of signatures could be accepted among men whom we cannot reasonably suppose to have been less intelligent than ourselves, we must remember that it is the product of a mode of thought widely different from our own, but very characteristic of primitive mentality the whole world over. To the primitive mind a phenomenon does not appear as the end result of a train of events leading up to it, but the interest is focussed upon the *setting* in which it occurs: the world is seen, as it were, in parallel rather than in series, and coincidences assume a supreme importance. Hence the fact that a walnut "shows the whole signature of the head" strikes the observer as a conjunction full of meaning.

We must remember that primitive man does not regard himself as an entity, cut off and distinct from the world in which he lives. His life is bound up with that of his crops and his cattle and his quarry in a deeper sense than the metaphor implies, for he has a feeling of a mystic participation with them, and the idea of a *rapport* between himself and, let us say, a herb like the mandrake is by no means incongruous with his habitual mode of thought. It is difficult to understand how these magic beliefs survived for so long the test of experience, until we realise that magic beliefs are not the creation of an individual mind but collective ideas that, in the primitive, supplant his own judgment and are accepted by him as rather more valid than the evidence of his own eyes.

Though we have abandoned the old way of thinking as a general guiding line we have not altogether outgrown it, and it is not very difficult to discover evidence of its lively existence to-day. Hilderic Friend, in his book on the folk-lore of plants, tells of a farmer who assured him that the sage in his garden flourished or dwindled as the affairs of the farm went well or ill, and a rather pretty example of the mystic bond (though here man himself is not concerned) occurs in the belief of the French wine-growers that when the vines begin to shoot in the spring a sympathetic quickening—a kind of quasi-fermentation—takes place in the wine of former vintages in cask and bottle. This belief must be almost as old as wine-making, for it is mentioned by Theophrastus in the fourth century B.C.; he adds, as an instance of a similar process, that bears' grease increases in volume, "so as to fill the pot that contains it" during the period when the living bears are laying on fat.

It is necessary to lay a little stress upon the psychological background of these old beliefs, for unless we can, in some measure, think ourselves back into the attitude of mind that produces them, they are almost without meaning for us and no more than quaint mediæval bric-à-brac from which only the idlest curiosity will trouble to brush away the dust.

LAYERING TREES AND SHRUBS

AS a method of propagation, layering is becoming increasingly popular among cultivators of trees and shrubs. With an order to a nurseryman for rare trees and shrubs the stipulation is not uncommonly made that the plants must be, or should be if possible, on their own roots. This request is in many cases best met by layering. Magnolias, rhododendrons, hamamelis, cornus, hippophæ and lilacs are half a dozen instances of shrubs which generally speaking are best increased by layering. Admitted that rhododendrons are very largely propagated by grafting, a proceeding which is perhaps best described as a necessary evil.

When the branches of the tree or shrub are near the ground layering is a fairly simple matter. The usual procedure is to make a sloping cut near a node, reaching about half-way through the stem, partially to arrest the flow of sap. This is fastened in the ground with a hooked stick or kept in position with a large flat piece of stone; in either case it is covered with sufficient soil to keep the stem moist, this being very important to assist rooting. A twist of the stem to split the bark, or scraping away a little of the bark from the underside of the stem, will, in some cases, induce rooting. In a wood, branches on the ground first blow hither and thither damaging the bark until some finally get fixed with decaying vegetable matter and eventually root. To hold the layers, if of any length, firmly in position, give each one a stake. This is not only a support but when tying it usually means bending the stem, which is an additional advantage to check the flow of sap.

METHODS TO BE EMPLOYED IN LAYERING MAGNOLIAS.

The actual length of the layers will vary, an average being from 6ins. to 2ft. according to the shrub. There is something to be said in favour of large layers to obtain good plants quickly, but experience often shows that a small stem roots quicker than a fair sized woody branch and in the long run there is not much gain.

The time occupied in the development of roots varies considerably with different kinds of shrubs, from one year with those which readily develop a new root system to two years in the case of magnolias and rhododendrons. Having ascertained that the layers are well rooted sever the branches forming the connecting link with the parent plant some weeks, or even two or three months, before lifting the layers.

When the branches are not low enough on the stems to bend down and reach the ground, some device, such as that illustrated with the magnolia, must be adopted. The most important item with this arrangement is to keep the soil moist. We find it convenient to interest the garden boy and make it one of his definite duties to examine the layers every afternoon before leaving work and supply water if required. In private gardens, where only a few plants are required of new and rare shrubs, this is a very useful and fairly certain means of propagation.

The season of layering is largely a matter of convenience. Spring is often favoured because the wood is then well matured, allowing it to be cut and bent with less chance of breaking. We put down a good number of layers in late summer when growth is complete.

A. O.

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TULIPS AND THEIR CULTIVATION

BY C. W. NEEDHAM.

OLD Worlidge commends tulips "for their easie propagation and management and durableness in all seasons, hot and cold." The old gentleman continues:

> In the worst mold this Flower better thrives,
> And barren earth miraculously gives
> More beauty to it, than a fertile ground,
> And when least strong it is most comely found.

The cultivation of the tulip is a very simple matter in the cramped area of the suburban plot or in the spacious garden of the demesne. Tulips will grow in almost any soil if that soil is weak and the climate or atmosphere of the surroundings not of the best. If the environment is unfavourable to plant life, the tulip will bloom bravely and brighten the outlook, even though the best results will not be obtained.

Those who would grow what flowers they can under the difficult conditions of limited garden space and impure air with its attendant evil, a more or less diminished light, will find a friend in the tulip; there is none more cheerful and long-suffering and none that responds more fully to sensible, loving and watchful treatment. In quite recent times city gardens have yielded tulip blooms of good quality fit for the exhibition table, though there is never a plant that pretends to be fonder of a town life than a country life.

"THEY FLUSH THE PARTERRE WITH ONE OF THE GAYEST DRESSES THAT BLOOMING NATURE WEARS."

To obtain satisfactory results to have the tulip bloom at its best, a little forethought is needful, and regard must be had to the opportunities offered, the selection of the site for the bed, and the preparation of the soil must be considered as well as the choosing of the varieties one desires to grow with the catalogue at hand to con. Tulips may grow almost anywhere, but they may be cultivated and propagated in selected spots and in suitable soils and situations, the aim being the growth of good bloom and the production of a bulb for the next season, which is the result of healthy plant action.

The growth of ordinary early varieties bedded out in some scheme of colour or decoration is a simple matter, depending on the selection of suitable bulbs of Duc Van Thol and early and mid-season blooming varieties of more or less dwarf growth. In dealing with May-flowering varieties with their long and graceful stems a little more care and consideration is needed. A site should be selected for the bed that is screened from the prevailing winds, especially from the cutting north and east winds, so that when the tulips "begin to raise themselves on their fine wands or stately stalks," as Hervey meditates, they may bloom in tranquillity and not be beaten down. The old Dutch, the cottage, the Darwin and the English tulips offer a wide range for selection. It is with these varieties that bloom in the latter half of the month of May that we are dealing with more particularly.

The English tulips, the florists' flowers, are the highly cultured classic branch of the family of tulips, and they come with the apple blossom. Hervey says of them "they flush the Parterre with one of the gayest dresses that blooming nature wears. Did ever beau or belle make so gaudy an appearance? Here one may behold the innocent wantonness of beauty; here she indulges in a thousand freaks and sports herself in the most charming diversity of colour."

In these days perhaps we value more highly the breeders in their bright unfigured morning dress.

Though the tulip is not fastidious as to soil—for it will grow in any good garden ground—it does certainly love a soil that is stiff and deep. A well worked, heavy soil, coarse in grain, roughly granular, enabling water and rain to pass freely through, is good. It should not be peaty or impregnated with metallic oxides. Soil that has grown beans or peas, or soil that has been previously manured for a vegetable crop, will do admirably. A covering of turfy, chopped up sods from a heavy old pasture is a capital stimulant if help is needed. If the same bed is used once or twice it suffices if the covering material is new. Should the same bed be used over a period of years, it is well to sprinkle the soil after taking up the bulbs by scattering on salt until it resembles a light fall of snow. Again, a dressing of lime is most excellent; tulip bulbs love lime. Good quicklime should be stored in a box or dry place and be allowed to fall into a powder, oxidised by air. This fallen lime, thus powdered like flour, will be readily assimilated by the soil. On the other hand, should the quicklime be heaped on the ground preparatory to forking in, the lime is apt to granulate and not be so readily absorbed.

Another method of sweetening the soil in cases where the same bed does duty several years is to grow another crop after bulbs are lifted, say of turnips or mustard, which should be dug in a month before planting. Frequent changes of soil are desirable and the old soil should be taken out of the bed to the depth of two grafts, and fresh suitable soil replaced before planting time comes round. A change of air, as well as a change of situation, is most advantageous to the stock of tulip bulbs, especially is this the case with seedlings and delicate or tender varieties. Ground may easily become tulip-sick, and in cultivating bulbs *qua* bulbs a change of situation is most beneficial.

Bulbs grown in a lean dry soil are apt to split up into small bulbs and bulblets; these should be grown in a "fat" bed to restore their size and vitality and promote to the fullest extent the natural increase of the stock. Seeking for a "fat" bed go to the kitchen garden and take soil from a bed that was well manured and has grown a vegetable crop.

Biodiversity Heritage

Never use nitrogenous manure in a tulip bed. If manure seems to be indicated while the bed is being prepared, sprinkle a little bone meal or kainit or dust lightly—if available—with the very best guano. Artificial aid should be resorted to sparingly, and only then in cases where the bed has been neglected, even though it has been fallow for a time. It is far better to change the soil to the depth of 2ft.

Experience shows that in order to produce the finest and most refined bloom, and at the same time grow healthy bulbs for the next season, the foregoing rules should be observed, and, above all other rules, remember the covering material must be new to the tulip bed and of the best quality procurable, and the soil should be kept open by slight hoeing, as aeration of the soil is vital.

TULIPS GROWN UNDER PROPER CULTURAL CONDITIONS.

Do not try to push the plant and make fine blooms. The "spanking" flowers may come all right and the colour may be brilliant, the marking, if marking there be, may be fine, but all at the expense of the new bulb. The desiderata should be fine flowers and healthy bulbs of flowering size.

The tulip appreciates watchful care during its season of life, safe out of harm's way under the soil of its well drained bed or quietly doing its work within itself in the summer in its dry, airy shelter protected from insect and animal ravages. Perhaps all this seems "trouble," but trouble is not an evil to a true florist; trouble adds value to success, which is all the higher for not being easily won.

We allude to the "covering stuff" because tulip bulbs are better planted on the soil and then covered rather than dibbled in, as is customary when decorative groups are grown bedded with arabis, forget-me-nots or other dwarf plants; here the general effect is studied and beautiful pictures made by the true amateur who studies colour and decoration; as for the bulbs, well, the nurseryman provides the bulbs.

After the bed has been made fairly solid it should be finely raked on the surface ready to receive the bulbs, which should be placed thereon 4ins. or 6ins. apart, bedded in with fine soil slipping off the spade to the depth of 1in. or 2ins. over the bulbs; the remainder of the covering material may then be broadcasted on and the whole clapped down with the spade and made firm. It is preferable to arrange that the surface of the bed when completed shall be slightly raised, and, if the bed is on a lawn, it may be rounded, so that the soil is 1in. or more higher in the centre of the bed than at the sides.

If tulip beds proper are made, each bed should be 4ft. or 4ft. 4ins. wide, of any desired length, with a centre walk or path, the beds on each side being 9ins. or 1ft. higher than the walk. The bulbs should be planted in rows 6ins. apart and in spaces or holes across the bed 6ins. apart, also seven bulbs in a row. Thus in a 4ft. bed, number one bulb in the first row is nearest to hand and number four is always in the centre of the bed and number seven in the top hole across the bed. A line may be run down the middle of the bed as a guide when planting. If the bed is boarded or tiled at the sides, it need not be exactly 4ft. wide. A few inches wider bed is useful to allow for the falling away of the soil when the edges are not protected. When the beds are made in this old-fashioned way, they may be arranged and planted in the study—by intention—and a book kept and the quality of each bloom noted therein.

In the old days the amateur had boxes, ten rows of seven holes each row across the box. These little compartments each held a bulb, and the whole box contained seventy holes and seventy bulbs therein—rows 1 to 10 in Box No. 1, rows 11 to 20 in Box No. 2, and so on. Each box was a drawer in the tulip cabinet. The enthusiast, with the aid of this book, could at any time find the bulb in his cabinet, or the spot where it was growing in the bed, and tell you how it bloomed this year, last year and years previously, and descant on its qualities and dream of its potentialities and possibilities. What if fond hopes were often dashed to the ground, one had always the pleasure of expectation and anticipation; sometimes came the joy of realisation! One has often heard the remark, "The tulip book looks better than the bed."

If tulip boxes or trays are not handy, having gone out of fashion, a few bulbs of each variety may be grown, planting across the bed for the first row and on into the second row until the stock of that variety is exhausted, then a peg or stick is inserted with the number or letter of the lot as marked on the bag, in nursery fashion, where, from motives of economy, bulbs of one variety are grown together for

FOR BEDDING PURPOSES MAY-FLOWERING TULIPS ARE IDEAL.

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commercial purposes, and not for display nor to indulge one's fancy.

When the tulips are past flowering the seed-pods should be removed—except in cases where seedlings are being raised—when the stalk has withered and the plant died down, then comes the time of lifting, and the 6ins. of space between rows is appreciated. Lifting-time usually comes about the end of June.

The outer skins of the bulbs should soon be removed and the bulbs stored in their respective bags or boxes in a dry, airy place. It is well to close the bags, leaving an air space inside, and generally to protect against attacks from "green fly" and other aphides which suck the ripe juices of the bulbs and diminish their vitality, as well as protect from mice. In cases where beds are needed before the stage of the dying stalks comes the plants are usually carefully lifted and heeled in elsewhere until they have died off. If bulbs from these plants are required, remove within a month and store.

In the old days, when tulip cultivation was so common and seedlings so plentiful, before the system of bedding out of tender plants during the summer months so rapidly increased and the taste for the tulip and other florists' flowers declined, much study was bestowed on the arrangement and diversity of flowers in the tulip beds. A great point was to have no two flowers that were alike next to each other, and to scheme to have the blooms of the same height in the same row, the taller varieties in the centre line and the shorter-growing ones nearer to the sides of the bed. A tent or an awning could be erected over the beds at blooming-time for the protection of the bloom, to abate the rigour of the direct sunlight and to provide fully for the enjoyment of the bloom, when one's friends would be invited and the merits of the flowers discussed.

In these days, when marking is not as yet so much desired, less elaborate arrangements are made, though often the bloom is protected in some manner. One has often been asked why this is the orthodox way; why seven bulbs in a row and 6ins. apart? An experience of thirty-five years growing florists' tulips, adding to and eliminating from the beds, seedling raising and quality appraising and taste cultivating—for after appreciation taste grows by cultivation like one's bulbs—makes one recognise the skill and knowledge of our grandfathers. The quieter joys of the garden were perhaps in those days more delighted in, yet in these later times when "incessant struggle renders life one scene of toil, of suffering and of fate" rest and peace is found in the cultivation of the tulip in the garden, even though in the contemplation of the tulip bed there may be some disappointment mingled with the joy and satisfaction it gives. New plans may be formed, new schemes of colour devised and hopes of one's seedlings indulged in. Thus we get relaxation and recreation.

A SUCCESSFUL AUTUMN SHOW OF ROSES

GREATLY daring, the National Rose Society broke away from the traditions it had established, and held its autumn show in tents and, more, made it a two-day function. We have become so accustomed to the Autumn Rose Show as to be in danger of forgetting that this feature has not been over-long established. Misanthropes, at its inauguration, true to their nature, predicted utter failure; but the innovation was immediately successful, so much so that the Royal Horticultural Society's Hall has proved inadequate for its requirements. There is no suitable hall available, so, no doubt after serious deliberations, the executive of the National Rose Society decided on the same venue as for the Summer Show.

Fortune favours the bold, and we are unfeignedly glad to record the great success of the Show which was held at Regent's Park on September 11th and 12th last. The weather, which has spoilt so many outdoor events this year, was kind. The morning of mornings dawned fair and dry, with some welcome bursts of sunshine during the afternoon; the conditions held good for the whole of the two days. There was a gratifying attendance, and the large tents contained an abundance of lovely roses. As usual, the arrangements worked smoothly, and Mr. Courtney Page and his band of assistants are to be congratulated on them.

Another "new departure" with the Autumn Show was in connection with the large "representative groups of cut roses." This year each of the very many exhibitors was allotted a separate table, and this method not only made the Show more attractive, but prevented any possible congestion in the large tent. The first prize in the larger class was won by Messrs. S. McGredy and Son with a charming arrangement of baskets and pillars of splendid roses. Their principal varieties were The Queen Alexandra Rose, Miss Willmott, Una Wallace, Mrs. C. Lamplough, Golden Emblem, Mrs. Henry Morse and Ethel Malcolm. The blooms in the second prize group of Mr. E. J. Hicks were even better on the second day of the Show.

There were no fewer than twelve tables in the class which provided tables 8ft. by 6ft., and these also must have caused the judges considerable anxiety. Messrs. William Lowe and Son were placed first with a striking arrangement of pillars of roses arching to a centre of Christine. Mr. C. Gregory, who was second, had masses of delightful blooms.

The various classes for smaller collections did not induce so great competition, but the quality of the blooms was very high. Mr. George Prince, in his twenty-four varieties of decorative roses, included lovely vases of Los Angeles, The Queen Alexandra Rose, Betty Uprichard, and beautiful blooms of Mrs. Henry Stevens.

Mr. John Mattock was equally successful with his collection of thirty-six varieties of miscellaneous roses. His first prize effort included Isobel, George Dickson, The Queen Alexandra Rose, Padre and Golden Emblem of exceptional merit. Mr. E. J. Hicks had the best eighteen varieties, and the outstanding vases were of Hawlmark Crimson, Red Star, Golden Emblem, Innocence and Mme. A. Chatenay. Mr. George Prince, who was a good second, included Allan Chandler, Golden Ophelia and Los Angeles.

Although not so numerous, the baskets of roses were as beautiful as at the Summer Show. The best three of exhibition varieties were Frau Karl Druschki, Hugh Dickson and George Dickson, shown by Mr. George Prince. Golden Emblem, Mrs. Henry Morse, Lieutenant Chauré, Isobel and The Queen Alexandra Rose, shown by Mr. W. Bentley, won the first prize for five baskets of decorative roses. Excellent baskets of Covent Garden, Golden Emblem and Los Angeles won first place for Messrs. D. Prior and Son, who, with lovely baskets of Else Poulsen, Kirsten Poulsen and Ideal, also showed the best dwarf polyantha roses.

While there were only two collections of twenty-four exhibition roses, they were very meritorious. Messrs. D. Prior and Son won the first prize with such sorts as Mrs. Murray Allison, an enormous pink hybrid tea of perfect shape, which won the silver-gilt medal as being the best bloom in the nurserymen's classes, Sovereign, Mrs. C. Lamplough, Betty Hulton, George Dickson and Edith Cavell. Mr. C. Gregory, the second prize-winner, included excellent specimens of Mildred Drew, Mrs. C. Lamplough and Bessie Chaplin.

Mr. George Prince had the best eighteen blooms of exhibition roses, and his was a very clean and even collection of really good blooms. The very best were Mabel Morse, Juliet, J. G. Glassford, George Dickson and Frau Karl Druschki. Mr. G. Longley was second, and he also was first with such tea roses as Lady Hillingdon, The Bride, Maman Cochet, Mrs. Foley Hobbs and Molly Sharman Crawford.

AMATEURS' ROSES.

In view of the weather of late, the quality of the blooms in the amateurs' classes was surprisingly high. There were very few weather-stained petals to be seen, the blooms were of typical size and shape, and the colouring was very good. Mildew, which is often so prevalent in the autumn, was practically non-existent so far as the foliage at the Show was concerned.

The first prize collection of twelve exhibition blooms shown by Mr. J. N. Hart, Potters Bar, included excellent specimens of such sorts as Mrs. C. Lamplough, Mildred Grant, Admiration and Gladys Harkness. Mr. F. H. Fieldgate, Colchester, who was second, showed George Dickson and Frau Karl Druschki in splendid condition. Mr. C. Dixon, Sheffield, showed twelve blooms, in not fewer than nine varieties, in admirable condition. His first prize set included George Dickson, Gorgeous, Annie Crawford and J. G. Glassford. In this excellent class Mr. W. E. Moore was second, and he had fine blooms of Hugh Dickson and George Dickson.

Mr. R. de V. Pryor, Hitchin, with a rather uneven half-dozen, won the first prize, but his blooms of Lemon Queen and George Dickson were particularly good. Mr. I. J. Cole, Treherbert, North Wales, was a successful exhibitor of exhibition roses in the smaller classes. Mr. A. N. Rogers, East Putney, had the best blooms grown within ten miles of Charing Cross; and Mr. W. E. Moore, High Wycombe, who staged such varieties as Bessie Chaplin and George Dickson of great merit, had the best six distinct blooms of those members who have no assistance whatever, and he was also easily first with nine very creditable tea roses. Mr. Fieldgate was a very good first with six tea roses. The principal varieties in these classes were W. R. Smith, White Maman Cochet, Mme. Jules Gravereaux and Mme. Vermorel.

The decorative roses provided some feasts of colour and fragrance. The baskets were particularly good, and first prizes were won by Mr. J. N. Hart, Mr. R. de V. Pryor and Mr. T. E. Tattershall, Orpington.

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with excellent baskets. Mr. H. R. Darlington has many times won the first prizes in the chief class for vases of decorative roses, but he has rarely done so with better blooms than on the present occasion. He included Moonlight, Padre, Golden Emblem and Mme. Edouard Herriot. Mr. J. N. Hart was a good second in this popular class. In the pure amateurs' class, which also drew many exhibits, Mr. J. E. Rayer, Worcester, won first place, and he had lovely vases of Vanity, Moonlight and Irish Elegance. Mrs. L. A. Tilley, Northwood, was second. The best bloom in this section was a splendid example of Edward Mawley, shown by Mrs. C. E. Whitcombe.

TABLE DECORATIONS.

As usual, the dinner-table and vase decorations filled a large tent and there were numerous exhibits in all the classes. In the open section, Mrs. A. R. Bide, Farnham, added to her very many successes by winning the first prize. She made artistic use of Rose Madame Butterfly with a few sprays of Rosa sericea pteracantha, whose shining scarlet thorns gave just the needed touch of bright colour. Mrs. L. R. May, Waltham Cross, was second. A very attractive table of Isobel did not seem to be placed.

In the amateurs' section the first prize was awarded to Mrs. Oakley Fisher, Sudbury, who used the pink Roselandia with purple shoots very effectively. Mrs. Courtney Page, Enfield, employing Emma Wright and sprays of Rosa sericea pteracantha, was a good second. In the classes for vases and bowls, Mrs. Courtney Page won two first and one second prizes, and Miss E. Griffith, Finchley, was first with a bowl of mixed varieties.

THE CORY CUP.

At each of the N.R.S. shows of the year new seedling climbing roses have been exhibited in competition for the Cory Cup, which was awarded to the charming Phyllis Bide, shown by Messrs. S. Bide and Sons. The free-flowering climbing polyantha received a certificate of merit a year ago and the highest award of the Society's gold medal at Glasgow last month. It is almost everblooming, for it flowers freely the first year on the young growths and continues throughout the season. The colour is pale golden yellow flushed with bright carmine towards the edges. The flowers are almost double and are produced in long loose sprays.

Also in competition for the Cory Cup, Messrs. S. McGredy and Son showed Lady Margaret, a sweetly scented hybrid tea variety which bears double flowers on good stems. The variable colouring is generally yellow heavily shaded with purple.

THE LARGE SHAPELY BLOOMS OF LORD LAMBOURNE.

A DWARF FREE FLOWERING H.T. VARIETY, DOROTHY KING.

NEW ROSES.

ARTHUR COOK.—This variety was presumably shown for the higher award of a gold medal, as it previously has received recognition. It is a very desirable hybrid tea rose, but falls just short of gold medal standard. The good-sized, globular flowers are made up of large, substantial petals of bright-edged, dark crimson colour shaded with maroon. It is pleasantly fragrant. Shown by Messrs. S. McGredy and Son.

CLOVELLY.—A long-stemmed pink hybrid tea rose of somewhat pointed shape and La France colouring which deepens with age. It had already received a certificate of merit. Shown by Mr. Elisha J. Hicks.

CORNELIA.—A hybrid musk of, at the Show, somewhat unpleasant odour. The abundant flattish sprays of nearly double flowers about 3ins. across are attractive. They are of pale pink shades, usually brighter in the congested centre. Shown by the Rev. J. H. Pemberton.

DOROTHY KING.—A dwarf and evidently free-flowering hybrid tea variety which bears two or more rows of substantial petals, giving a solidly single-flowered appearance. The mature flowers are cup-shaped, and the scarlet-crimson colour, which is touched with maroon, is lightened by bold golden anthers. It should be a valuable garden rose where brilliant colouring is required. Certificate of merit. Shown by Mr. Ernest J. King.

EVA EAKINS.—This is a small but exceedingly brilliant Pernetiana hybrid. The fully double flowers are of perfect shape and velvety scarlet colour, with a touch of golden yellow at the base of each petal. Certificate of merit. Shown by Messrs. S. McGredy and Son.

JOAN HOWARTH.—A vigorous, fully double hybrid tea variety. The well made flowers were a trifle small, but evidently freely produced, and we suspect that in the height of the season it was a very attractive rose. It is exceedingly fragrant and somewhat suggestive of Pharisaer. The soft pink colour is shaded with apricot in the heart of the blooms. Shown by Messrs. Bees, Limited.

JUNE BOND.—An "Extra Perpetual," bearing shapely flowers on long, clean stems. The golden ground colour is heavily suffused with shell pink. It is pleasantly fragrant. Shown by Messrs. S. McGredy and Son.

LADY F. STRONGE.—This hybrid tea rose was well deserving of the award it received. It is of dwarf, free-flowering habit. The shapely flowers are of mid-pink col

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flushed with rich peach. Certificate of merit. Shown by Messrs. S. McGredy and Son.

LORD LAMBOURNE.—If this large shapely hybrid tea rose possessed more substantial petals it would be a glorious variety. But the petals are rather too thin, and it is too delicate a rose for everyday use. The rich yellow petals are stippled with crimson lake towards the margins. Certificate of merit. Shown by Messrs. S. McGredy and Son.

MABEL LYNAS.—This, the best of the new seedling roses, is quite a large Pernetiana and is delightfully endowed with real rose scent—a most unusual thing in Pernetiana hybrids. The fully double, shapely blooms are of rich crimson colour with just a touch of velvety maroon. Gold medal. Shown by Messrs. S. McGredy and Son.

MRS. C. W. EDWARDS.—A free-flowering hybrid tea rose of bushy habit. The smallish flowers are of pleasing deep rose pink colour. Shown by Messrs. S. McGredy and Son.

MRS. J. HEATH.—A sweetly scented hybrid tea rose, fully double and of peach and yellow colouring, with a golden heart. Shown by Messrs. S. McGredy and Son.

MRS. TALBOT O'FARRELL.—This hybrid Pernetiana would make a very showy garden rose. It is shapely in the bud state, but becomes loose when fully open. It is of old gold colour heavily stippled with rose on the upper surface. The blooms are delicately fragrant. Certificate of merit. Shown by Messrs. S. McGredy and Son.

MRS. S. W. BURGESS.—In its rich purplish foliage and flower stems this was the most uncommon new rose in the Show. It appeared to be somewhat prone to mildew, but it has been exceptionally wet of late and the season is far spent. The sweetly scented pale orange flowers are occasionally lighter in colour at the edges, though the colour does not seem to fade. Shown by Mr. S. W. Burgess.

NORMAN LAMBERT.—A smallish hybrid Pernetiana rose of moderate fragrance. It is of good shape and very uncommon golden terra cotta colouring. Gold medal. Shown by Messrs. S. McGredy and Son.

SIR DAVID DAVIS.—This should be a very good bedding rose. It has a bushy, free-flowering habit and produces medium-sized, fully double, dark crimson flowers. Shown by Messrs. S. McGredy and Son.

SOUVENIR ROSE BERKELEY.—A hybrid tea variety of medium size, good shape and vivid pink colour which would be valuable for garden purposes. Certificate of merit. Shown by Messrs. S. McGredy and Son.

VEGETABLES FOR AUTUMN ATTENTION

ONCE the summer is over, and possibly the local horticultural show has passed, there arrives a period when the small grower seems rather inclined to rest on his laurels and content himself with garnering such crops as he has raised for winter store and supply. Of course, there has been that strenuous spring period, when, perhaps, he has had to work against time, and later have followed the summer months, with their increasing cares of the growing crops, that make one sympathise with that "worked out" feeling. But is the tendency to ease off one that should be encouraged? The only answer is that it should not, for during the autumn months there is much that can be done. Not only can good vegetable supplies be arranged, for utilisation in the coming few months, but a great deal can also be accomplished to ensure a sufficiency of such commodities for the period when otherwise there will be a shortage of home-grown supplies at a time when scarcity reigns and prices run high.

It should be the aim of all good growers to bridge this gap, a gap, incidentally, that oftentimes teases the professional grower (as witness the shortage period), and it should be the aim of all those who make a success with their garden, or allotment, to keep the supplies running, if possible, the year round. Now is the season for full use of the cold frames, the lack of which in small garden, allotment and small holding one can only bemoan, for they are more than useful during the winter months.

September is, of course, the busiest period, the more so as lifting and storing of various items will be in progress, while other crops will be ready to clear off the ground, having finished their period of usefulness. However, during the month the main batch of the ever welcome spring cabbage should be planted out, and a useful site for this is the ground from which onions have been lifted. With this cabbage, only allow 18ins. between the rows and a foot from plant to plant; then, very early in the spring, the alternate plants can be taken out, leaving the permanent ones 2ft. apart, and those lifted can well be employed to fill up gaps that may have occurred owing to adverse winter conditions. Also of the cabbage tribe, and forming a welcome change in green diet, are the coleworts, and for a late batch some of these should be planted this month. Endive of earlier sowing should be pricked out into cold frames, allowing about 6ins. between plants, and these will be found most useful during the winter months. The same process may also be employed for lettuce.

September sowings are of a good number. During the month, cauliflowers, such as Walcheren and Magnum Bonum, should be sown in frames, about the second week being the best, and at the end of the month the resulting small plants should be pricked out into cold frames, about 4ins. apart. In these frames they can be wintered, protecting when adverse weather is about, and freely airing on all suitable occasions; they will then be ready for planting out in March and April, in a sheltered part of the garden, where they can be protected if necessary, and will then give early yield. Parsley, too, can be sown this month and similarly pricked out in cold frames for winter use. Radishes, too, sown in frames at this time, return autumn supply. Two or three sowings at ten days' interval, can also be made in September, and even if conditions are against them forming good bulbs, they will hold up well through the winter, giving a supply of these delicious "tops" in early spring. Make a final sowing of spinach, too, in open position, for standing the winter; two later sowings may be made in October, provided a warm south border is selected for the work. If potatoes have been grown in frames, they will now be cleared, and in their place a sowing of stump-rooted carrots can be made, thinning out during the next month, and these will come into use during the winter months. Thus it will be seen that much can be done during the month of September.

Now let us consider October—not such a busy month, be it confessed, but still having something for us to do. The endive, lettuce and parsley, for instance, sown last month, should be pricked out as suggested in cold frames, as also the cauliflowers, during the intervals which occur between such operations as earthing-up late celery, harvesting—or rather, storing—the onion supplies and hoeing through other growing crops. The latter will take up considerable attention in order to keep them free from decaying matter and other rubbish, such as weeds. It may here be noted that the blanching of the endive, when necessary, can be accomplished by covering over such as is required by means of a mat or similar device; the lettuce will not require this treatment. A late batch of cabbage may also be planted, in order to get a late yield of this, as such may be of great advantage in spring when vegetables of other forms are unobtainable. When planting this lot, do it carefully, and be sure to draw the soil up round the stems for winter protection, the stem being a point that is particularly vulnerable to the attack of frost. This device should be adopted for all the batches. Too much emphasis cannot be laid upon the importance of this crop, and the raising of cauliflower as suggested, for time and again the writer has found them invaluable when conditions have been such, during the winter months, that shortage of other vegetables has been inevitable later.

During October all plants of endive and lettuce standing in the open should be lifted and planted in cold frames thickly together. They will not hurt if actually touching, for often space is limited, and as many as possible require to be packed in. To continue the supplies from Christmas to Easter, the September seedlings should be planted into the frames at intervals so as to arrange for a succession of yield.

November calls for less attention, the principal sowing being, where the facilities of heated houses or pits are available, French beans, sowing in 8in. pots, five seeds to a pot, and raising in a temperature of about 65° Fahr. Mustard and cress may be sown at frequent intervals, more frequently for mustard, for it is ready more quickly than the cress, and during the winter this ever welcome small salad requires a certain amount of heat, say a temperature of about 55 Fahr., and should be sown according to the supply necessary. Much useful work can thus be accomplished in planting, sowing and lifting vegetables during the autumn months.

EDWIN BECKETT.

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CORRESPONDENCE

ROSES AS ISOLATED BUSHES.

SIR,—The accompanying illustration of the rambler rose Ariel will give an idea of what may be accomplished by planting this and other varieties of the multiflora ramblers as isolated specimens. The prevailing idea is that these roses must of necessity be planted against some support. Here we have a specimen growing naturally, the drooping nature of the growths aiding in its floriferousness and, as may be seen, the specimen is admirably set off by the fine background of evergreen trees. Ariel is a delightful single flower, probably of the same parentage as Tea Rambler and introduced by the well known firm of Paul and Son. Mr. George Paul, who did so much to encourage this style of planting, would have loved to have seen this specimen, as possibly he may have done, for its owner and he were great friends. Unfortunately, Ariel flowers but once in the year, and that is in early June, but there are to-day many fine roses that are perpetual bloomers that may be similarly grown,

A MAGNIFICENT BUSH OF ROSE ARIEL IN AN ADMIRABLE POSITION.

such as Moonlight, Pax, Danöe, Lady Waterlow, Zéphirine Drouhin, Grüss an Teplitz, etc., and even such kinds as Irish Elegance will with no pruning soon develop into huge bushes.—(Rev.) F. PAGE-ROBERTS.

THE PURPOSE OF WISLEY.

SIR,—I should like to reply to Mr. P. A. Hendley. The pedantic tone of his letter (page 637) is his affair, but the inaccurate statements and insulting reference to the horticultural trade is mine. Fortunately, there must be few readers of THE GARDEN who will accept his statements, which seem to me to be wild and sweeping, and so are robbed of logic. I challenge Mr. Hendley to prove his statement that a rose distributed in 1890 was again renamed in 1902 and yet again in 1911. I shall want him to stick to roses and not talk about primulas to prove it. I would also ask Mr. Hendley to substantiate his statement that every catalogue is full—too sadly full—of inaccuracies. If he can do neither he should apologise. Can he tell us where he or any amateur can obtain such good return for time and money spent on a hobby as from the horticultural trade against which he so grossly bears false witness?—LAURENCE J. COOK.

MAGENTA.

SIR,—"M. H. W." (page 590) may like to hear about some grey and magenta borders which I made some years ago. There is, in this garden, an old walk more than 130yds. long, with herbaceous borders on either side. I never allowed a gardener to touch them, doing every scrap of work myself until illness put a stop to my labours. Now, after five years of gardeners' attentions, there is literally not a patch of my dear magenta left.

I find surroundings affect colours so strongly that I shall not put magenta in one place where it used to be—it looked flat and ugly. My best and favourite patch was at the far end of the walk, where the tall plants stood up in full sun against a background of deep shadow under some trees, etc.

The patch was nearly 30yds. long, and on the left-hand side I gradually made it almost all magenta with drifts of grey, and grey in front. By degrees, mauve vanished from that side, and a little bright blue and very pale yellow took its place. On the other side I placed much more grey, less magenta, and more of the paler shades of blue pinks and warm mauves. On the left-hand side I planted a "drift" which attracted much attention. Two or three bushes of tansy, with three groups of seakale plants. One group trailed to the fore and met a large patch of pinks which, in its turn, trailed off and formed a border for some distance. Behind the tansy was an old rose, which grew, like Topsy. I fancy it was the stock of some defunct modern failure. The Japanese "crimson" was good there also, but it was planted too far back and invited too much attention from my deadly enemy, the hoe, and so died an unnatural death. I did not replace it, as its foliage rather worried in that special spot.

Round about the tansy and seakale I had the darkest magenta (not purple) geraniums and erodiums, and behind, catching up the blue colouring in the seakale, two or three light blue and sky blue delphiniums. I found it difficult to get just the right colouring, but at last unearthed one with a dash of green in the blue, and two pure sky blue ones. The whole group gave me intense joy, and when I next start planting shall increase it in size.

Here is a list of plants from my old note book:

For back row—Hollyhocks, dahlias, roses, everlasting pea (a stiff sort, perhaps Drummondi), sweet peas (there is a lovely one now, I think it is either Royalty or Royal Purple phlox, and the old "red" Michaelmas daisy. The phlox is an old cottage one, rank in colour and growth, but charming when mixed up with the Michaelmas daisy, which flowers rather later as a rule. Clematis and epilobium.

For the middle—Lythrum Rose Queen, lupin, thalictrum, asclepias, geraniums, phlox, gladioli, peonies, English and Spanish irises, bearded iris, allium (must not seed), chrysanthemums, pentstemons, erodiums, honesty, veronicas (two sorts).

Front rows—Pinks, carnations, centaurea, tulips, anemones, hyacinths, violas, thyme, aubrietia, tradescantia, erodiums, and gaps filled with petunias, ivy-leaf geraniums, clarkia, candytuft, etc. Some sisyrinchium with pale yellow flowers seeds itself along the front, and I say a polite word of thanks to it even now.

One of the most beautiful magenta flowers I have ever seen was an English iris which came to me under the name of La Nuit—from Van Tubergen's. I left it in a garden and have never succeeded in getting it again. It was a rich glistening colour with a thick "frost" upon it.

My next attempt will have more bearded irises in it, even if the colours are not quite right—the foliage is such a great help; and I shall certainly put more blue, or rather, carry it on by having commelina and salvias, etc.; but very little is required, as the general effect is so easily destroyed. I amused myself with several unusual patches along my border. A small chocolate one was most interesting, with huge plants of Veratrum nigrum coming well to the front; wine-coloured pansies and a large mass of scarlet pimpernel to lighten the effect made a most unusual bit of colouring. It required very careful attention and thought as to background and foliage, and I removed it from oranges and yellows. I found a large drift of golden feather very useful, also the tall ageratum in a mass; both of these plants were jeered at close to, when it was a case of "If you are discovered you are lost"; but until discovered they were always much admired—H. P. M., *Notts*.

ARRANGEMENT OF CUT FLOWERS.

SIR,—In the article on the arrangement of cut flowers, on page 594, I see it is stated that it is inartistic to use a mixture of flowers. On the contrary, flower mixtures are now very popular with artists. The following flowers arranged in a rather large pottery bowl made quite a picture: Marigolds, polyanthus in shades of red, yellow and blue, mauve single stock, pansies, woodruff and Virginian stock. Later on in the summer a mixed vase containing love-in-a-mist, annual larkspurs, snapdragons and sweet williams was much admired. Just at present tall vases filled with golden rod, rudbeckias, montbretia and the brown seeding spikes of the common stock are far more effective than the same flowers arranged separately.—A. BLOIS, *St. Briac*.

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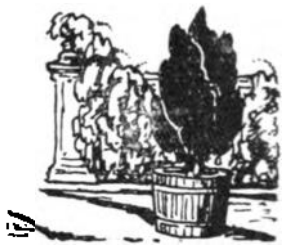
SIMPLE GARDENING



LOOKING ROUND THE GARDEN.

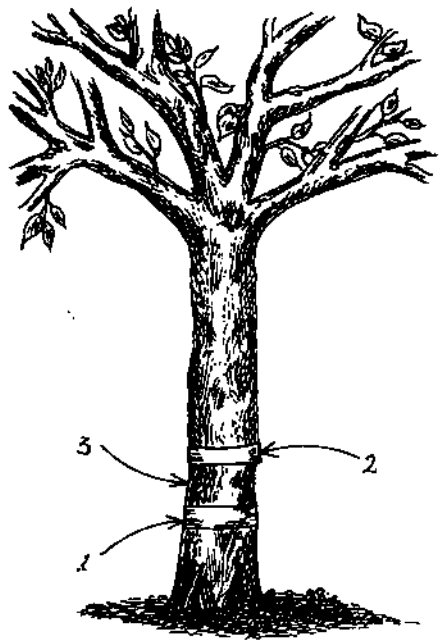
WE all do so, some out of curiosity, some to find fault, some thoroughly to enjoy the beautiful features not dreaming of any criticism, others to see how improvements may be made. It is with the latter object that I invite my readers to have a look round their gardens now. One should take note of both failures and successes, and not rely too much on memory as each season brings its special duties. First, perhaps, the flower borders should be inspected, especially the herbaceous ones, also the rockery. New plants to be purchased for these should be made note of and also any soil for filling-up work and additions. Plants in the herbaceous border to be lifted should be labelled for that purpose, or improved positions for certain others marked in readiness. Then there is the vegetable garden to be inspected. Liming may be beneficial, note this; crops not succeeding in any particular quarter may do better in another; notes again will help. Very successful crops should also be observed and their recent treatment borne in mind so that such successes may be more numerous next year. Fruit always attracts attention and, perhaps, causes the most anxiety to the gardener. Apples and pears require several years in which to grow and become fruitful, so if there are any specimens decidedly unremunerative grub out all such and replace them with really healthy young stock now, thus saving a whole year's time. Decide now on any necessary root-pruning and take note of boundary fences.

LIFTING OLD SUMMER BEDDING PLANTS.

There are hundreds of amateur cultivators in every county who are unable to propagate cuttings in the early autumn but must rely upon the old plants as stock for next year. Of course, the cuttings are more difficult to keep through the winter, but old plants, too, require very careful treatment. We may consider zonal pelargoniums first. These old specimens possess many long roots and also long, straggly shoots. When lifted with ordinary care some of the longest roots and branches, respectively, should be cut back, thus having a balance between shoot and root. In the meantime a few bushels of soil should be passed through a half-inch mesh sieve and stored in a cool, dry place to become almost powdery. When the old plants are potted up it will only be necessary to crock the pots, press into the smallest possible the roots of a plant and work in among them the fine soil prepared. In larger pots several plants may be wintered. The fine soil is easily settled firmly round the roots by applying clear water. Old heliotrope, fuchsia and similar plants may be treated in a similar way. Be careful not to overwater after the first application. These plants are best retained in well ventilated houses, while old plants of gazania, alyssum, lobelia and ageratum should be first treated in cool frames. Every week all fading leaves should be removed—not forcibly pulled off.

GREASE-BANDING FRUIT TREES.

In October this work is done wholesale, but I think it is a wiser plan to do it in September, as the female wingless



moth is sometimes early at work climbing the trunks and any supports to gain access to the branches. This year, perhaps, early climbing may not occur, as nearly everything is a fortnight late. Bands for the purpose may be bought ready to apply from firms advertising in THE GARDEN. But if home-made bands are used, those formed of brown paper or rags will do. I prefer two bands on each stem as shown in the sketch. Nos. 1 and 2, being 3ins. wide, and a space of 9ins. (No. 3) left between. Any lasting grease, cart-grease, for instance, will do. I like to soak the bands in oil first, then they cling closely to the bark. Renew the grease once a month.

POTTING FREESIAS, ROMAN HYACINTHS AND NARCISSI.

The work of potting and giving after-attention to bulbs is very fascinating. These bulbs may be grown with success in pure leaf-soil, especially the Roman hyacinths and narcissi, but there is no need to experiment generally, so we rely upon a compost of sweet loam two parts, leaf-soil one part and sand one part. If these ingredients are not available, use, if obtainable, the general compost from the melon, cucumber or vegetable marrow beds, omitting any of the actual hot-bed material, as feeding is best carried out after the flower-buds form. The freesia bulb is small, and on that account cultivators sometimes place too many in each pot, with the result that the flowers are smaller than they ought to be. It is very important that the pots be clean and dry, especially inside, when used. The crocks for drainage need not be numerous, but well placed. Fill up the pots with soil for the freesias and press them into the surface, covering with rather less than 1in. of soil. Three Roman hyacinths will be sufficient for a 5in. pot, while five may be grown in a 6in. one. In the case of large sorts of narcissi, such as Emperor, nine bulbs may be grown in a 7in. pot—four in the bottom and five at the top—where many blooms are required from a pot of this size. All will bloom at the same time. Water all pot bulbs and cover with sand, coconut fibre or leaf-soil with the exception of freesias. Place these in a darkened frame.

BORDER CARNATIONS IN WINTER AND SPRING.

In some soils these plants will succeed without any special care being bestowed upon them. In other soils there is always some trouble with them. Now, where difficulties arise during the winter and spring in the case of plants left in the open borders, I advise cultivators to winter the newly layered specimens in a cold frame. Prepare a bed of soil, not necessarily rich, but of good loam and a small quantity of old mortar rubble, about 7ins. in depth. Carefully detach the rooted layers from the parent plants and lift each one with as much soil adhering to the roots as possible and replant them 7ins. apart in the cold frame. The glass lights should be kept closed for ten days after planting and watering, then fully expose the plants in fine weather, both night and day when fogs and frosts are not prevalent. Watering should be carefully done. Only apply clear water just before the soil becomes really dry and early in the day. I have found that young plants, so treated, made excellent specimens by the next March, when they were planted in their flowering quarters and continued their steady progress. In the meantime the border soil can be trenched and left in a lumpy state for the weather to pulverise and sweeten. GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Mushrooms.—These are always appreciated, and now it is advisable to collect all the horse-droppings until the requisite quantity is obtained. These are turned over several times at short intervals to allow the rank heat to escape; then the bed should be made, and eventually spawned according to the directions given in a previous note. The shed or mushroom-house should be cleansed, and the walls given a dressing of lime-wash.

Weeds.—It has been a difficult matter to prevent some weeds producing seeds this summer, and where such was the case a fine crop of seedlings has appeared. At this period they make rapid growth, and unless they are removed the crops will be covered. In addition to making free use of the hoe, hand weeding must be resorted to and the weeds carried off. If the ground is kept clean, it will dry more quickly and the crops benefit thereby.

Celery.—The earthing-up of the early crops may be completed, and late rows should be dealt with when they are ready. Choose fine dry weather, and tie together the leaf stalks to prevent soil entering the hearts of the plants.

Spring Cabbage.—The plants put out a few weeks ago are making headway, and another batch can be planted. This crop may pass through the winter with greater success than the earlier and more advanced plants.

THE FLOWER GARDEN.

Transplanting.—A number of trees—such as box, hollies and other evergreens—may be transplanted at the present time where such operations are contemplated. Lift each plant with a good ball of soil, and after planting afford a liberal supply of water. Make the trees secure against rough winds, then each one will produce new roots before the winter sets in. Cuttings of laurel, box and other evergreens can be inserted at this season, selecting a partially shaded border.

Veronicas.—In this part of the country the numerous garden varieties of veronica are a great success, and many are to be seen in cottage gardens. They are easily grown, and a fine display is secured from July onwards if a young healthy stock is kept up. Cuttings form roots readily in a cold frame, and if only a few are required pots filled with sandy soil will suffice. Keep them in a cold frame for the winter, and put out in their flowering quarters in spring.

Rambler Roses.—If not already done, these plants should be pruned, cutting out all the old and exhausted wood. New supports must be supplied where needed, and the new shoots tied in so that they can receive all the sunlight possible.

Bulbs.—The planting of bulbs should be proceeded with, and they embrace tulips, snowdrops, winter aconites, erythroniums and a host of other fine flowers.

THE HARDY FRUIT GARDEN.

Wall Trees.—Most if not all the fruit has been gathered from both peaches and nectarines, and the trees should be relieved of all superfluous growth. The current season's growth should be retained, and as much as possible of the old wood cut out. Avoid overcrowding when tying in the shoots for next season. Where new trees are required, they should be procured and planted in the near future.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Beetroot.—Preparations should be made now to have the crops secured and placed under cover. Careful lifting and handling of the roots are necessary so that none gets damaged. To defoliate each root, the leaves may be screwed or twisted off with the hand. The roots should then be sized and placed underneath a bench or other suitable place in one of the sheds, in two or three heaps, according as the selection has been made. Each clamp should be covered with sand or fine soil.

Cabbage.—Whenever the ground is fairly dry, stir with the hoe the surface soil between the lines of the young plants which were set out earlier in the month. If not already done, the ground between sea-kale should be hoed and raked, so that all weeds and decayed leaves are cleared away.

Leeks.—Plants set out early in July should be sufficiently advanced now to have the soil drawn up on each side of the stems. This earthing-up will ensure more of the stem being blanched and their greater appreciation in the kitchen.

Potatoes.—The remainder of the second early varieties which have matured their haulms should not be left longer in the earth. If a large quantity have to be dug up, the tubers should be carefully collected and placed in a clamp in the reserve ground. Smaller quantities which are likely to be used in the kitchen within a few weeks should be put into hundredweight bags and the bags placed in the store-room.

THE FLOWER GARDEN.

Anchusa Italica Dropmore.—Plants which have gone out of flower may be dug up and have the roots cut into lengths of 3ins. Take care to make a slanting cut on the end portions of those which show little or no tapering, so that the right end will be kept topmost when they are placed into boxes of medium fine soil. By this method—of root-cuttings—an increase of plants can be obtained, if raising plants from seed has not been favoured.

Beds and Borders.—If a spring display is to be provided, the flower beds and borders should be cleared of their summer occupants. The soil, if in good heart, need not be manured, but simply dug over, then slightly firmed with the feet and nicely raked. The planting of narcissi, hyacinths, tulips, arabis, myosotis and wallflowers should then be taken in hand. The depth to plant may vary according to the soil and size of bulb; but from 3ins. to 6ins. deep may be taken as a good average. The bulbs and plants may be intermixed or otherwise, just as the individual taste and requirements of the place demand.

Carnations.—This year our plants have done fairly well; but last year the older plants provided a much greater number of flowers and likewise better furnished beds. Now that the flowers are faded, the spiral wires, used as stakes, should be collected, tied into conveniently sized bundles and laid away for next year. Then clear all old flower stems away from the plants.

FRUITS UNDER GLASS.

Peaches.—Where red spider has been very troublesome on the trees, it is a good plan, in addition to spraying, to go over the stems now with a mixture of soft soap and sulphur, applying it with a paint-brush or sash tool and working the mixture well into all places on the old wood likely to harbour the insects.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Darwin Tulips are very useful for decorative work, their long stems specially adapting them for use as cut flowers. They are by no means so easily managed as the early-flowering tulips, as they will not stand the same amount of forcing, and generally should be given cooler treatment. Larger pots, too, are necessary, as they have much larger foliage than the early-flowering varieties. If five bulbs are placed in an 8in. pot, much better results are likely to be obtained than if they are grown in a 6in. pot. If not already potted, this should be done without delay, as success depends very largely on the bulbs being well rooted. After potting they should be stood outdoors and be covered with ashes until they are well rooted, when they should be removed from the ashes and placed in cold frames.

Gladioli of the nanus and ramosus sections are very useful for decorative work, especially as cut flowers or for furnishing the conservatory. They should now be potted, and as they are free-rooting plants should be given fairly large pots—6in., 7in. or even 8in.—as with ample root room their foliage can be kept in good condition when they are in flower. Six or eight corms may be placed in a 7in. or 8in. pot. After potting they are best stood in cold frames. Where it is desired to grow them in quantity for a supply of cut flowers, they may be put up in boxes, or even planted out in cold frames. There are many beautiful varieties, in varying shades of pink, rose, red and scarlets, as well as G. Colvilei and its white variety, The Bride, that is so largely grown for market work. G. byzantinus, which is a very old garden plant and succeeds very well outdoors or in pots, is worthy of more general cultivation.

Ornithogalum arabicum, which has large white flowers with black centres, is very fine for the cool greenhouse. One bulb should be placed in a 48-sized pot. They are best grown singly, as, unfortunately, this fine species is somewhat uncertain in flowering. Some seasons every bulb will flower, while on other occasions only a proportion, or none of them will produce flowers. This is probably due to the bulbs not being properly ripened.

Ixias, which used to be commonly grown in gardens, are now seldom seen, which is surprising, considering how reasonable they are in price. There are many beautiful varieties, ranging in colour from white, yellow and varying shades of pink, rose, red and scarlet, while the beautiful I. viridifolia always attracts attention. They are ideal for a supply of cut flowers, and their cultural requirements are very simple, as they can be grown in cold frames until they throw up their flower spikes, when they can be removed to an unheated greenhouse.

Sparaxis, Babianas and Tritonias are all worthy of more general cultivation, especially for the small unheated greenhouse. They all succeed under the same treatment as advised for ixias.

Iris tingitana.—This beautiful iris is very useful for pot culture. Five or six bulbs may be placed in a 6in. pot, afterwards standing them in a cold frame. Early in the New Year, when they are well rooted and growing, they may be introduced to a warm greenhouse, where they will quickly produce their flowers, which are very useful for a supply of cut flowers. Water must be carefully afforded at the roots, as they quickly suffer from over-watering.

J. COUTTS.
Royal Botanic Gardens, Kew.

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ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Sweet William Plants Dying (T. N., Bucks).—These plants are subject to a fungus attack in old soils, and especially in those not well drained during a wet season similar to the present. As you are unable to change the quarters of the plants, mix some old mortar rubble with the soil during the winter and scatter sufficient fresh lime on the surface just to cover the soil several weeks prior to planting. In the meantime keep the young plants in a nursery bed. Such trouble may not occur again for several years. If it does, sprinkle flowers of sulphur freely round the base of each plant.

Chrysanthemum Stems Splitting ("Dene").—Without seeing the stems it is impossible to say exactly what the cause is. But a normal plant will not split its stems. The latter must have received some injury. The chrysanthemum bug will eat the stems, which then have the appearance of having been cut with a knife. If the stem has been injured, the extra feeding that the plants are, no doubt, receiving would cause the split to extend.

About Passion Flowers and Growing Bulbs Indoors (Miss J. N. K).—You do not say what variety of passion flower is referred to. Cœrulea and its varieties are the hardiest, growing and fruiting in the southern counties without artificial protection. The others are not very reliable even in the South, and any tried should be protected—the stems, too, of Passiflora cœrulea. The bulbs of colchicum may be planted in pots or pans filled with stones and peat or fibrous loam, the vessel being placed in another containing water, so that the water can be changed without disturbing the roots. Bulbs of Narcissus Tazetta may be grown in a similar way or fixed in wire netting fastened over the bowl so that the roots barely touch the water in the bowl.

ROSE GARDEN.

Roses Not Flowering (S. M. L.).—No doubt the Oriental poppies robbed the roses of much nourishment and so weakened the growth, and it was the right thing to do to remove the poppies. But the plants must have been weakly to begin with or the soil did not suit them. Leave the bulbs in the borders; they will not be harmful to the roses, and apply a rich surface dressing of loam and manure. When new shoots grow, next May, feed with diluted manure water and have all the plants pruned before the end of March.

Fragrant Wichuraiana Roses (C. B.).—The roses of the above class have been crossed with so many parents that many of them are lacking in scent. There are, however, many scented ones, but not much grown. Some of the most sweetly scented are Gerbe Rose (large, pure pink flowers, early and late), François Juranville (fawn pink, early summer), Léontine Gervais (salmon rose, early) and Evangeline (lavender pink, white centre, single, mid-season). Others less strongly scented are Débutante (pale pink, late summer), The Gem (creamy white), Sylvia (lemon to white, summer and autumn), René André (saffron yellow, early), Paul Transon (salmon pink, early, tea-scented), Mme. Portier-Durel (pure white) and Auguste Barbier (rose shaded lilac, early). It is quite likely that rabbits would eat or gnaw the stems of violas. It would be an advantage to know what they would not gnaw at times, apparently to shorten their teeth, without any real liking for the plant.

Rose Laurette Messimy (H. W.).—As Rose Laurette Messimy appears to be just too tender for your exposed situation and you like it, we should suggest you try Mme. Eugène Resal, which is very similar and distinctly hardier.

THE GREENHOUSE.

Carnations Unsatisfactory (M. L.).—The leaves enclosed for inspection indicate clearly that the plants have been subjected to a too high temperature, with the result that they are nearly eaten up by red spider. During the summer the plants, growing under glass, should be judiciously shaded, receive abundance of air and no artificial heat. Of course, old plants are difficult to manage at this season, and the sooner they are replaced by young stock the better. Young stock should be kept away from the house till the latter has been cleared of red spider, the old plants being destroyed. The leaves of the pellionia may have been eaten by caterpillars or small shell snails. It is not possible to say what has eaten them, without seeing the leaves.

TREES AND SHRUBS.

Azaleas Attacked (Miss M. K.).—The leaves sent for examination show signs of being eaten by small shell snails or slugs, as well as by caterpillars. If all the foliage is similar to that sent, much damage has been done. Procure some quassia chips, make a weak solution and syringe the bushes two or three times, directing the fine spray upwards to moisten the undersides of the leaves. If the plants are the result of rooting cuttings or layers, the basal shoots will not matter, but if they grow from the stocks of grafted plants, remove them. The buds of your plants are sound, but the plants need a surface mulch of leaf-soil and loam.

Laurel Branch for Examination (E. B. A.).—It is not a fungus on the laurel branches but a mass of adventitious roots. The phenomenon appears to be not uncommon in the cherry laurel, and is mentioned in a paper by A. W. Borthwick in "Notes from the Royal Botanic Gardens, Edinburgh." He does not, however, give any definite explanation, though stating that the branches die and that he had found a fungus present. Probably the roots are an effort to recover made by the plant when weakened for various reasons.

Dwarf Flowering Shrubs ("Hardy Shrubs").—The following kinds are all dwarf-growing, but it is not possible to restrict every one to a certain height without some pruning being done, as soil has varying effects on the plants. Azalea pontica, Escallonia macrantha, Andromeda floribunda, Deutzia gracilis, veronica, Daphne Mezereum, Skimmia japonica and Olearia Haastii, the last-named being suitable for a dry border.

FRUIT GARDEN.

Red Spider on Peach Trees (J. G.).—Red spider is encouraged by a too dry atmosphere. Syringing alone will not stop it spreading, as the leaves dry again from time to time. The general atmosphere must be maintained in an even state of moisture. Red spider breathes through its body, syringing may affect the exposed parts of the body, but not that part pressed against the leaf, so that the insect still lives. Fumes of sulphur will kill it. These fumes can be obtained by sprinkling flowers of sulphur on hot plates, the latter heated to 180°, or on water in vessels heated to almost boiling point. The ammonia arising from a small sprinkling of fresh soot under the trees weekly, and also fresh horse urine judiciously sprinkled on the floor, will, combined, keep the foliage free from this pest.

Pears Cracking (J. K. W.).—The fruits are infected by the scab disease. Very little good would result from anything you may do now, as the disease is too advanced. Collect all leaves as they fall and burn them. Next spring the trees should be syringed with Bordeaux mixture. In the meantime surface dress the soil with good loam after scraping off the top 2ins. of old soil and foreign matter.

Gooseberries Unsatisfactory (H. J. M.).—The fault lies at the roots of the bushes. Probably the soil has been too wet for them this season; but defective root action from some cause is the reason for the berries failing to colour and mature normally. A deep, rather light loam suits the gooseberry best. In such or other well drained soil the fruits grow and finish well, especially when the soil is surface dressed. You should examine the roots and also ascertain whether the bushes are planted too deeply, burying a portion of the stem.

KITCHEN GARDEN.

Celery Rust (J. A.).—The leaves, specimens of which are sent for examination, are badly rusted; there is no sign of celery leaf maggot. The foliage should be well dusted with dry lime, but all efforts to kill the fungus outright this autumn would fail. Next spring you should get a guarantee from the seedsman that the seeds have been treated against rust and grow the plants in a fresh position. The incessant rains have favoured the spread of this disease.

MISCELLANEOUS.

Heating a Small Greenhouse (S. S.).—For a greenhouse so small (12ft. by 8ft.), the ordinary single or double wick burning lamp would be suitable. Then there are the smokeless oil heating stoves similar to the "Valor" kind that burn round wicks. Such stoves will maintain a steady temperature quite high enough for cyclamen. The points to observe are: cleanliness (especially of wick), regulation of burner, and the daily filling up with oil.

Various Questions (Woodgarth).—Presumably you are referring to newly planted roses, in which case there is very little to choose between the two methods. If manure is applied to the rose-beds in November, however, care should be taken to keep it away from the shoots of the trees. Unless the roses are being grown specially for exhibition, we think the practice of mulching with manure better honoured in the breach than the observance, at any rate after the first season. The beds, if made thoroughly well in the first instance, will last for a number of years with a living mulch of violas or other shallow-rooting carpeting plants, and beds "mulched" in this way are infinitely more sightly. Climbing H.P. roses should have any spent wood thinned out after flowering to allow the new growths to ripen up, and these should have their weak tips removed towards the end of March. A properly made herbaceous border needs no mulching with manure, which always harbours slugs and other vermin. Carefully but lightly prick over the surface in November, thin growths of phloxes, helenium, helianthi, Michaelmas daisies and such-like in spring, use the hoe to form a dust-mulch and keep it applied until the advancing growths meet early next summer. Violet runners are rooted just as those of the strawberry. They root freely into loose earth, but a stone on each "wire" will serve to prevent the young plantlets from being disturbed by wind and so forth. The runners should now be rooted and ready to transplant.

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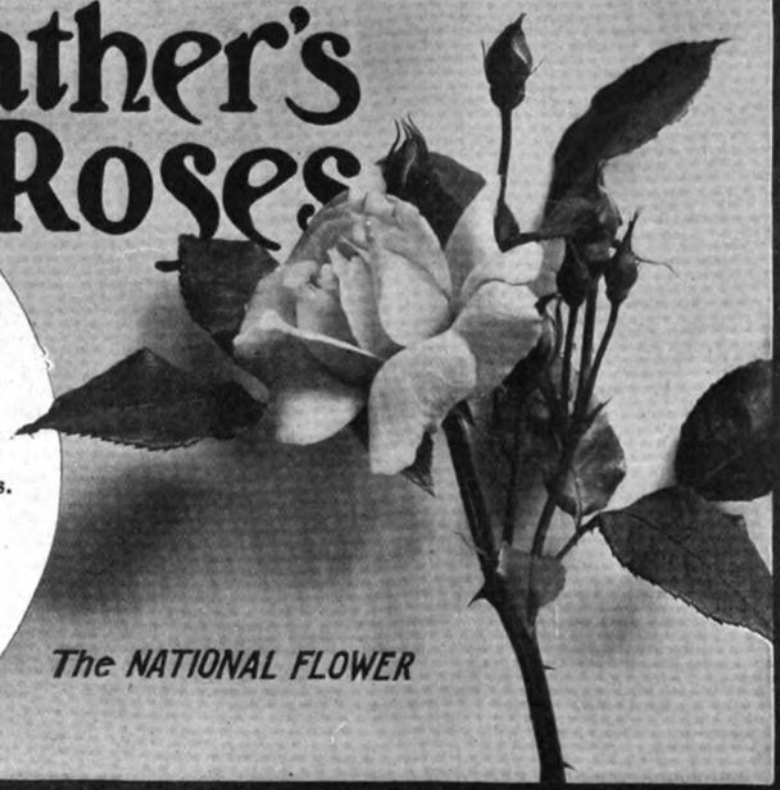

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Names of Plants.—H. M.—1, Rudbeckia speciosa; 2, R. laciniata Golden Glow.—— D. G.—Rose Mme. L. Messimy.——Mrs. S.—Ægopodium Podagraria, gout weed. The only way to get rid of this weed is to dig it out. Every little bit of root or underground stem left in will grow.

GENERAL BULB GROWERS' SOCIETY OF HAARLEM

THE different floral committees have made the undermentioned awards to gladioli during their sessions July and August, 1924.

FIRST-CLASS CERTIFICATES.—All the following varieties have already an award of the trial garden: Gladiolus Isis, shaded scarlet, thin white line, wide-opened flower, long, straight stem, stout flower; from seeds by Messrs. N. and J. Roozen Brothers, at Heemstede. G. Jacoba van Beyeren, unicoloured violet, long spike, well opened flowers; from seeds by Mr. P. van Deursen at Sassenheim. G. Rose Précose, salmon pink; from seeds by Messrs. Stoutenbeek van Til at Hillegom. G. primulinus Athalia, unicoloured, bright orange; from seeds by Messrs. E. H. Krelage and Son at Haarlem. G. primulinus Citronella, pure citron yellow; from seeds by Messrs. E. H. Krelage and Son at Haarlem. G. primulinus L'Innocence, creamy white, white stamens; from seeds by Mr. H. Carlee at Heemstede. G. primulinus Lætitia, bright salmon pink; from seeds by Messrs. E. H. Krelage and Son at Haarlem. G. primulinus Latonia, soft salmon pink, blot soft yellow, carmine striped; from seeds by Messrs. E. H. Krelage and Son at Haarlem. G. primulinus Rosaura, nearly unicoloured pink-red, little vermilion-red centre, falls somewhat creamy coloured; from seeds by Messrs. E. H. Krelage and Son at Haarlem.

AWARDS OF MERIT.—All the following marked * have already an award of the trial garden: * G. Crimson Glow, dark orange-scarlet, tops of the petals marbled with velvet black lines; imported. G. Fortuna, soft sulphur yellow, big open flowers; from seeds by Mr. W. Pfitzer. * G. Frau Dr. Hauff, bright scarlet with violet line on fall; from seeds by Mr. W. Pfitzer. G. Marconi, very dark purple with velvet shade; from seeds by Mr. W. Pfitzer. G. Mevrouw van Konijnenburgina, blue, with some dark lines, centre almost white; from seeds by Mr. W. Pfitzer. G. Nimrod, soft pink, white centre, top of the petals somewhat notched, creamy yellow blot on the falls. G. Ophelia, apple blossom pink with creamy yellow; from seeds by Mr. W. Pfitzer. G. Orange Beauty, unicoloured orange, petals somewhat notched; from seeds by Mr. C. P. Alkemade at Noordwijk. G. Othello, violet with mauve; from seeds by Mr. W. Pfitzer. G. Paul Pfitzer, purple, with velvet shade on the falls, centre violet; from seeds by Mr. W. Pfitzer. G. Pfitzer's Triumph, stony red with carmine centre, the very big flowers are neatly ranged on a very long and vigorous stem; from seeds by Mr. W. Pfitzer. G. Phanomen, bright soft pink with clear yellow, falls are unusually broad; from seeds by Mr. W. Pfitzer. G. Purest of All, clear pure white, spike well formed, four to five flowers at the same time opened, centre carmine shaded, stamens violet; from seeds by Mr. W. Pfitzer. G. Radio, soft purple; from seeds by Mr. W. Pfitzer. G. Snowmaiden, white, with very faint violet shade, stamens violet; from seeds by Mr. C. P. Alkemade at Noordwijk. G. Thomas Edison, salmon orange with carmine centre; from seeds by Messrs. E. H. Krelage and Son at Haarlem. G. Virginia, warm cherry red; imported from America. G. White Beauty, nearly pure white, big flowers, six to seven at the same time opened, stamens violet, spike well formed; from seeds by Mr. C. P. Alkemade at Noordwijk. G. primulinus Glory, dark orange red, striking primulinus character, big flowers; from seeds by Messrs. E. H. Krelage and Son at Haarlem. G. primulinus Juno, soft salmon with yellow falls and centre; from seeds by Messrs. E. H. Krelage and Son at Haarlem. G. primulinus Old Gold, soft yellow with old gold shade, small flowers; from seeds by Messrs. C. G. van Tubergen, jun., at Haarlem. G. primulinus Scarlet Cardinal, dark velvet scarlet-red; from seeds by Messrs. E. H. Krelage and Son at Haarlem. G. Tubergen's Charm, pure mauve, centre clearer, yellow-green lines on the falls, perpendicular stems about 30 ins. high (shown on June 30th); from seeds by Mr. C. G. van Tubergen, jun., at Haarlem. G. Tubergeni Glow, shaded carmine, falls violet, thin cream-yellow lines, perpendicular stems about 30 ins. high (shown on June 30th); seeds by Messrs. C. G. van Tubergen, jun., at Haarlem.

FORTHCOMING EVENTS.

October 1.—Glasgow and West of Scotland Horticultural Society's Meeting.

October 4.—Blackburn Horticultural Society's Meeting.

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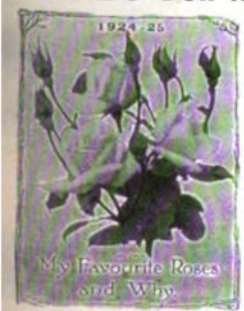

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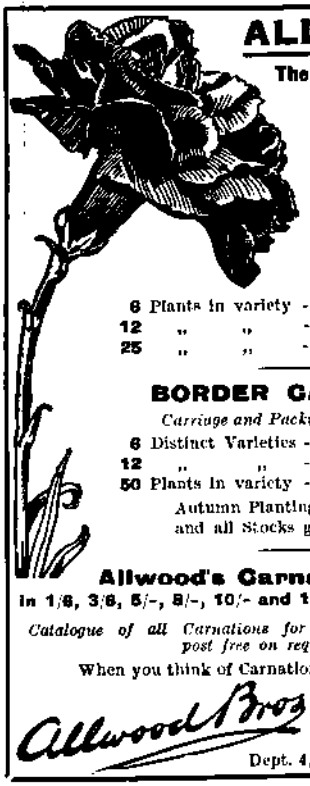

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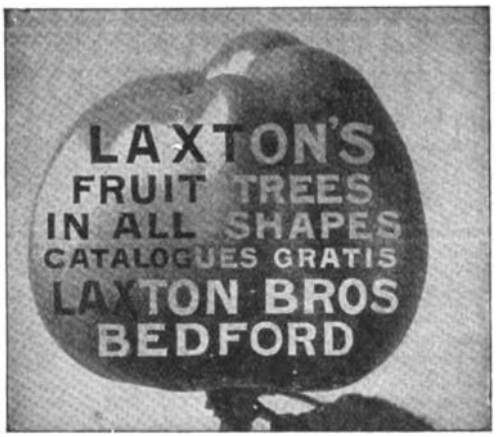

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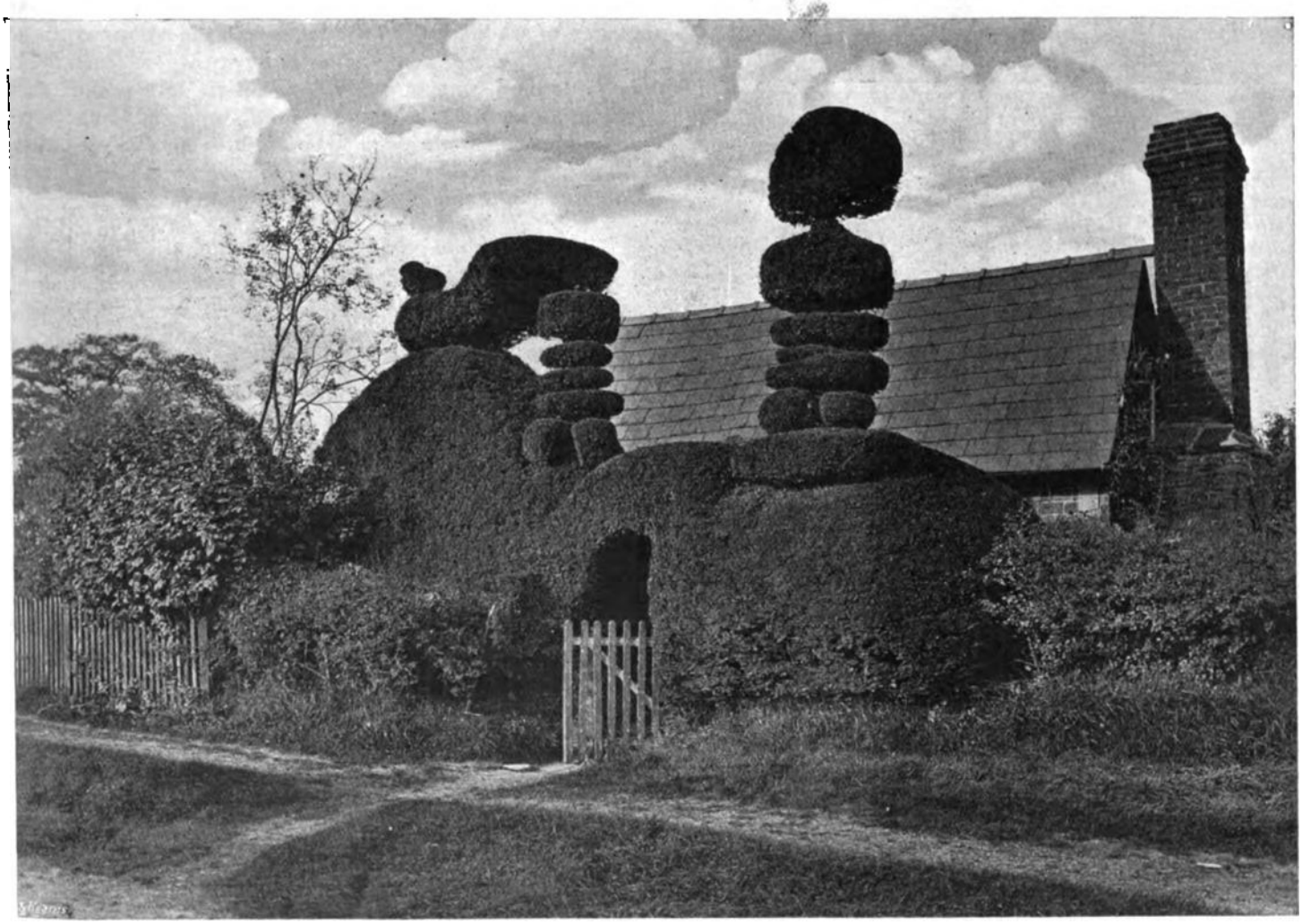
VOL. LXXXVIII.—No. 2759. OCTOBER 4, 1924



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THE ROYAL HORTICULTURAL SOCIETY

ON other pages in this issue will be found a report of the Holland Park Show of the Royal Horticultural Society. There is no doubt that this is one of the most successful of the many brilliant shows which this, the foremost horticultural society in the world, has staged. These shows are, no doubt, its great strength, and it is owing to their popularity that the membership of the Society has increased so rapidly as it has done. On all sides I heard praise of the executive of the Society, and it is not an overstatement to say that the arrangement of the exhibits could not have been bettered. The centre exhibit of Mr. MacDonald's lawns was low on the ground, and then the tiers rose in stages until they culminated in the magnificent tall groups of roses on the one side of the hall and Michaelmas daisies, carnations and hardy plants on the other. The trade, also, deserves every credit for staging such fine groups in such a cruel season as this.

In the past there has been some criticism by Fellows of the R.H.S. that there have not been sufficient classes open to amateurs at the shows held by the Society. Lord Lambourne, the president, announced at the Press luncheon before the show that the R.H.S. was going to hold a special show for amateur exhibits with a large range of prizes in June of next year. In the next issue we hope to publish a full schedule of the different classes, and we sincerely hope that the number of exhibits will be large, for it is by such means as this that the popularity of the Society and of gardening generally will increase.

It seems a pity that with the increase of efficiency at the shows complaints should still be coming in about Wisley for Wisley should come a close second to the shows as regards importance. Several Fellows of the Society mentioned at Holland Park the fact that Wisley was not open on a Sunday. Most Fellows are hard at work during the week and even if they are simply visitors from the country they have often only Sunday in which to examine Wisley at leisure, and yet its gates are rigorously barred. One member of the trade, who to my own knowledge has presented the garden with dozens of plants and who lives a good many miles away, wrote to Wisley to ask if he could see the garden on a Sunday as he was a busy man and it was his one free day in the week, only to meet with a curt refusal; while several amateurs also expressed disgust at the fact that they had been refused admittance. The obvious answer is that to open on a Sunday would cost the Society a certain sum of money either in overtime or in wages for extra staff. This, however, should weigh little with the Council; it would be different if the Society was not in such a flourishing condition financially.

It is common knowledge that affairs have not been running quite as smoothly at Wisley as the Council would like, which is not to be wondered at when Wisley is not under control of the head office nor the head office of Wisley. It is also common knowledge that several months ago a committee of eminent botanists was asked to report upon the situation. No doubt many Fellows of the Society will want to know when the report is going to be published; perhaps the Council will tell us. After all, the status of the Council is very little different from that of directors of a public company who are responsible to the shareholders, and yet they are dictatorial in their attitude to the other Fellows of the Society. The *Times* recently called a recent communique of the Cabinet, in which the only announcement was "the consideration of miscellaneous business," "a classical production." It is about on a par with the information that is given to Fellows of the Society about Wisley. Here is a garden in a good situation, with every chance that money and brains can give, in a position where it is ignored by most Fellows of the Society—and what a chance! Gardeners could be shown everything that appertains to gardening done in the most perfect fashion. It would certainly help to increase the membership of a great Society by several hundreds a year. E. H. M. C.

IN OUR NEXT ISSUE WILL BE FOUND:

THE LARGE-FLOWERED HYBRID CLEMATISES, by A. G. Jackman.

THE CULTIVATION OF HYDRANGEAS, by J. Fraser.

TOPICAL NOTES ON GREENHOUSE APPARATUS, by A. J. Macself.

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MICHAELMAS DAISIES

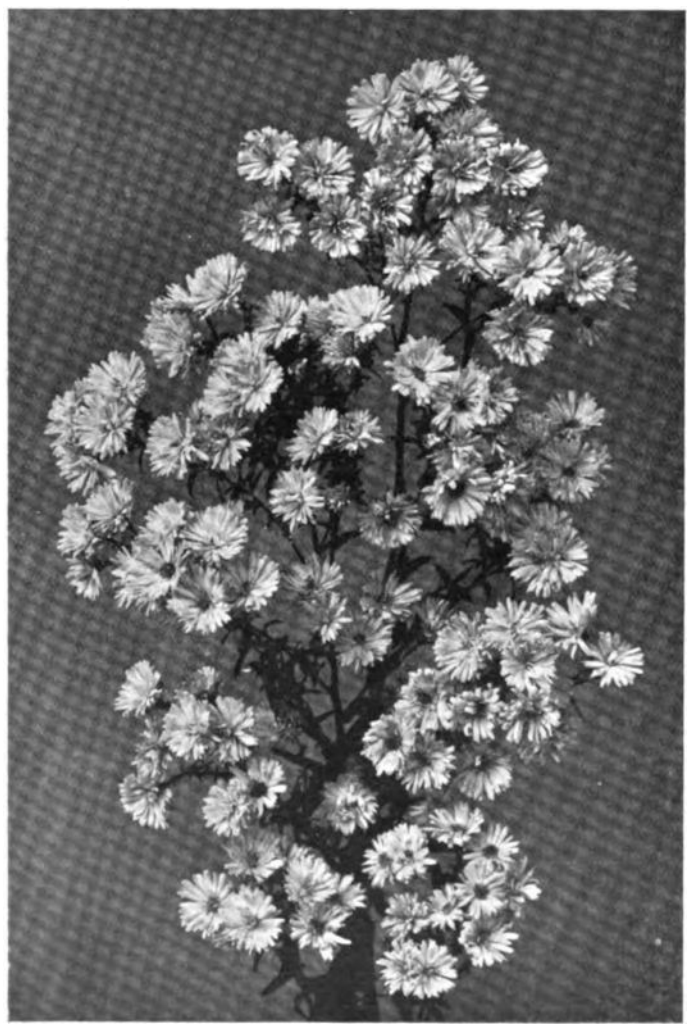
FOR GENERAL HARDINESS AND BEAUTIFUL COLOUR EFFECTS IN THE AUTUMN, MICHAELMAS DAISIES ARE UNSURPASSED.

LIKE Ruskin who once wrote on "Sheepfolds," so Clarence Elliott has written on "Sinks and Pig Troughs." In addition to this, the last-named gentleman has issued a capital catalogue of alpine and herbaceous plants, which I here refer to for the undesigned compliment which he pays the Michaelmas daisy family by excluding it, with the exception of a few species, from its pages, and issuing for it, as only befits its merits, a special list. He favours Mr. Ernest Ballard's productions, but remember

> There are not only Ballard and Jones;
> There are also, friends, Beckett and Bones.

We all have preferences. All that has been written and believed in the past about the sympathy and antipathy of plants may be all moonshine; not so the eternal sympathy and antipathy between individual men and women and certain plants. Why could not Anne, wife of Louis XIII, bear the scent of a rose? Why did Mrs. Siddons have her gloomy walks always edged with one particular purple pansy and no other? Why am I drawn in a special way to Michaelmas daisies? These are rather hard nuts to crack. Perhaps what drew me first of all to Michaelmas daisies was their variety, their hardiness and their friendliness. Of course, I cannot say that I have equal regard for every type and every individual. I have my preferences as I suppose everyone else has. This is why nothing will be said about double-flowered varieties or the Novæ-Angliæ section. Let some wholehearted admirer of these put pen to paper and tell us about them. I do like varieties that keep open in normal English weather and that display clean-cut, round, yellow centres.

I suppose we ought to try to get out of the way of talking about Michaelmas daisies and try to think of them as asters, but we probably never will: for a very similar convention holds good to that in the daffodil world, where the word narcissus is usually appropriated to the poets and tazettas, and daffodil to the rest of the family. Here, aster is usually taken to refer to the dwarf species and Michaelmas daisies to the taller and later-flowering hybrids. These, again, have sectional names, such as Novi-Belgii, Novæ-Angliæ, cordifolius, ericoides and the semi-dwarf Amellus. The newer species are very interesting. I have one from Mount Everest, Porteri, Pattersoni, sub-cœruleus, yunnanensis and Farreri. I wish this last named had flowered, for Farrer's own description raises a very pronounced longing to see its flowers as well as its leaves: "The most glorious aster of the year, a flowering tazzled person of a thousand narrow rays of richest violet; flopping from a central disc of vermilion-orange, a species new to cultivation and the finest yet discovered." Narrow purple flopping petals hanging from a rich brown centre with circles of yellow made of the open flowerets are characteristics of yunnanensis. It seems to be free-flowering, but there is only one bloom on a stalk. It grows about 18ins. high. Sub-cœruleus might be called a glorified alpinus. Porteri forms a dense bush of narrow leaves, slender stems and daisy-like flowers. It grows about the same height as acris nana, and the two might very well be judiciously planted together, or possibly the taller acris might be substituted for nana. Both the two acrises have very narrow purple petals. In our part (Midlands) they both begin to flower about mid-August. Then comes, roughly speaking, the time of the flowering of the Amellus section. Rudolph Goethe is certainly one of the finest purple varieties and has a better habit than King George. Perry's Favourite is a very nice pink, but *the* pink that I have seen has the uncouth name of Wienholtzii.



NANCY BALLARD, A VARIETY OF MERIT AND NEAT HABIT, WITH SEMI DOUBLE FLOWERS IN SHADES OF CRIMSON MAUVE.

I now come to what I have called Michaelmas daisies proper, omitting all the Novæ-Angliæ and all the doubles among the Novi-Belgii. I cannot deny that these have their uses, but it made me think furiously when I chanced to hear a zealous salesman pressing a double white on a possible customer because it was so excellent for filling in the bottoms of wreaths! Doubles are, of course, passable in a border if all that is wanted is a splash of far-off colour I think of Bacon's sarcasm about the knots filled with coloured earths. "They be but toyes, you may see as good sights many times in tarts." It is the feeling that when you come to close quarters you will find beautiful flowers instead of mere blobs of colour that makes the whole difference between tart-like and natural beauty. Among the earlier varieties to flower and which I can recommend as being very good are Pioneer (pink), Lavender (pale lavender), Purple Emperor (deep purple), Grey Lady (grey), Bee's Blush (pale pink), Lady Lloyd (rose) Pink Perfection

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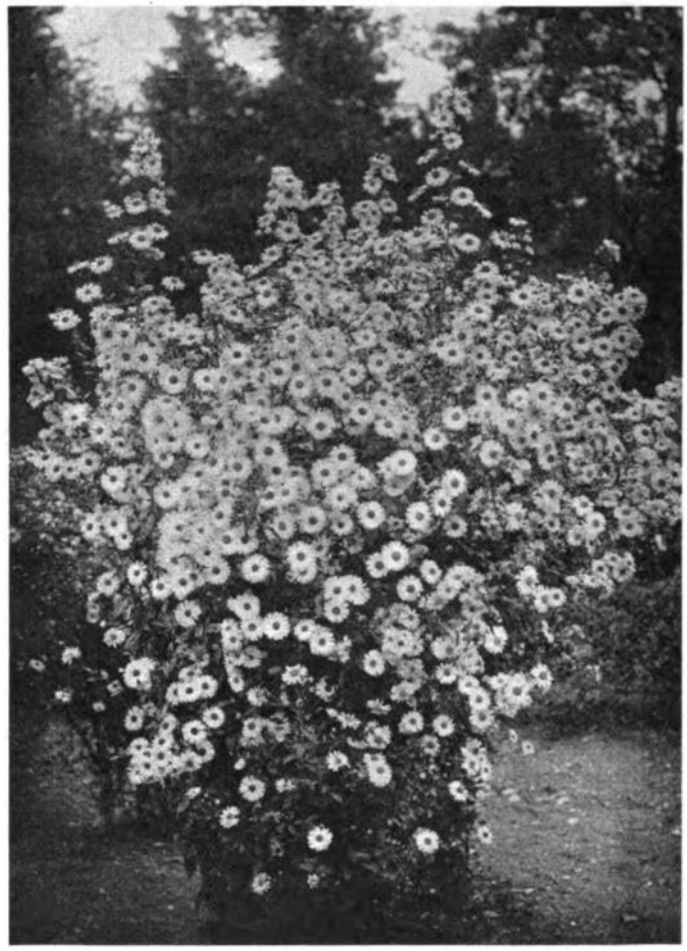
(rose pink), Edith Goodwin (blue-mauve), King of the Belgians (pale mauve), Diana (lilac), Perry's White (white) and Phyllis (pale lavender with a large yellow centre). This last was sent me along with a few others to try. It is a decided acquisition. I like its pretty fresh look and the abundance of its flowers. It has been raised by Mr. T. Bones. My late-flowering dozen are as follows: Nancy Ballard (crimson-mauve) Climax (blue-mauve), Comeliness (pale mauve), Maidenhood (white), Bianca (white, branches like fir tree branches), Louvain (pink), Queen of Colwall (very large pale mauve), Brussels (lavender), Mons (rose), Blue Gem (one of the bluest), Gladys Donellan (lavender) and Sunset (rose). There are a number of species in cultivation, but they are not very often offered for sale by our leading nurserymen. Might I suggest the following for a trial: Tradescanti (very late, white), ericoides diffusus (white), puniceus (blush) and Thomsoni (mauve). So much for names of varieties and species. I now come to matters pertaining to the growth and management of the plants. Where it can be conveniently managed, I like to see a *wide* border filled with nothing but Michaelmas daisies. They never look better than when they are massed together. It is an ideal to aim at, and it is worth a good deal of trouble to carry out. Large beds surrounded with grass are even more pleasing. I always grow as many as I can on single stems. They branch out and grow strong and big, and bear much finer flowers than if the clumps are left undivided. It is only fair to say that there is one drawback, apart from the increased labour which this dividing up entails. When the plants are almost fully developed the side branches are liable to be broken by either wind or heavy rain. I have never been able to devise any plan to make them safe without putting as many, if not more, ties round them than are put round big undivided clumps. Can any reader help me out of this difficulty? Whatever may be thought about this drawback, never can I cease advocating the adoption of taking cuttings annually. There is one reason which outweighs any number of drawbacks. It is a wonderful way of keeping stocks or collections healthy. Like many families of plants which are grown in large quantities Michaelmas daisies have developed a special disease. It shows itself first of all by the gradual yellowing of the foliage from the base upwards, and in the end the whole shoot becomes withered. Providentially, the young new shoots are not affected, and if these are separated and put singly into small pots when growth is beginning, about February or early March, and grown on in cold frames, healthy plants are the result. It is only a small percentage that are otherwise.



A NEW LATE FLOWERING VARIETY, ASTER CLIMAX

Very little need be said about soil. I feel sure it must not be too good. If it is rich, distorted flowers are too numerous. Mildew is a bugbear. I wish I knew exactly what it is that causes it. Can anyone say for certain? JOSEPH JACOB.

A SELECTION OF ORCHIDS

BY GURNEY WILSON.

THIS IS A TIMELY ARTICLE ON ORCHIDS WHICH MAY BE GROWN BY AMATEURS IN AN ORDINARY GREENHOUSE. TO MANY THESE FASCINATING PLANTS MAY HAVE APPEARED TOO DIFFICULT OF CULTIVATION.

IN making a selection of orchids that can be easily grown by the amateur in an ordinary greenhouse, care must be exercised to exclude those requiring a considerable amount of heat, for in these days of economy everybody desires to keep the fuel bill within reasonable limits. Moreover, as there are so many beautiful orchids that succeed admirably with cool-house treatment, and an almost similar number that require no more than a moderate winter temperature of about 60°, it will be seen that amateurs have ample material from which to make a varied selection.

While it is possible to send an order to one of the trade growers for a definite number of plants to fill a house of stated size, leaving the selection to him, it is a far more satisfactory and interesting procedure to select personally the individual plants, picking out those that are particularly attractive to one's taste, for it must be admitted that not all amateurs agree as to what constitutes the finest kind in each respective section.

With regard to species, of which the fixed characters are well known, or at least can be ascertained from one of the text books, it is oftentimes the cheaper method to purchase the plants during the non-flowering period. But with hybrids, the flowers of which generally display a considerable amount of variation, it is much the better way to procure these in flowering condition, unless one is willing to purchase a speculative lot of unflowered seedlings and take the chance of discovering something really fine among them when they yield flowers for the first time. In buying unflowered hybrids consideration should always be given to the parentage, although a certain amount of experience is necessary before being able to make any prophecies as to the results. Consequently, it will be found that higher prices are asked by trade growers for unflowered hybrids derived from parents of recognised merit.

When one considers the attractions of cypripediums, more especially in the autumn and winter months, it is not surprising to find that the majority of amateurs commenced

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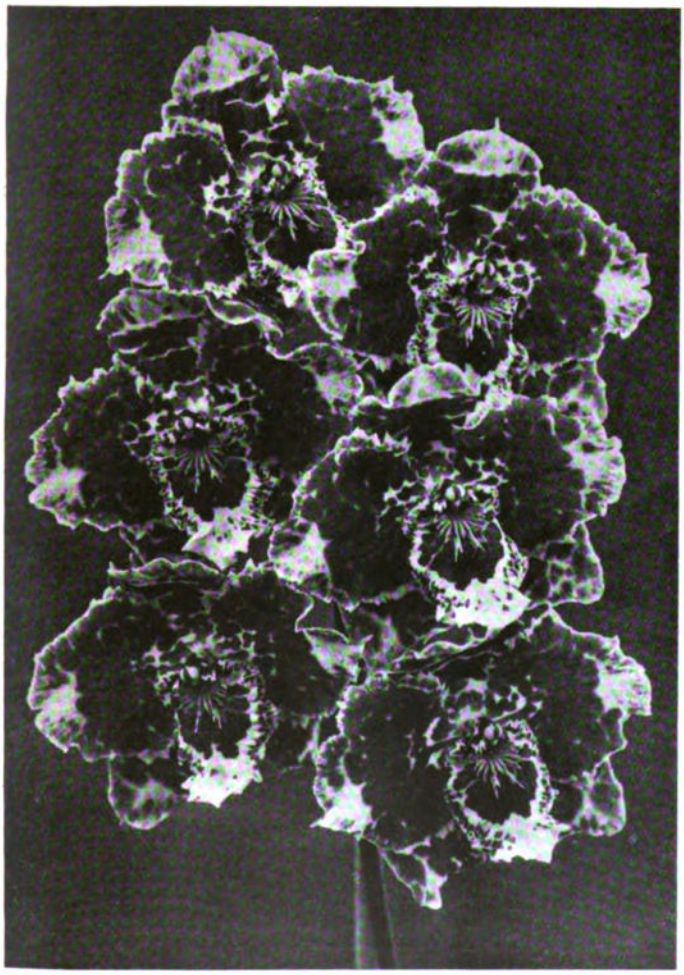
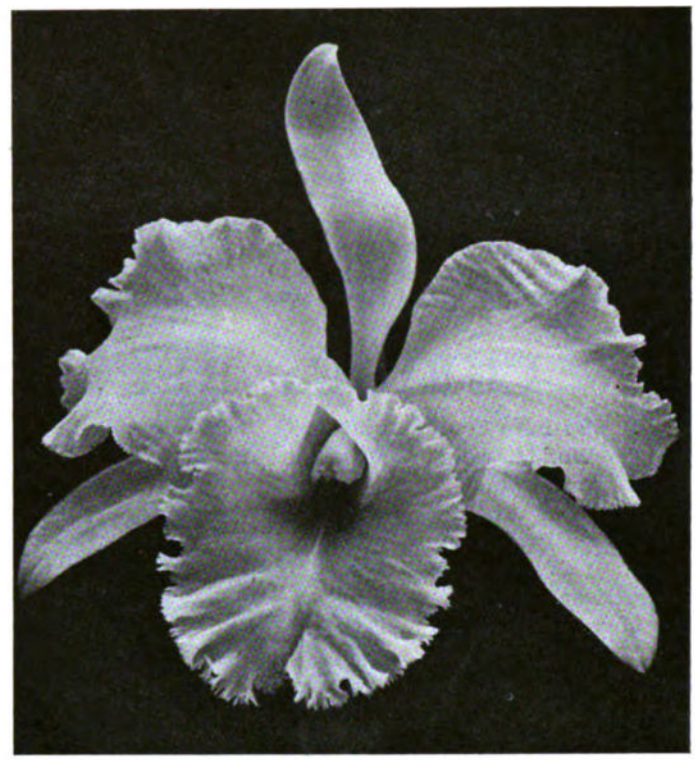
the formation of their collections by the acquisition of a dozen or more of these plants. Taking species first, there exists in C. insigne one of the easiest of all plants to cultivate; anyone can obtain satisfactory results by giving it similar treatment to that accorded maidenhair ferns. Although numerous varieties of C. insigne can be obtained, they may nearly all be put on one side in favour of the Harefield Hall variety, which is a giant of its kind, and C. insigne Sanderæ, a beautiful form yielding flowers of a clear primrose yellow colour that never fails to please.

Of cypripedium hybrids there are thousands to select from, yet none has obtained greater popularity than C. Leeanum (insigne × Spicerianum). Most of the hybrids that include C. Fairrieanum in their parentage are very pretty, and many vigorous kinds have been raised through the use of C. villosum. As a long list of botanical and fancy names is of little use to the commencing amateur, it is advisable for him to select the plants when in flower, and for this purpose the autumn months are specially favourable. When circumstances do not permit a higher temperature than 50° being maintained in winter, care should be taken to select only the cypripediums that readily submit to the cool-house treatment, for some of these plants are not seen at their best unless a minimum temperature of 55° is available.

Cattleyas require the warmth of the sun in summer and a minimum winter temperature of 60°, consequently it is not advisable to attempt their culture when only a cool-house exists. Collections of days gone by were largely composed of species, many of which are difficult to cultivate successfully for any prolonged period. On this account the much stronger constitution owned by the hybrids in this section has brought them into prominence, and they now enjoy no small amount of popularity. For autumn flowering nothing surpasses Cattleya Fabia (aurea × labiata), of mauve-purple colour, and C. Hardyana (aurea × Warscewiczii), of large size and possessing a richly coloured labellum. In both of these,



A TYPICAL SPIKE OF ODONTOGLOSSUM.



BRASSO-CATTLEYA CLIFTONIA ALBENO.

hybrid varieties having pure white sepals and petals can now be obtained, thanks to the enterprise of more than one trade grower.

Owing to the continuous demand for an easily-grown orchid, lælio-cattleyas have been raised in immense quantities. Of the many hundreds of different combinations that have been made between the various lælias and cattleyas, selections may be made that will yield flowers during any desired period of the year. For spring time L.-C. Aphrodite (L. purpurata × C. Mendelii) has long been popular, and so also has L.-C. callistoglossa (L. purpurata × C. Warscewiczii); in fact, almost all hybrids containing L. purpurata in their parentage are noted plants for strong constitution. In the autumn months an equally varied selection may be made, the colours seen in the sepals and petals ranging from pure white to the darkest purple, while that of the labellum is generally of a much richer shade.

Brassavola hybrids consist of numerous combinations of Brassavola Digbyana with the various lælias and cattleyas. They are known respectively as brasso-lælias, brasso-cattleyas and brasso-lælio-cattleyas. Although the addition of B. Digbyana is responsible for an increase in the size of the flower, its chief inheritable character is the deeply fringed edge of the labellum, an attractive feature that is more or less perpetuated in the resulting hybrids. Generally speaking, insufficient colour is the only fault witnessed in brassavola hybrids.

Dendrobiums are fast regaining their former popularity, mainly because their cultural details are now better understood. They are found to grow equally as well in a much lower temperature than our forefathers thought necessary. Imported plants are less frequently seen. In their place many beautiful hybrids of the nobile section have been raised. These plants are particularly adapted to the conditions of an amateur's greenhouse, requiring but little attention during the winter months—their resting season. Activity of the flower-buds commences early in the New Year, and a continuity of bloom may be obtained by giving to a few plants at a time slightly more warmth and moisture.

Although the odontoglossum genus has long been a favourite, and one in which record prices have been made for varieties of outstanding merit, it is only during comparatively recent years that hybrids have been produced in anything like sufficient quantities to enable them to be sold at a figure within the reach of the modest amateur. They require essentially cool-house treatment. In fact, in the best of summer weather it is oftentimes a matter of difficulty to keep the

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temperature sufficiently low. However, any greenhouse having a minimum winter temperature of 45°, with a few degrees more during the daytime, will yield a welcome supply of delightful flowers, such that as regards elegance and beauty but few other genera can approach.

Odontoglossum crispum will always hold its own as one of the best of useful species, the more so as it has been raised in this country from parents selected on account of their fine floral qualities as well as for their vigorous constitution. On this account the days of imported crispums are never likely to return. Hybrids exist in thousands, and of such floriferous nature that the whole of the genus seems to have been changed from one of difficult culture to that of comparative ease. Here, again, a long list of names would indicate nothing as to the respective plants' true qualities; all that can be said in general is that the genus is eminently adapted to the conditions of an amateur's greenhouse, as well as to the owner's powers of maintaining an orchid collection in first-class style.

It is odontiodas that have added so many pretty tints of scarlet and red to the cool-house section. They have been produced mainly by crossing various odontoglossums with Cochlioda Noetzliana ,and as subsequent crossings reach the flowering stage it is seen that the limits of colour schemes have by no means as yet been reached.

CURIOUS RELATIVES OF PRIMULAS

ALL who have read Farrer's book, "On the Eaves of the World," will remember his excitement on finding a member of "a strange race of primulas that are hardly primulas at all." This was Omphalogramma (primula) viola grandis. He says of it: "Before the leaves unfold to their full development spring up the sturdy fleshy stems, each one of which unfurls one solitary huge flower of rich purple, with a prognathous profile and a throat of quite ridiculous length." This is a very fair description, although not exactly flattering. For many years botanists have been doubtful where to place these odd but beautiful plants. Sometimes they have been placed as a section of the primulas, but at the present moment I believe that they have been segregated in a genus by themselves called omphalogramma. They are all noticeable for their solitary flowers, exceedingly large for the size of the plant, of a deep blue-purple or violet colour, sometimes with a white or yellow throat.

OMPHALOGRAMMA VINCÆFLORA GROWING WILD IN YUNNAN.

O FARRERI, PERHAPS THE FINEST MEMBER OF THE GENUS, WITH LARGE VIOLET-PURPLE FLOWERS.

At present the genus consists of ten or possibly eleven species, O. Delavayi, O. Souliei = P. Franchetii = P. Engleri, OO. vincæflora, Coxii, Farreri, Forrestii, viola grandis, elegans and minus, all from China or Tibet, and O. Elwesiana from Sikkim. Of these Delavayi, vincæflora, Elwesiana and Farreri have certainly been in cultivation in this country, but they are such tricky and difficult plants that it is impossible to state how many plants exist at the present moment. Indeed, I should hesitate to mention them except that O. Farreri has grown, flowered and is seeding at the present moment in the Royal Botanic Gardens at Edinburgh, which gives a faint hope that we may yet be able to conquer this fascinating genus and be able to coax it to grow in our gardens with comparative ease. Unfortunately, as a rule they appear to be bad seeders, which does not help matters; on the other hand, as will be seen from the illustration on the opposite page, when they do consent to seed the capsule is a noble affair even more out of proportion to the size of the plant than the flower.

After seeing OO. Farreri and Coxii growing in their native habitat and after examining the descriptions of the locality of other members of the genus, I should say that they are exceedingly meticulous on the question of shade, and this has probably been the difficulty in cultivating them in this country. As Sir Isaac Bailey Balfour said at the last primula conference, they thrive best when well flooded with water under ample drainage conditions, although I am not so certain about drainage, for O. Farreri certainly grew in exceedingly marshy ground.

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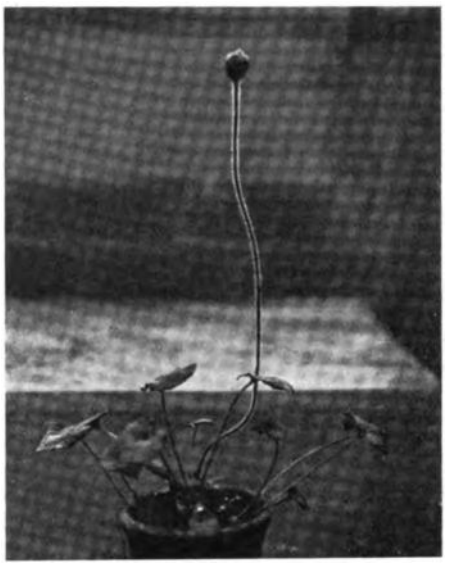
At any rate, water is a necessity. On the other hand, all of them, with the possible exception of O. minus, appear to require shade of a peculiar quality. Perhaps I could explain my meaning by detailing the exact situation in which Farrer and I found OO. Farreri and Coxii. Farreri we first found under an overhanging rock with water dripping from the top and a constant seepage underneath. It thrived inside the drip in rather rich peaty soil in a constant state of wet. Later we found it on the borders of marshes always within the first 3 yds. of bamboo creeping down to the marsh edge. O. Coxii was found on rather more rising ground among the thin bamboo and in a constant state of moisture, but, although growing in close proximity, they never intruded on each other, which may prove that Coxii requires better drainage—but Coxii is not in cultivation and is not nearly such a fine plant as Farreri, so his requirements do not matter. The interesting fact is that they invariably faced east and in no case out of several hundreds of plants did we find one exposed to the west. On the first occasion



A WELL-FRUITED SPECIMEN OF O. FARRERI AT THE BOTANIC GARDENS, EDINBURGH.

O. Farreri reposed within 6ft. of the ridge facing east; we searched the other side thoroughly but never a trace. It is obvious that this position was not sought to escape the south-west monsoon, for it would be impossible to imagine a moister place than that in which we found them. The only reason for this behaviour that I can think of is that they strongly object to the evening sun, with the consequent dry atmosphere. If this is so, it might be worth trying them on the edge of boggy ground in a soil mostly made of peat overhung with bushes and not exposed to the west. One of the obvious difficulties would seem to be our warm and damp winter climate, which rots the crown of the plant. The only thing is to place a pane of glass over the top of the plant, which will prevent moisture lodging in the crown and thus helping decay. It will be seen from Mr. Forrest's photograph that O. vincæflora grows in a mixture of bracken and dwarf scrub, no doubt a situation similar to that in which we found Farreri. It is to be hoped that these beautiful things may be coaxed into more general cultivation. E. H. M. Cox.

OLD COTTAGE GARDEN PLANTS

WHICH STILL HOLD THEIR OWN IN FACE OF COUNTLESS NEW VARIETIES AND IMPORTATIONS INTO OUR GARDENS.

AMONG the great variety of plants on the market to-day there are a few notable old-world plants which still hold their own against the countless new varieties that are finding their way into cultivation. There are also many good old plants that are now very rarely offered, and some, I daresay, are not offered at all. Old cottage gardens are extremely interesting from the plant collectors' point of view, as it is possible also to find a good new hybrid that has cropped up and remained undisturbed, the value of it never being suspected. The most interesting gardens are those situated in remote parts of the country, inhabited by hale and hearty old people who have always taken a pride in their garden. It is in these gardens we expect to find large fine clumps of the Madonna lily (Lilium candidum) and the scarlet Turk's cap (Lilium chalcedonicum), not forgetting LL. croceum, testaceum, Martagon, etc.; and where an edging of the garden is made of aged pieces of the now rare Primula auricula, old red dusty miller, a plant of great merit, with its fleshy leaves covered with farina, presenting a white appearance, and large heads of flowers of a quaint brick red colour. And again, there is the old yellow dusty miller, this being a yellow version of the preceding item and also scarce in general collections. But where is the beautiful Primula nivalis (of gardens), known now as P. pubescens alba, with its large snow white heads of blossom? Practically extinct, unless it is in some old Scottish garden, where these plants thrived so well. The primulas referred to are splendid for cool positions in the rock garden, and equally pleasing, if not more so, for the alpine house.

The gold-laced polyanthuses, in all the various forms and colours of brown and gold, are also old-world flowers seldom seen nowadays, but they are quite pretty. Old-established clumps of hepatica, that give us their welcome single and double flowers in January and February, in many shades, are among the best plants we are apt to come across in the old gardens: I daresay the finest old specimens of rosemary (Rosmarinus officinalis) are to be seen against the walls of some old cottages, where they have grown many feet high, and their stout aged stems, clothed with green lichen, make them look all the more picturesque. Then there is the double red sweet william, a very old-fashioned plant, but quite a good one in its way; and also may be found, occasionally, robust old clumps of the double rocket, Hesperus matronalis fl. pl., which is so beautifully fragrant in the evening, and of course makes a fine border plant.

We may look to the cottage windows to see them showing off wonderful old pot plants of geraniums of various sorts, ivy-leaved geraniums and pelargoniums, many of which no doubt are being sought for at the present time. Usually they are seen tied to the ladder arrangement that seemed to be so popular a device in former days; and pots, with curtains of the now scentless musk hanging from them, often adorning a window sill, or by treating it as a hanging plant, it would occupy an old-fashioned flower-pot and would dangle on a chain in front of the window. Probably when a piece of musk is found to be scented once more, it will be discovered in some out-of-the-way old cottage. As regards a few that have turned up as new commercial plants, I first refer to Armeria Vindictive, which originally cropped up in a cottage garden and has become extremely popular, as I daresay it is the deepest and richest crimson yet introduced; it also flowers for a long period, which makes it much more satisfactory. It may be used as an edging plant or, where a fine splash of colour is needed in the rock garden, it surely will admirably supply it. Dianthus F. Millard is another good plant that once occupied a corner of a cottage garden in a remote part of Ireland and is now steadily finding favour where it is seen. It is a good doer and bears abundant large double flowers of a quaint red colour. This plant, among many others, including the preceding item, was launched on the market by Mr. Clarence Elliott. Viola gracilis J. B. Taylor is a charming little plant, evidently a seedling of V. gracilis found in a Yorkshire garden. Its flowers are almost white, being very faintly flushed with lavender, borne profusely throughout the season. It is a first-class plant for the rock garden.

Dianthus Ruth Fischer, also brought from a Yorkshire garden, has large pure white double flowers, sweetly fragrant, and has the advantage of a non-splitting calyx. It is of a sturdy erect habit, and good for cutting. F. BARKER.

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THE GREAT AUTUMN SHOW

WITHOUT a doubt this was one of the most successful shows ever held by the Royal Horticultural Society. Every exhibitor, large or small, deserves great credit, for no one could imagine worse weather for producing flowers for exhibition purposes, and yet the quality was above the average.

DAHLIAS.

At last year's Autumn Show, Michaelmas daisies were the outstanding feature; this year they were put out of countenance by the dahlias, and it must be owned that the Show gained greatly in effect by the eclipse of the hardier flower, for the "dim religious light" of the Skating Rink is unkind to delicate tones of blue and mauve.

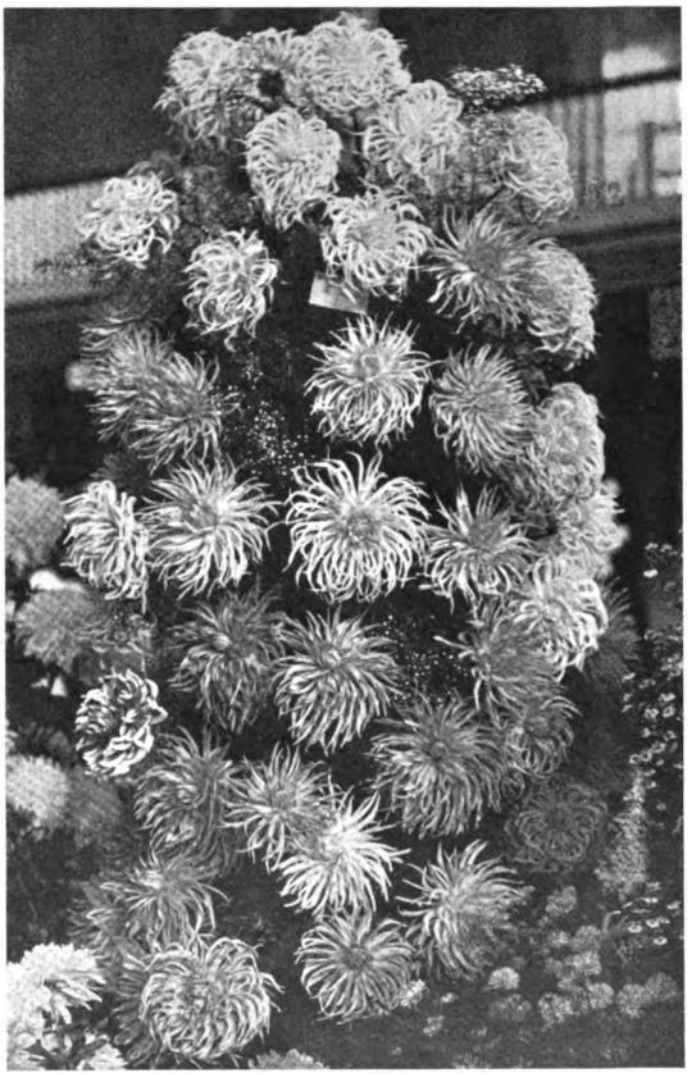
The dahlia exhibits were numerous, and in various ways almost every one was of interest, not only to dahlia "fans" but to all lovers of beautiful flowers. Mr. J. T. West had a very attractive exhibit with a background of large decorative and cactus-flowered sorts and with a great variety of miniature peony-flowered and decorative (garden) singles in front. All tastes were catered for with these, but the following were among the most attractive: Lucius, a brilliant orange decorative single; Helen, rose and yellow; Fashion, rose, crimson and bronze; Lemur, with the strong colouring and very much the appearance of Anemone fulgens; and Rainbow, coppery rose with crimson oculation; the four last belong to the miniature peony or "charm" section.

Mr. J. B. Riding and Messrs. Carter Page and Co. each had representative groups. The most attractive sort on Mr. Riding's stand—at least, we thought so—was Marianne, a delightful camellia-flowered variety of mid-orange colouring, but Lucius was again to the fore, and the well named Crimson Glow, a miniature peony, is first-rate. In Messrs. Carter Page's group we noted a really excellent garden cactus variety of orange-buff colouring called Johannesburg—a sordid name for a beautiful flower, W. Goethe, rose, shaded ruby, belonging to the same section; the well known decorative Orange Boven; and Chamois Rose, a pretty pompon sufficiently described by the name.

Messrs. D. Prior and Son had a wide range of types and colours in a comparatively small space, and the old-fashioned show and fancy types seemed to be attracting favourable notice, as well as their more elegant miniatures, the pompons. Of the last named, Tommy Keith, crimson tipped white; Raider, sulphur; and Daisy, fawn, seemed particularly dainty, while The Maid, a fine white camellia-flowered, would be useful where white flowers are in demand. The prettiest flower on this stand, however, was the miniature peony, Picture, with the ray florets pink at the tips shading to buff as they near the centre, where there is a scarlet zone.

Messrs. W. Treseder and Co. brought a goodly collection from Cardiff, from which we selected Carrie (decorative cactus), orange; Raider (small decorative), orange, shaded ruby; Bacchus, an old but excellent orange pompon; and Vida, an orange-buff camellia-flowered sort.

Mr. Charles Turner's exhibit would have stood spacing out somewhat; some of the most attractive sorts could easily have been overlooked. Marianne we have already noticed; and Crimson Flag, quite the best of the camellia-flowered sorts, we noted in several other places; but a pair of good pompons—Cyril, crimson, and Jessica, gold just touched with crimson—we only noted here, and the same may be said of Trixie, a scarlet miniature peony; Rosie (rose) and Arcturus (fawn zoned scarlet), stars; Dainty, also a star, but very much lighter and more "spidery" than this class usually is, and admirable for table decoration, the colour being rose and gold; Mme. Poirier, a distinct purple and white collarette; and Glut, an atrociously named but useful scarlet decorative. Ladas is the most attractive collarette variety we have seen so far, the colour bright scarlet-crimson and the "collar" of the same tone, but tipped with gold, and the anthers bright gold. Ada Finch—tucked away almost out of sight—is a really beautiful primrose anemone-flowered variety.



A PILLAR OF CACTUS-FLOWERED DAHLIAS IN MESSRS. DICKSON AND ROBINSON'S EXHIBIT.

Messrs. J. Cheal and Sons' exhibit occupied rather less space than usual, but they had many fine blooms of cactus varieties displayed on boards, as well as an array of exhibition and decorative singles, pompons and, of course, the star varieties which they have made so popular. A few good exhibition singles noted here are Hilda, orange yellow and white stripes; Ariel, orange and scarlet; Beacon, citron yellow; and Mary, rose shades. Among the pompons the old rosy purple Nerissa stood out; and Ruby and Darkest of All would have admirers. Mrs. Bigg is an excellent fawn-toned decorative single.

Mr. H. J. Jones had one of his usual big scale exhibits of decorative, show and pompon varieties. This was awarded and well merited a "standard cup"—he won another for the adjacent group of Michaelmas daisies. Almost every basket was either a study in two colours or in two tones of one colour, and all were successful. Surprisingly attractive was a basket of the two show varieties, John Pendereth and Goldfinder, the former orange bronze, the latter soft golden yellow. A decorative (rather out-sized) pompon sort of a vinous purple tone paling to the centre of the globe is novel and pleasing.

Messrs. Dobbie and Co's fine exhibit was especially strong in collarettes, and of these the pick were Glencoe, a bold-petalled crimson; Glen Sannox, similar to the scarlet Novelty, but with only one row of petals, and of better form; Arran, purplish rose and white; and Scarlet Queen, orange scarlet. The well named Dazzle, a miniature peony, and the old orange pompon, Bacchus, were also noted.

For the rest, Messrs. Dickson and Robinson had three good pillars of the decorative, single and cactus types among their Michaelmas daisies; Messrs. Godfrey and Son included some good pompon and other types in a mixed group; and Messrs. Ladhams had quite a lot of a new and wonderfully free-flowering anemone-flowered variety called Attractive. This grows about 2½ft. tall and is of that purplish crimson colouring which would be very attractive in evening light.

ROSES

Not only were roses shown in large quantities but the blooms were so fresh and good that they were the most important feature of the Show. In quality they were fully equal to those at the recent Autumn Show of the National Rose Society.

Although there was a fairly large number of varieties to be seen—nowadays every rose seems to be as good in the autumn as at midsummer—Betty Uprichard, of brilliant orange-shaded carmine colouring,

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was the rose of the Show and appeared in all the principal collections. W. F. Dreer, which was sent from America somewhere about the same time that Betty Uprichard received the N.R.S. award, was then of quite moderate appearance, but lately it seems to have become acclimatised and to disclose its real beauty. As shown by Messrs. McGredy and Son, Mr. T. P. Edwards, Messrs. D. Prior and Son and others it is quite a desirable variety. Its deep golden sulphur tone with just a touch of peach pink is an uncommon colouring. Messrs. S. McGredy and Son also included goodly quantities of their new sorts Eva Eakins and the pink and gold Mrs. Talbot O'Farrell, the rich golden yellow Mabel Morse; Ethel James, a large single stippled pink with a golden centre, is another of their good novelties.

Besides generous pillars of Betty Uprichard and the yellowish Joanna Bridge, Mr. Elisha J. Hicks had a charming arch of Lady Hillingdon. America, which seems destined to be the pink of all pinks, was shown as large, perfectly formed blooms on long stalks. Golden Emblem and Hoosier Beauty were also admirable.

If Betty Uprichard was the rose of the Show, the largest blooms must have been those of Henry Nevard, which Messrs. Frank Cant and Co. had. These were immense, well formed bright red blooms and passing sweet. They made Padre and Hugh Dickson appear to be quite small. The other Cants—Messrs. B. R. and Sons—had a large vase of Mrs. C. E. Salmon, a lovely soft pink large-flowered single. Rosalind, a flattish pale blush cluster-flowered variety with sun-kissed buds, was uncommon and attractive. Mme. Antoine Mari, which was shown in the same collection and also by Mr. John Mattock, is a desirable fully double H.T. rose of blush shading. Isobel, Ophelia and Mrs. H. Brooks as shown by Mr. Mattock were perfect.

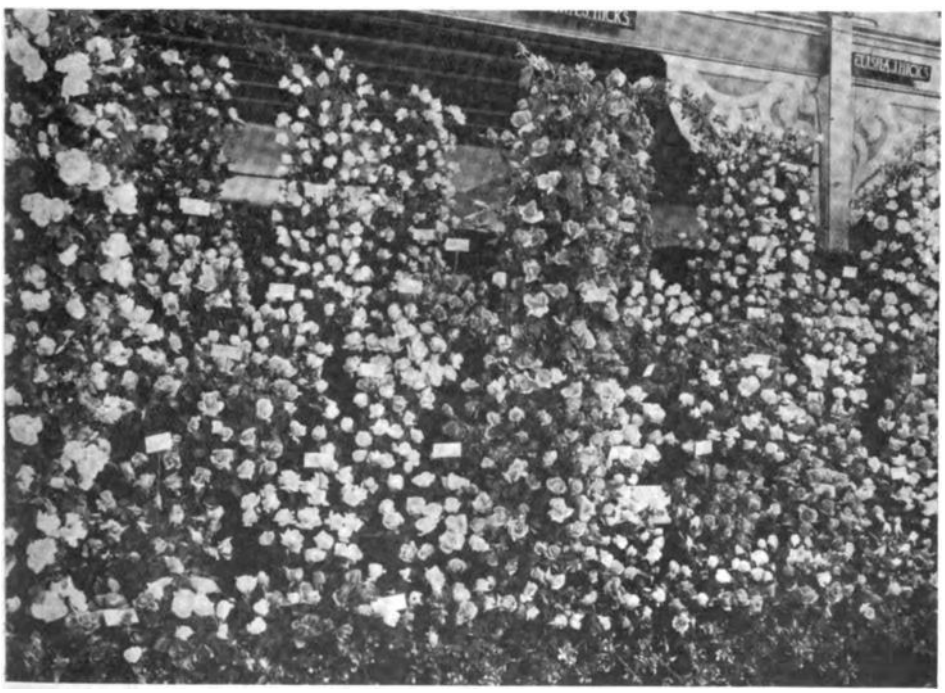
The new cluster-flowered varieties Alice Amos, which has been well likened to a glorified wild rose, and F. Poulsen, of vivid scarlet colour, were shown by Messrs. D. Prior and Son. La Tosca, General McArthur, Los Angeles and Mrs. H. Stevens were also delightful. Besides a lovely stand of Mme. Antoine Mari, Mr. John Mattock showed massed vases of rich glowing blooms of Isobel, Ophelia, Golden Ophelia, Mrs. Henry Bowles and many other desirable roses.

Mr. George Prince always pays due attention to the value of good associations, so that it is a pleasure to inspect his groups. Usually he rather specialises with the fragrant tea varieties, and we suspect that the inclement weather prevented him this time; but the hardier varieties, Golden Emblem, Betty Uprichard, Covent Garden, La Tosca and such were very beautiful.

Emma Wright seems to become even more lovely as the season advances, and this variety was certainly very beautiful in the collection of Messrs. A. J. and C. Allen, who also showed Severine, The Queen Alexandra Rose and Mme. Butterfly in great beauty. A very large collection was finely arranged by Mr. Thomas Robinson, who used nearly all the best varieties. Such rich dark sorts as Col. Oswald Fitzgerald and Etoile de Hollande were prominently placed.

The blush pink roses Mrs. Ambrose Riccardo, Ophelia, Nellie Parker and many other sorts were particularly lovely as shown by Mr. Henry Drew. Messrs. S. Bide and Sons had a quantity of their new climbing Phyllis Bide. The Rev. J. H. Pemberton staged Nur Mahal, Ruth, Vanity, Pax, Cornelia and other free-flowering roses of his own raising. Mr. T. P. Edwards had a good collection in the gallery, where many viewed them undisturbed. Messrs. A. Warner and Son, The Central Garden Supplies and Messrs. Waterer, Son and Crisp all showed good roses. The last named had masses of such valuable sorts as K. of K., Ophelia, Red Letter Day and Covent Garden, with a delightful bordering of many dwarf polyantha varieties.

MAGNIFICENT CLUMPS OF GENTIANS IN MR. CLARENCE ELLIOTT'S EXHIBIT.



GENEROUS PILLARS AND ARCHES OF THE NEW VARIETIES OF ROSES FORMED THE MAIN ATTRACTION ON THE STAND OF MR. ELISHA J. HICKS.

ALPINE AND ROCK PLANTS.

Mr. Clarence Elliott deserves all praise for his most attractive exhibit, which was most excellently displayed. The main items were magnificent clumps of Gentiana sino-ornata and G. Farreri against a background of dwarf Irish junipers. There is little doubt that sino-ornata is proving itself to be an invaluable plant in our gardens, infinitely more so than its paler cousin, G. Farreri.

Messrs. Maxwell and Beale staged a most attractive show of the numerous forms and varieties of hardy heaths. Probably the best colour on this stand was Erica cinerea rosea, which stood out for purity of tone. They also showed alpines, including the neat little Rosa pumila and Erigeron Mrs. F. H. Beale of a fine violet colour.

Mr. Ernest Dixon showed a neat little rock garden design, particularly neat for the small space which it occupied.

Mr. Wood staged a most attractive rock border with fine clumps of Sedum spectabile and Campanula Portenschlagiana. It is difficult at this time of year to make an alpine exhibit attractive, but Mr. Wood succeeded in accomplishing it.

Messrs. Gavin Jones and Ingwersen showed dwarf conifers and alpines in pots, always a good way of making plants look attractive at this time of year, even if only in fol-

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W. H. Rogers and Son, Limited, staged alpines, including Gaultheria procumbens and a very fine spray of Billardiera longifolia crammed with purple berries. This is an invaluable autumn plant and should be much more used in gardens.

Miss Hopkins showed alpines and a blue annual pea, very decorative but of doubtful hardiness.

TREES AND SHRUBS.

Naturally, at this time of year trees and shrubs are practically limited to evergreens and those which have berries or autumn-coloured foliage. Unfortunately, it was still a little early to show berberis with their berries fully coloured—unfortunate, because this is a magnificent year for berries.

On Messrs. Hillier and Sons' stand, Rosa Moyesii hybrid with its flask-shaped fruits was most noticeable. This is an invaluable rose for grace of habit, flower and fruit. Two vines were also attractive, Vitis Coignetiæ var. Thunbergii and Vitis pulchra (flexuosa major), both with that deep velvety bronze colour which makes their foliage so useful in an autumn garden.

Messrs. Cuthbert staged conifers and a sprinkling of azaleas to show their autumn foliage. Retinospora squarrosa sulphurea is an uncommon ornamental conifer with an attractive yellow tinge to its foliage; while Cupressus Fletcheri was also most attractive.

Mr. Arthur Charlton showed a number of trees and shrubs, including conifers and berberis; but what attracted most attention on his stand were his fine plants of Pernettya mucronata alba, with white berries, and P. mucronata Davis' hybrid, with berries tinged with pink. They showed excellent cultivation, for the bushes were crowded with fruit. This, by the way, is a shrub with male and female plants. It only berries well if there is a male plant growing along with the female plants. Cydonia Maulei with yellow fruits was also shown on this stand.

Messrs. Cheal staged two fine groups of useful shrubs for the autumn. Cotoneaster acutifolia and C. Dialsiana were particularly handsome with their large scarlet berries. Ilex Veitchii and Ligustrum Prattii were also much admired for their neat foliage and habit. Mr. Cheal also showed a fine berberis seedling, so far unnamed, with masses of coral berries.

Messrs. Waterer, Sons and Crisp specialised in hollies on their stand. Many attractive forms of the ordinary Ilex Aquifolium were seen, including tortuosa, a variety with curious twisted leaves. Few people realise the numbers of fine variants of the common holly which can give an added attraction to a garden in winter. They also showed fine bushes of Ilex Perryi, a very fine species with smallish leaves and of good habit.

Mr. Notcutt, who specialises in shrubs, had some particularly fine fruiting sprays of pyrus and cratægus on his stand, which only proved how invaluable these shrubs are both in spring and autumn. Pyrus floribunda purpurea and Cratægus coccinea and C. Crus-galli were laden with fruit, while Colutea cruenta was also attractive.

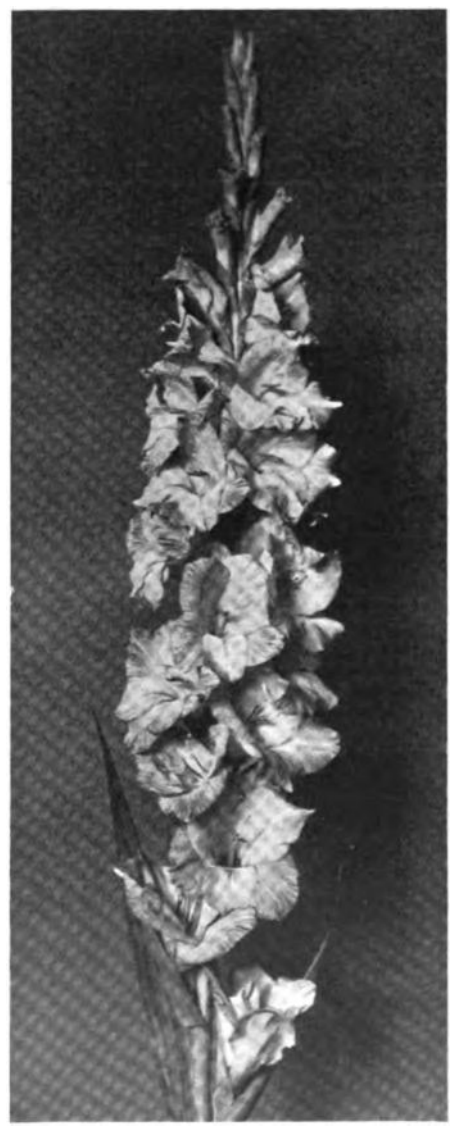
Messrs. Fletcher Brothers showed a fine collection of shrubs and conifers. Among the most noticeable were Grisienia littoralis, Cotoneaster applanata, Taxus baccata Dovastonii and Abies concolor violacea, all well grown and fine specimens.

Messrs. Bowell and Skarratt staged hardy plants and autumn shrubs.

Mr. Reuthe, as usual, had a fine selection of rhododendron species and hybrids on his stand, in addition to hardy plants.

Messrs. Wallace staged a mixed stand of autumn shrubs intermingled with lilies, for which this firm is so famous, kniphophias and Michaelmas daisies.

The best place to see the clematis was from the Music Gallery. There one could look down on the two splendid collections and admire the lovely, large, saucer-like blooms, which Messrs. G. Jackman and Sons and Messrs. L. R. Russell, Limited, grow so well. In the morning of the first day, when rain was falling outside and the light inside was dull, it was the white and the light-coloured sorts that gave one the impression of being the most desirable. One remembered that when the "Evening Garden" correspondence held the readers' attention several thoughtful writers insisted on the value of white and pale-coloured flowers for the late evening enjoyment of the



A FINE SPIKE OF GLADIOLUS SPITFIRE SHOWN BY MESSRS. DOBBIE & CO.

garden, and one agreed with them. Among such varieties were Marie Bousselet (a white flower which has a light lavender bar), Fairy Queen, Mrs. Cholmondley and even the silvery blue Desfosse. But later in the day, when the sun burst through the gloom and flooded the hall with brilliance, the paler varieties lost, for the nonce, their value and the vivid colours were the most satisfying and desirable. Crimson King, of almost transparent "crimsonness," if one may coin the word, was the most gorgeously beautiful of all the many beautiful varieties in the two collections. Even Ville de Lyon, of more solid crimson colour, paled before it. The rosy lavender Comtesse de Bouchard, the azure blue Lady Northcliffe and the dark blue Daniel Durondeau were also very beautiful.

GLADIOLI.

Although the season is far spent, there were many good exhibits of gladioli. Decidedly the best spikes were shown by Messrs. Dobbie and Co., whose exhibit was of "Pedigree Seedlings" of superb quality. A great range of delightful colourings was displayed; the spikes were exceptionally large and the fine "pips" perfectly disposed. It was noticeable that this strain carried more fully expanded flowers on the spikes than is usual—one spike had no fewer than seventeen good blooms open.

Messrs. Austin and McAslan showed many good sorts of high quality. Glory of Nordwijk, creamy yellow; Ivory, L'Immaculée, white; Venus, blush; and the glowing Prosperine are a few examples.

Messrs. R. H. Bath, Limited, had a large collection of particularly good spikes. Cydonia, deep amaranth; Nora, light purple over cream ground; Chris, crimson terra-cotta; Baron Hulot, blue; and Willy Wigmer, white with crimson blotch were the pick of the large-flowered sorts; while Alice Tiplady, L'Orillon and Topsy, orange shade primulinus hybrids, were all of great value.

Messrs. Lowe and Gibson staged a number of uncommon seedlings, both of the large-flowered and the primulinus types.

Mr. A. Edwards displayed Lily, Dorothy, La Saviere, Dixmude and other sorts.

STOVE AND GREENHOUSE PLANTS.

There were no elegant groups of miscellaneous hothouse plants or magnificent specimens such as were a great feature of some of the large provincial shows a month since. The nearest approach were the large circular groups so well arranged by Messrs. Sutton and Sons and Messrs. Carter and Co. These were of entirely different character and equally successful, yet alike in that both firms contented themselves with one kind of plant for their main display. Messrs. Carter and Co. used a large number of liliums and made a fascinating group. In the centre, surmounted by a graceful palm, they arranged Lilium lancifolium Melpomene, next came the rather larger-flowered variety magnificum, surrounded by a belt of the blue Browallia speciosa major. At studied intervals were placed occasional plants of the fragrant Lilium auratum or a slender palm.

Gloxinias were used by Messrs. Sutton and Sons, and of these they had 700 perfect little plants in full bloom. The general idea was radiating segments of a raised circle with alternating high and low panels, and each low panel contained a handsome gilt basket of gloxinias. One variety only was used in a panel, and the chief sorts were Duchess of York, blue with a white rim; Duke of York, red, edged with white; Meteor, a large frilled bloom of brilliant scarlet with a white throat; Royal Crimson, of rich velvety colour; King George, a scarlet self; and Her Majesty, pure white.

A magnificent collection of double-flowered tuberous-rooted begonias was contributed by Messrs. Blackmore and Langdon. The blooms were fully as large as camellias, but were free from any suggestion of coarseness. Among the many sorts we especially noted Grand Monarch, deep crimson; General Joffre, brilliant red; John Mercer, orange scarlet; Lord Lambourne, deep orange; and Lady Cory, pale orange.

Messrs. Stuart Low and Co. had an interesting little collection of uncommon greenhouse plants. Eustoma Russellianum, a hardy annual from round about Texas, which bears, on erect stems a foot or so high,

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large erect bell-like blooms of lavender-purple colour; Mutisia decurrens, a perennial for a shady wall, has glaucous foliage and heads of deep orange-coloured flowers; Hæmanthus puniceus and a scarlet Bouvardia are examples of the plants shown.

A handsome group of palms was displayed by Messrs. Robert Green, Limited. The long arching leaves of a tall pair of Kentia Dumoniana hung over well grown specimens of Phœnix Rœbelinii, Arenga saccharifera, Chamærops histrix, Cocos australis and similar species.

Brilliant trusses of zonal pelargoniums, shown by Mr. R. J. Case, attracted a deal of attention. His chief double-flowered varieties are Baronne A. de Rothschild, Emperor Nicholas, Lady Churchill and Pasteur; while among the singles were A. J. Macself, Exquisite, Fascination, His Majesty, Mars, Mrs. F. H. Wright, Mrs. V. Slade and Sensation.

Cacti and allied plants were shown by Miss S. S. Thompson and Mr. S. Smith. For the most part they were small plants and Opuntias, Philocereus senilis, mamillarias in variety, Crassula falcata, cotyledons, euphorbias and mesembryanthemums.

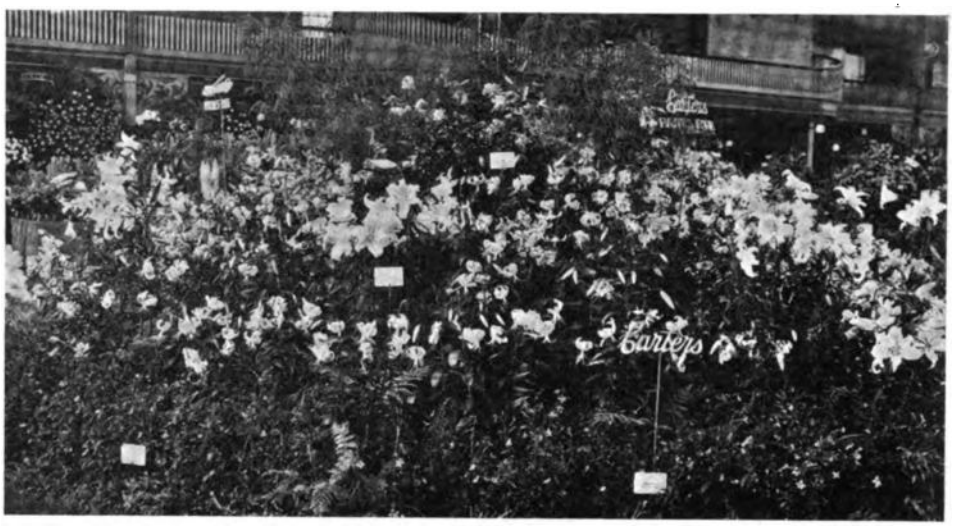
CARNATIONS.

Perpetual-flowered carnations were well staged by Mr. C. Engelmann, Messrs. Allwood Brothers and Messrs. Stuart Low and Co. The first-mentioned had a large and beautiful group of Saffron, with such other standard varieties as Laddie, Tarzan, Benoni, Pink Delight and Nigger. The beautiful and well named Chintz was noted both here and on Messrs. Allwood's exhibit. Messrs. Stuart Low's "cars" occupied a corner of a large exhibit chiefly devoted to orchids, but they had White Pearl, Eileen Low and the orange Sheila Greer in fine form.

Messrs. Allwood's perpetuals included masses of Wivelsfield Apricot, and of the rest the crimson Topsy and the brilliant scarlet Edward Allwood were well to the fore. In a separate group they displayed the hardy border perpetuals and Allwoodii. The most attractive of the latter was the pale salmon-pink Sybil; while the range of colours now possessed by the border perpetuals can be gathered from the following list of names: Sussex Crimson, Sussex Purple, Sussex Red, Sussex Avondale (deep salmon), Sussex Rosalind (brick red and citron flake), Sussex Supreme (like Enchantress Supreme of the perpetuals proper), Sussex Leander (almost scarlet), Sussex Beauty (heliotrope) and Sussex Pink. This type is unquestionably gaining fast in popularity.

CHRYSANTHEMUMS.

As befitted the season, all the chrysanthemums were from plants grown in the open border, and so there was to be seen a selection of the best sorts for autumn flowering. The chief exhibitors were Messrs. Wm. Wells and Co., Messrs. Keith Luxford and Co. and Mr. Wm. Yandell, and they all showed many vases of disbudded varieties and of naturally grown sprays. Of the former, Lichfield Purple, Crimson Pride, La Pactole, Kathleen Wells (the new large white), Eden (mauve incurved tipped with gold), Uxbridge Pink, Bronze Cranfordia, Lichfield Pink and Almirante are a good selection. Those grown as sprays were the more numerous, and of the several early-flowering singles Redwing and the yellow September Gem had considerable merits as decorative flowers. Those of Japanese type included Verona (bright crimson), Horace Martin, Goacher's Crimson (a variety very largely grown for the market), Normandie (of lovely soft pink colour and very free-flowering), Bronze Normandie, Dick Barnes (dark crimson, which is not quite so decorative when just



FASCINATING GROUPS OF LILIES DISPLAYED BY MESSRS. CARTER & CO.

A PORTION OF MESSRS. SUTTON & SONS EXHIBIT OF GLOXINIAS.

CARNATIONS IN VASES WERE SHOWN BY MESSRS. ALLWOOD BROS.

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passed maturity), Shrapnel (of intense red colouring) and Golden Gleam.

Messrs. G. Jackman and Sons had Harvester (pale golden bronze), Framfield White, Goacher's Crimson and other sorts associated with their clematis and mixed border flowers.

BORDER FLOWERS.

White Michaelmas daisies were so numerous as to require a section to themselves. The brightest colour among the hardy border flowers was supplied by the glowing spikes of tritomas.

Messrs. Isaac House and Sons had a glorious group composed solely of magnificent spikes of Mount Etna, which variety is indeed of fiery volcanic colour and the spikes unusually large.

A good selection of tritomas was associated with various hardy flowers by Messrs. G. Gibson and Co., who also showed Lilium tigrinum varieties and several valuable aconitums.

Liliums were also prominently shown by Messrs. K. and G. Cuthbert, who used them at the corners of their large group of hardy shrubs. Goodly quantities of Lilium rubrum and L. Fortunei rising above bushes of Azalea mollis-sinensis hybrids and Azalea occidentalis in the full glory of autumn colouring were singularly effective.

Pentstemons and herbaceous phloxes were the chief flowers staged by Messrs. J. Forbes, Limited, who displayed many of the very best named varieties. Of a great many pentstemons the brightest and best was Castle Forbes, a tall, graceful spike of rich red flowers which have a white tube.

This season, pyrethrums have been flowering almost continuously since the spring, so it was not surprising to see this valuable flower in various collections. Most were displayed by Messrs. Rich and Co., who also had Gaillardia Sunshine, a splendid large flower of good form and substance and clear golden colour. They included the elegant Astrantia major, which also was to be seen in the little rock garden of Mr. F. G. Wood, who in his general collection of border plants gave the central position to a mass of the lovely Lavatera Olbia.

Although it is quite an old plant, Salvia uliginosa is not often grown outside botanic gardens, but Messrs. G. Jackman and Sons had a number of tall stems of its beautiful blue flowers. This hardy salvia is of easy cultivation and seems equally good in a dry season as it is this year. Secondary spikes of excellent delphiniums were well arranged by Mr. T. Carlile, whose collection also included spikes of a glowing golden lupin and Phlox Mrs. Milly van Hoboken, a new variety bearing large flowers of a lovely soft pink colour.

The perennial lobelias in which Messrs. B. Ladhams, Limited, specialise were freely shown by them. Of their many varieties we liked best B. Ladhams, a larger and brighter L. cardinalis, Purple King, Salmon Queen and Rose Queen.

Besides their handsome tritomas, Messrs. Isaac House and Sons showed their almost ever-blooming Scabiosa caucasica in many charming varieties of all possible shades of blue and of mauve. A most desirable novelty in scabiosas is their S. columbaria rosea. It is a most charming shade of rose pink, and Mr. House tells us that it is equally as floriferous as the caucasica varieties. It should be treated in the same manner as with pentstemons.

Excellent double Cambrian poppies, both of yellow and of orange colour, were shown by Messrs. W. H. Rogers and Son. Mr. H. Hemsley had a good assortment of general border flowers, Mr. H. Yandell staged many of his violas, and Messrs. W. J. Godfrey and Son showed, with other flowers, Scabiosa Pride of Exmouth.

The Central Garden Supplies included the fascinating Verbena venosa in an attractive little group, while Messrs. Reamsbottom and Co. continued their long series of exhibits of splendid St. Brigid anemones.

Violets as large and as fresh and fragrant as in the spring were shown in large quantities by Mr. J. J. Kettle and Mr. B. Pinney.

In the gallery there was an uncommon and very interesting exhibit of dried flowers arranged by the French Intensive Gardens. A great many species of flowers and grasses had been treated, and they all retained their natural charm and grace with the addition of, if not imperishability, at least a greatly prolonged period of usefulness. Among the many flowers so treated were Echinops Ritro, Accroclinium roseum, Helichrysum lanatum and Rhodanthe maculata. Among the many grasses, which were gathered when the plumes were of almost full size and just before the pollen ripened, many varieties of agrostis, Lamarkia aurea, Hordeum jubatum and Helipterum Humboldtianum were very successful.

FRUIT AND VEGETABLES.

Although the special show of fruit and vegetables was fixed for a fortnight later, or, perhaps, in anticipation of it, fruit was freely exhibited at this Autumn Show. A welcome innovation was the number of exhibitors who brought growing trees of various fruits, thus enabling the visitors to judge of their habit and, to a certain extent, fruitfulness. In this form and also as gathered fruits apples, naturally, predominated, and nearly all the fruits so shown were gorgeously coloured. This was particularly noticeable with Cox's Orange Pippin, which almost vied with Gascoyne's Scarlet, a variety famed among growers for its high colour.

On a floor space Mr. J. C. Allgrove set out a number of well grown, balanced trees bearing goodly crops of apples, peaches and plums. Apple S. T. Wright, a variety which received an award of merit about a dozen years ago, was perhaps a shade too large to be an ideal table fruit, but the wonderfully attractive colour compensated for this. A large fan-shaped Peach Princess of Wales was perfectly trained and well fruited, as also were two large standards of a seedling peach. The plums were chiefly Guthrie's Latest Green, Golden Transparent, Late Orange and Jefferson's. Among the many baskets of gathered fruits were to be seen St. Everard, Rival, Warner's and the Rev. W. Wilks apples; Royal George peaches; and such plums as Grand Duke, Monarch and President.

Special prominence was given by Messrs. Waterer, Son and Crisp to their new Apple John Waterer, of which three or four bushes in full bearing and a large basket of fruits were shown. It is a large culinary apple, much like a clear-skinned Warner's King, but is said to keep well into May. The shapely yellowish fruits have a good appearance and it is claimed that it is a splendid cooker. Other apple trees included Charles Ross, Emperor Alexander, Cox's Orange Pippin and Washington. They also had many varieties of figs as growing plants, and among them were White Ischia, Brown Turkey and Negro Largo.

In another part of the hall Messrs. T. Rivers and Son staged admirably grown trees of Peasgood's Nonsuch, Gascoyne's Scarlet and Cox's Orange Pippin apples, President plum and Sea Eagle peach, and all were as perfect as human skill could make them. Besides these fruiting trees Messrs. Rivers had baskets filled with shapely fruits.

A large collection of gathered apples and pears was shown by the Barnham Nurseries Company. The dessert apples included typical specimens of Worcester Pearmain, Lady Sudeley, Cox's Pomona, Allington Pippin, Ribston Pippin and The Houblon while chief among the many culinary varieties were Peasgood's Nonsuch and Grenadier. The pears included excellent fruits of Doyenne du Comice, St. Lukes, Conference, Verulam, Beurré Hardy, Marguerite Marillat and Triomphe de Vienne.

The success of the training at the Studley Horticultural College was fully evident in the high quality of the fruit the students exhibited, and their method of arrangement was also admirable. Pears were a very important feature of the exhibit, and while all the dishes were of typical fruit of even sizes, they were most remarkable for their highly attractive colouring. Souvenir du Congrés, Beurré Hardy, Beurré Superfin and Doyenne du Comice were especially prominent in this respect, though in a competitive show they would have won a high place on all points. Other pears of note were Pitmaston Duchess, Marguerite Marillat, Santa Claus and Beurré Bossoch. The dessert apples were of the ideal small size and mostly of glorious colouring. Besides a good selection of these and of the culinary varieties, several baskets of nuts were shown.

Apple Hounslow Wonder, a useful dessert variety of good medium size and delicately attractive colour, was included by Messrs. S. Spooner and Sons in their exhibit. Duchess' Favourite, Worcester Pearmain and Baumann's Red Reinette were intensely coloured. High colour was also present on many of the table apples shown by Messrs. Laxton Brothers. The Premier, Worcester Pearmain and The Houblon were most brilliant. Golden Spire and large shapely fruits of Rev. W. Wilks were, in contrast, of glowing golden hue.

Messrs. Daniel Brothers, had in front of their apples and pears a quantity of gathered bunches of their September Black. That the berries in this moist season should still be firm and plump speaks eloquently of its long-keeping qualities. The apples included Charles Ross, Cox's Orange Pippin, Worcester Pearmain and Ellison's Orange among dessert varieties, and Lord Derby, Bramley's, Emperor Alexander and Peasgood's Nonsuch of the culinary sorts. They also showed equally good dishes of pears Williams' Bon Chrétien, Marguerite Marillat, Conference and Triomphe de Vienne.

A very tastefully arranged collection of high quality apples and pears was made by Messrs. G. Bunyard and Co. Louise Bonne of Jersey, Conference and Triomphe de Vienne as examples of the pears were perfectly typical. The Queen, Cellini Pippin, Ribston Pippin, Lady Sudeley, Worcester Pearmain and Egremont Russet, to name only a few of their apples, were all that could be desired.

A large trained specimen of his Worcester Berry, densely laden with fruits, filled the centre of an exhibit by Mr. E. Parsons. This fruit, which was first sent out about a dozen years ago, is the result of a cross between a black currant and a gooseberry. It is rather larger than a big black currant, of pleasant flavour and said to be a very good cooker. Apple Madresfield Court, which received an award of merit at the same time, was also well shown. This is a somewhat angular fruit, well coloured, of firm yellowish flesh, high flavour and a long keeper.

There was a small collection of very meritorious vegetables grown by the pupils of the Guild of Blind Gardeners, whose headquarters are at 72, Edith Road, W.14. They staged quite good potatoes, turnips, carrots, marrows and mustard and cress. Besides this the only collection of vegetables was by the Hon. Vicary Gibbs. Almost countless collections of high-class vegetables have been exhibited from the Aldenham House Gardens, and superb quality is always confidently expected, but the general opinion of the experts was that on the present occasion Mr. Edwin Beckett had beaten himself. It was a large collection, arranged in the best

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exhibition manner. Where, as in this case, every item was as near to perfection as is possible, selection of dishes for special mention is a difficult matter. Probably the peas were the most meritorious. Quantities of Quite Content, Sutton's Selected, Gladstone, Early Giant and Duchess of Albany were displayed. A special point about these peas was not so much their size and perfect shape but the green "bloom" which enveloped each pod. What care must have been taken in gathering, packing and in arrangement to preserve this fascinating bloom! Every seasonable vegetable was represented in the best possible manner, including the, to the average person in this country, uncommon sugar corn, of which fat pods of Sutton's Early Dwarf were shown. This magnificent collection of vegetables was awarded the Coronation Cup as being the most meritorious exhibit in the Show.

NEW & RARE PLANTS.

ASTER MAID OF ATHENS.—This is a fairly large-flowered, nearly double Michaelmas daisy made of narrow florets of light mauve colour. Award of merit. Shown by Mr. E. Ballard.

ASTER ROYAL BLUE.—The rich dark blue colour of this Michaelmas daisy is valuable, but we fear the stiff, erect, bunched habit of the flowers will not appeal to the majority. Award of merit. Shown by Mr. E. Ballard.

ASTER THORA PERRY.—The plant which was shown indicated a good dwarf spreading habit. The large flowers are a trifle shaggy in make up, but graceful and of lilac blush shade. Award of merit. Shown by Mr. Amos Perry.

CHRYSANTHEMUM BRILLIANCY. (See "New Chrysanthemums.") Award of merit. Shown by Mr. H. Woolman.

C. CISSBURY YELLOW.—A valuable incurved variety of good compact habit and market size. The colour is a good rich yellow. Award of merit. Shown by Mr. S. Aish.

C. ILLUMINATOR.—A medium-sized border Japanese variety of slightly loose habit and rich amaranth colour. Award of merit. Shown by Mr. H. Woolman.

C. KATHLEEN WELLS.—The blooms of this variety were obviously cut from pot-grown plants. It is a splendid white Japanese variety of quite large size for the season. Award of merit. Shown by Messrs. Wells and Co.

C. LICHFIELD PEACH.—A most charming early-flowering border variety which is also well worth growing in pots for conservatory decoration. It is a compact flower made up of dainty narrow florets which droop gracefully. The colour is the silvery pink of peach blossom grown under glass when it first opens. Award of merit. Shown by Mr. W. H. Thorpe.

C. SALMON PROFUSION.—(See "New Chrysanthemums.") Award of merit. Shown by Mr. W. Yandell.

C. SILVER QUEEN.—(See "New Chrysanthemums.") Award of merit. Shown by Mr. H. Woolman.

EUSTOMA RUSSELLIANUM THE OXFORD.—This is a richer coloured—quite Oxford blue—variety of an annual plant introduced from "Nebraska to Texas" in 1804. Although said to be hardy, it is usually grown in pots of light, moderately rich soil for conservatory decoration, but is far from being common. Generally it makes a slender, single-stemmed, erect plant a foot or so high, surmounted by relatively large, upright flowers somewhat of campanula shape. The small leaves are of glaucous hue. It is a beautiful and uncommon plant, well worth growing for the cool greenhouse, and if care is exercised in watering, presents no cultural difficulties. Award of merit. Shown by Mr. C. J. Ellis.

GLADIOLUS NORA TOOMER.—A well disposed spike of large rich orange-coloured flowers which have a carmine blotch on each of the two lower segments. Award of merit. Shown by the Orpington Nurseries Company.

POTENTILLA DAHURICA MANCHURICA.—A goodly pan of this pretty little prostrate shrub was shown. The sturdy foliage is greyish green and the relatively large flowers are pure white. Award of merit. Shown by Mr. Amos Perry.

A BEAUTIFUL FRUITING SPRAY OF PYRUS PINNATIFIDA, A NATURAL HYBRID.

POTENTILLA FARRERI PROSTRATA.—Although a little more robust than the foregoing, this is also quite a low-growing little shrub. The pale green foliage is narrow and the large flowers are almost of buttercup yellow colour. Award of merit. Shown by Mr. Amos Perry.

POLYSTICHUM ANGULARE DIVISILOBUM NITESCENS GRANDE.—Despite the forbidding length of name this is a handsome hardy fern. The delicately divided pale green fronds are almost 3ft. long and perfectly proportioned. Award of merit. Shown by Mr. Amos Perry.

PYRUS PINNATIFIDA.—There is a certain amount of mystery attached to this handsome hardy tree. It is generally supposed to be a natural hybrid between Pyrus intermedia and P. Aucuparia. It grows wild in West and Central Europe, though very occasionally in England. It does quite well on chalky soils and also grows vigorously on clay. At its best it is a rounded, slightly fastigiate tree 30ft. in height. The dark green leaves are nicely divided at the basal half and become well coloured in late autumn. The whitish flowers are quite attractive, and these are succeeded by clusters of vivid red fruits, rather larger than those of the mountain ash, which make the tree very handsome just now. Award of merit. Shown by Mr. G. Codrington.

A vase of arctotis seedlings raised by Mrs. Lloyd Edwards from seed sent from Cape Colony was submitted to the Floral Committee, but for some reason they do not appear to have attracted any attention. The typical yellow form predominated, but there were several flowers which appealed to us in their improved shape and rich colour. One was of scarlet terra-cotta shade with an orange zone, another was similar but a trifle lighter in the ray colour, while a third was a very large bloom of bright mauve colour with a creamy yellow zone.

NEW DAHLIAS.

The Joint Dahlia Committee found an enormous number of seedling dahlias awaiting judgment. Of these they selected nineteen "For Trial at Wisley," but we are inclined to the opinion that only the most optimistic would expect to see some of them in the future. We selected the following as being worthy of mention:

AMY.—A beautiful miniature peony of pink colour overlying a golden yellow ground. The centre is clear from the pink, giving a golden zone. Shown by Messrs. J. Burrell and Co.

FLAME.—A large miniature peony which is almost a single. It is a bold flower of glowing orange colour. Shown by Messrs. J. Burrell and Co.

FANCIFUL.—A neat single of orange shaded fawn colours. Shown by Messrs. J. Burrell and Co.

MRS. W. R. DYKES.—A well formed miniature peony of brilliant rosy mauve colour. Shown by Messrs. J. Cheal and Sons.

MURIEL.—A miniature peony of the same lovely colouring as in Amy, but smaller and of more rounded shape. Shown by Messrs. J. Burrell and Co.

PINK COLTNESS GEM.—This is a pinkish counterpart of the popular bedding dahlia but the colour is at present too washy. No doubt a couple of years' further selection will bring the desired colour. Shown by Mr. T. Hay.

WESSEX.—A perfectly round single dahlia of good substance and intense crimson colour. Shown by Mr. A. J. Cobb.

WINNIFRED.—A rich orange single with a carmine zone. Shown by Messrs. J. Burrell and Co.

NEW CHRYSANTHEMUMS.

The Floral Committee of the National Chrysanthemum Society met at the Holland Park Hall, London, on September 22nd last, to consider the merits of a number of seedling outdoor chrysanthemums. Five novelties received awards, and the committee expressed the desire to "see again." Brightness, a rather small but vivid crimson Japanese variety, shown by Mr. H. Woolman; and

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Phœnix, a tiny narrow-petalled Japanese variety of intense colouring, shown by Messrs. Scott and Wickham.

BRILLIANCY.—This is a free-flowering sort of Source d'Or type but with broader florets, more rounded in shape and chestnut-bronze colour with a golden reverse which is prominent in the centre of the blooms. Card of commendation. Shown by Mr. H. Woolman.

CITRON.—A valuable single-flowered variety of the substantial round habit of Mensa, but a trifle smaller. The colour is a bright canary yellow, and the golden disc is exceptionally small. First-class certificate. Shown by Messrs. W. Wells and Co.

MRS. PHIL PAGE.—Although there does not appear to be any relationship, this novelty is a reddish counterpart of the golden bronze Mrs. Jack Pearson, which received award last year and already is a valued market variety. The novelty has the same broad stiff petals and compact form and is of bright reddish chestnut colour. It does well either disbudded or in spray form. First-class certificate. Shown by Mr. Philip Ladds.

SALMON PROFUSION.—This variety is of most uncommon colour, which may best be generally described as pinkish fawn, although we believe the official description is light salmon-pink. The flowers are of good size and possess plenty of substance. First-class certificate. Shown by Mr. W. Yandell.

SILVER QUEEN.—A most delightful flower and of unusually good form and large size for a hardy variety. The fully double blooms are made up of plenty of broad incurving florets of pale old rose colour with a silvery reverse. First-class certificate. Shown by Mr. H. Woolman.

WEMBLEY.—This is another splendid early-flowering variety for the open border. When first open the flowers have broad, stout, incurving florets, which with age become rolled and reflexed, making a perfectly formed Japanese chrysanthemum of good size. The colour is a rich ruby-crimson. First-class certificate. Shown by Mr. H. Woolman.

NEW FRUIT.

GRAPE COTE HOUSE SEEDLING.—Following an inspection of the vine at Gunnersbury House Gardens, Acton, the Committee confirmed the award to this valuable grape. It is a seedling derived from Black Hamburgh and Muscat of Alexandria. The influence of the former is seen in the compact, moderate-sized bunch of roundish berries, while the latter gives rich amber colour, firm flesh and Muscat flavour. The vine is growing in a house with Black Hamburgh, and requires very little fire heat, while the bunches keep in good condition for a long period. Award of merit. Shown by Mrs. Leopold Rothschild.

ORCHIDS.

LÆLIO-CATTLEYA VAR. MILO (C. Hardyana × L.-C. St. Gothard), from Messrs. Stuart Low and Co., Jarvisbrook, Sussex. A handsome hybrid with a couple of large flowers of a pleasing magenta rose colour, the wide labellum having the frontal area of ruby crimson, the throat veined with golden yellow.

BRASSO-CATTLEYA DIETRICHIANA LAMBEAU'S VARIETY (B.-C. Mrs. J. Leeman × C. Fabia), from Messrs. Stuart Low and Co. This richly coloured variety has for some time past been recognised as the best of its kind. The whole flower is of deep crimson-purple, the broadly developed labellum of darker tint, and with the margin prettily fringed. Award of merit.

GROUPS.

Among the groups of orchids Messrs. Sanders, St. Albans, and Messrs. Stuart Low and Co., Jarvisbrook, Sussex, were both awarded gold medals for exhibits of outstanding merit.

MICHAELMAS DAISIES.

Judging by my collection at home, September 23rd was a little early this late season for a full display of asters in all their glory. Notwithstanding this there was a very respectable gathering of the clans. Here and there there were unmistakable evidences of the buffeting the flowers had had; but, on the other hand, many looked "as fresh as a daisy." The two points which come vividly to my mind as I write these words and which impressed me more than anything else in connection with the display were the need of a first-class single white and the variation which something produces between the same variety when grown in different places and by different people. The good old chestnut that I have known from my youth up, "Look here what do you think I will shave you for nothing and give you a drink," depends upon emphasis and stops for its meaning. Why did Queen of Colwall appear to be a double in nearly every case where it was staged, except in Mr. H. J. Jones' group, where it was in what I should call its true form of a delightful big single, if I may judge by its behaviour with me? Mr. Jones likes to have two year old plants to cut from. He thinks he gets a better cut then than from either older ones or one year olds. Personally, I like the one year olds, but then the soil must not be too rich. He told me a tale to illustrate the difference that age or rich feeding can make. The late Mr. Wilks told him in a conversation before one of his groups that he did not care for Sam Banham and thought it was much over-rated. "Now that white, Mr. Jones, I do like," as he pointed to a back or top row variety. "Yes," said Mr. Jones, "that is Sam Banham." All this means that Michaelmas daisies depend on the way you treat them, like the meaning of the barber's sign depends on how you read it. Yes! there were "Whites to the left of them, whites to the right of them," and I think I saw them all—Perry with Perry's White, Wells with Wells' White, Ballard with Snowdrift, Queen Elizabeth and White Button, Jackman with Woking White, Wood with White Climax, and Jones with a seedling of his own. Queen Elizabeth has a split up centre, which to me is much what a split infinitive is to literary purists. Wells' White is too much of a cream in a growing mass and so on. At present I plump for Perry's White, but I am going to keep an eye on White Climax and Woking White. Few herbaceous exhibits were without some examples of Michaelmas daisies, thereby showing most unmistakably the growing popularity of these hardy stand-bys. Mr. H. J. Jones of Lewisham, Messrs. Cutbush and Son of Barnet, Mr. Ernest Ballard of Colwall, Messrs. Dickson and Robinson of Manchester and Mr. H. Hemsley of Crawley had the most important displays; but many good varieties were staged by Mr. Amos Perry, Messrs. Wallace and Co., Messrs. George Jackman and Son, Messrs. Bakers and others. Probably few noticed the little collection of named varieties of the Amellus group staged by Mr. Reuthe. King George was everywhere, so one was glad to see the number of varieties in the group brought before the public by ocular demonstration. I picked out Wienholtzii (pink), Imperator (rich purple), Stella (pale mauve) and the type which still takes some beating. My editorial instructions were to especially note new and uncommon kinds, hence the older stagers must be omitted. I only make one exception, and that is Lavender. Three novelties gained awards of merit. Personally, I should never have voted for Royal Blue. I do not like the form of its flowers, which are neither fish, flesh, fowl nor good red herring. If I am to have a double, let it be a double like Little Boy Blue. Maid of Athens is a deep rose-pink, deeper a little than Countess, which in turn is deeper than Ethel Ballard. Thora Perry is a dwarf variety with a pale lavender inflorescence of a corymbaceous type. The flowers are double and singularly flat-looking. It is a lady's flower, I think. Messrs. Dickson and Robinson and Mr. H. J. Jones had more novelties and uncommon varieties than any other firm. From various groups I made note of the following: Pink Pearl, small, rosy, curious shade; Violet, pretty pale mauve; Charm, pale pink, reminds me of Louvain; Glorious, large rose; Walkden's Pink, deep rose; Chivalry, small type, pale lavender; Cream Early, small type, creamy white, very effective; Pioneer, pink; Robinson, V.C., purple double; Cloudy Blue, grey—ought to change names with Grey Lady, which has too much pink in it to be a grey; Blue Gem, runs a race with Edith Goodwin for blueness; and Purple Emperor, rich purple.—JOSEPH JACOB.

NOVEL AND UNCOMMON VARIETIES OF MICHAELMAS DAISIES IN ALL SHADES OF BLUE AND PURPLE WERE TO BE FOUND ON THE STAND OF MR. H. J. JONES.

AUTUMN TREATMENT OF LAWNS

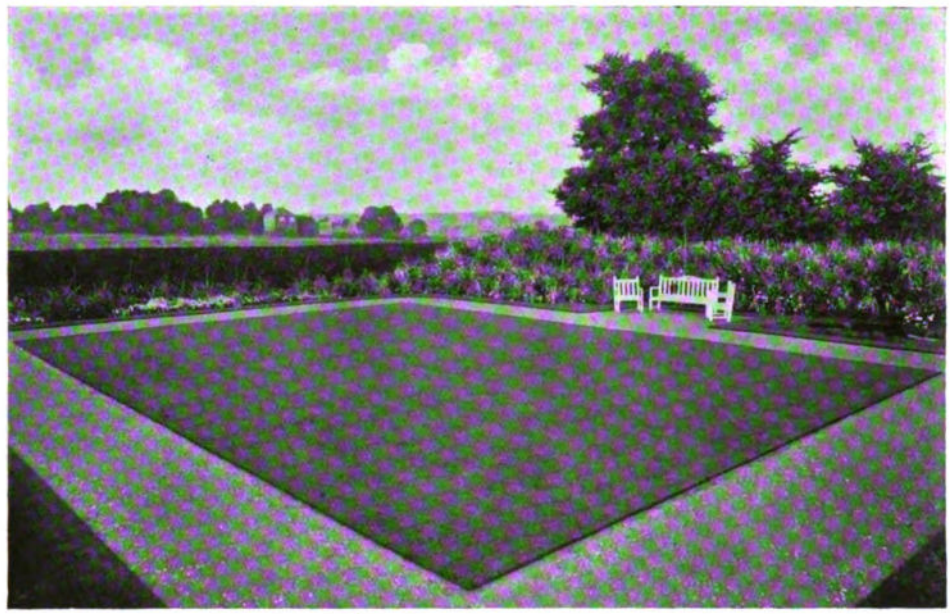
THEIR PREPARATION FOR THE WINTER

AUTUMN is an important period of the year for lawns. Their summer beauty is then on the wane and the time has arrived to build them up for next season's display. During September and October whatever seeding or re-turfing is necessary should be done so that full advantage may be obtained of the growing period which generally goes on at that time.

Lawns that are used for games ought to receive attention first. Tennis is probably the most popular sport of all, and immediately play has ceased the restoration of the turf must be commenced. Turf that has gone through a season of play must necessarily be in a weakly condition, and if it is allowed to go on unattended throughout the winter it will be weaker still in spring. Begin by re-turfing all worn-out places and in doing this it is of great importance that the turf used should be of equal quality to the turf which is growing on the court. It is rarely that turf imported from another district is suitable for the purpose. The game of tennis has reached such a high standard that it is of the utmost importance to have the whole area of the court of equal texture throughout. This is best obtained by using the turf from the ends or sides. The worn-out turf can be replaced in the vacated spaces, and if seeded and nourished will soon recover and be useful in two years' time for patching again.

After the re-turfing is completed the whole area should be gently raked or rather combed with a sharp-toothed iron rake. This will remove the surface compression which has been caused by continuous rolling during the season of play. It will also raise up any recumbent growths of grass which may be there and enable them to be cut off close with the lawn mower. Running grasses, such as the varieties of agrostis, are not wanted on a tennis court. Whatever weeding is necessary could be done during the progress of raking.

At this stage nourishment which will induce a hard, close, wearable growth of grass must be given. If the right food is applied, it will do good, and in the same way the wrong food will do harm. Probably more damage has been done to turf by indiscriminate feeding than any other agency. There is no universal manure for grasses. It is not the first time that I have insisted grasses are plants, and to get them in the best condition they must be treated as such. They give a result according to the cultivation they get. A common prescription for nourishing turf is soil. Sometimes farmyard manure, road scrapings or the dredgings from a stream or lake are incorporated with the soil. A dressing of this nature does not benefit the grass. Instead of doing so it creates conditions conducive to the growth of weeds, and harmful to the finer grasses. When it is spread over the lawn and afterwards rolled in it forms a scum, or crust, which prevents the grasses from obtaining healthy surface root growth, one of the most necessary essentials for their well-being. Not only does it do this, but it forms ideal conditions for the growth of most weeds which infest a lawn. Examine a plantain or a daisy and you will see how luxuriantly it spreads its leaves over the crusted surface, while underneath the layer its roots are spreading out freely in all directions. Then look at the grasses and they are generally found to be weakly specimens, with feeble root growth.



"THE SPRING'S REWARD OF AUTUMN'S LABOUR."

The best food for grasses is a preparation that will tend to keep the surface porous and give the nourishment which the plant requires. If the grasses are weakly, occasional light applications of chemical manure are more effective than a heavy dressing at wider intervals. The composition of this food must vary according to the nature of the soil in which the plants are growing. The practice of applying a preparation on soil of a different character to that on which it has given good results has done damage to many lawns. On very dry soils potash might predominate, while on moist ground phosphates could hold the pride of place. When clover is strongly in evidence, nitrogenous preparations are frequently used, but there is no nitrogenous compound that will permanently clear away clover. Where clovers are prevalent grass roots are generally weak, and if after an application of clover exterminator a system of cultivation is adopted which will increase root growth, a good result will be obtained.

Croquet lawns are not subjected to the same severe wear as tennis courts and are more easily put right after the season of play has ceased. The turf should be of even texture throughout and accurately level. Any inequalities that may exist must first be corrected, mounds need to be reduced and hollows raised up. A good method is to get a straight-edge and go over the lawn in sections, correcting each fault as it is reached. It is remarkable how settlements will occur on established lawns without any noticeable cause, and therefore an annual overhaul in this way is very necessary. When this is done chemical manure as advised for tennis courts should be applied evenly over the surface. The rate at which the chemical manure should be applied on lawns must vary with the condition of the turf, but 1cwt. to 300 or 400 square yards is generally sufficient for an annual dressing. When the turf is thin, grass seed must be sown. This can be done by making numerous shallow holes and then sowing the seed rather thickly after it has been mixed with an equal proportion of fine sand.

The same instructions hold good for lawns in general. This is the time to put anything right which may be wrong, so that with the advent of spring the lawn mower can be put to work on turf as nearly perfect as it is possible to be. But in writing this I do not mean to infer that the lawn mower must be locked up in its house from now until the cuckoo comes. It may be, and in fact there frequently is, a grass growing period during late autumn and winter; this growth must be mown, but it is necessary to select dry periods for such work. This generally occurs after midday, and therefore afternoons ought to be selected for using the lawn mower. The roller may safely be locked up until next season. It does harm if used during winter, and should have a rest until required for the croquet or tennis lawn just before play commences.

JAMES MACDONALD.

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CORRESPONDENCE

FATS-HEDERA LIZEI.

SIR,—As I have seen no mention in the columns of THE GARDEN of the arrival of the long wished for hybrid between the common large-leaved Irish ivy and the useful evergreen shrub aralia or Fatsia Sieboldii, I should like to draw the attention of your readers to it. In the last number of the *Revue Horticole* there is an illustration of its vigorous growth and excellence as a hardy evergreen tree. Its name is descriptive, but so ill sounding that I wish a better one could be found. Fats-hedera Lizei is a name to frighten the ignorant, and leaves much to be desired, even although it be botanically correct. How useful this plant will be as a seaside evergreen I need hardly say. We shall look forward to the day when the raisers announce its distribution.—EDWARD H. WOODALL, *Scarborough.*

CAMPANULA CÆSPITOSA.

SIR,—A striking instance of the difficulty mentioned by Dr. P. G. Hendley on page 637 may be found in the name Campanula cæspitosa. Farrer gave a description of what he considered had first claim to the name in "The English Rock Garden," and previously (I believe) in THE GARDEN of September, 1913, though in his earlier works he made it synonymous with pusilla. He gives no alternative name to it, and as the cæspitosa of catalogues is pretty certain to be a variant of pusilla, it is impossible to know how or where to get the plant Farrer describes. Can anyone shed light on this subject?—L. J. ROGERS, *Oxford.*

KNOT GARDENS.

SIR,—In the article on Knot Gardens in your issue of September 6th, the writer speculates on "what exactly were the raisins, and likewise the fea-berries."

There can be no doubt that feaberries—whether spelled fe-berries, faberries, feabes, or in other ways—were gooseberries.

They appear as gooseberries in Gerald's Herbal (1597), Cotgrave (1611), Ray (1674, "Feabes, Feaberries, Thebes in Norfolk") and are so defined in Cole's Dictionary (1713), Bailey's (1755), Grieb's German-English Dictionary (1847 = Stachelbeeren) and G. W. Johnson's Dictionary of Modern Gardening (1846).

The Oxford ("Murray's") English Dictionary agrees and gives the derivation as probably from M. E. Theve, a prickly shrub.

Thus it is clear that the "frets" in knot gardens were not necessarily neat and trim little borders like box, which is omitted from the list in the "Country House-wives Garden," as your article shows, but fairly robust hedge plants like "privits," "thornes" and "gooseberries."

Why, then, should not the raisins be grape vines, probably espalier trained? The old writers used the term "raisin" to indicate the vine or "raisin tree": but it is possible that the Ribes is meant—see Turner (1548), "Names of Herbes": "Rhibes is called in some parts of England the Raisin Tree."

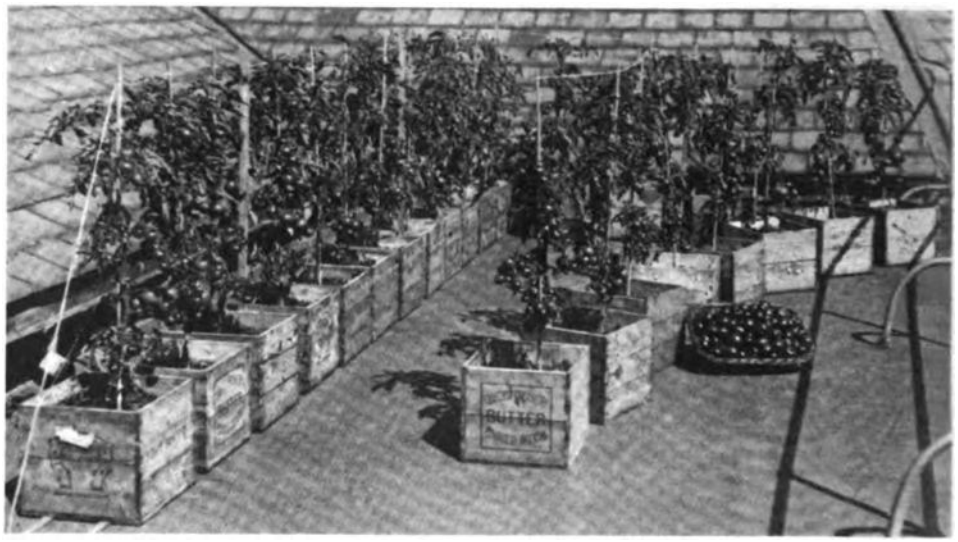
There was something practical in planting gooseberries and vines as borders of a pleasaunce: I remember many years ago advising a farmer to plant gooseberry instead of thorn hedges between some of his fields.—J. H. H., *Bradford.*

SAXIFRAGA BURNATI.

SIR,—On page 622, under the heading "Saxifraga cæsia," I carelessly and stupidly wrote that S. Burnati=S. cæsia × Aizoon instead of S. cochlearis × Aizoon. Particularly, as I misquoted the word cochlearis in Irving and Malby's excellent book on Saxifrages, do I regret that only to-day (September 17th) did I hear from a friend of the error I had fallen into.—H. S. T.

TOMATO CULTURE ON A ROOF.

SIR,—I have been asked to forward this illustration to you in the hope that it may prove of interest to the many readers of THE GARDEN. This is a very fine crop of tomatoes grown by an employee on a roof in the centre of the city of Oxford, also showing a basket of picked ripe fruit in fine condition. These were grown on the premises of Messrs. Grunley Hughes and Co.—F. J. FRENCH, *Oxford.*



AN INGENIOUS METHOD OF GROWING TOMATOES WHICH, APPARENTLY, MEETS WITH GREAT SUCCESS.

TREES AND SHRUBS DYING.

SIR,—During the last few weeks I have noticed that quite a number of trees and shrubs have suddenly collapsed and died in the course of a few days. A mountain ash was on a Tuesday in full vigour, healthy leaves and plenty of fruit, while on Saturday it presented a pitiful sight. Another plant, Genista virgata, a large specimen, also died within a few days. Other examples include thorns, beech and philadelphus. It has been stated that the present season is a good one for trees and shrubs, and no doubt it is judging from the growth made, but why some of them should die is remarkable. Perhaps other readers can supply the reason, and also state if they have lost any plants this summer. Certainly, drought has not caused it in this district, for August was an exceptionally wet month, while July and September were characterised by the large number of wet days.—T. W. B., *Chepstow, Mon.*

A FURTHER LETTER ON MAGENTA BORDERS.

SIR,—It is very refreshing to read the letters about a magenta border, and I venture to add a few notes. I have always had a sneaking fondness for magenta flowers, partly because they are old-fashioned and also many grow wild. They are not easy to blend, but certain combinations can be observed among wild flowers which help in the garden. When in Yorkshire at Whitsuntide I was greatly struck with the beauty of spikes of purple orchis standing among groups of trollius, and much the same colouring occurs when the orchis grows among cowslips in a meadow. They also look very telling growing in thin woodland among bluebells, and honesty is quite effective standing in a carpet of bluebells or forget-me-nots. Erica carnea also edges a border nicely, and is doubly welcome because it blooms so early; later its foliage contrasts well with that of nepeta or lavender. Primula Juliæ and a hybrid named Wanda bloom very early. Wanda will grow and flourish in the border, but I have only grown Juliæ in the rock garden. Many flowers have been mentioned, especially the grey-leaved agrostemma, always known to me as Rose Campion. I never knew anyone dislike it and am constantly being asked for young plants. It makes a charming association here with Campanula Rapunculus, a biennial which is like a glorified harebell, but much taller and pinkish mauve. It is often described as a weed, and if allowed will seed all over the place, but it is so graceful and airy that I dearly love it. Geranium armenium makes a handsome plant of an intense colour, but I once saw it flowering against an ordinary scarlet bedding geranium, and it was enough to make one hate magenta for ever (or scarlet). Erodium Manescavi is a pretty magenta flower and Geranium sanguineum is beautiful by itself, but terrible if not carefully used. Gaps can be filled with the annual candytuft, which looks quite suitable with old-fashioned flowers, and has been improved enormously. One can obtain the same colour, too, in the annual linaria. Fuchsias flower beautifully in the autumn, and carry on the various crimson tones, and dahlias can be found to blend as well as chrysanthemums.—E. BUXTON, *Burton-on-Trent.*

OFFER OF SEEDS.

SIR,—Your paper seems very anxious to render service to all garden lovers—I am wondering whether you would be willing to let the gardening public know, that to anyone sending me a stamped and directed envelope, I would gladly send a few seeds of Magnolia tripetala, M. salicifolia, Rosa macrophylla, R. pendulina, Euonymus latifolius.

It seems such a pity to throw away, at the end of the year, things which probably many would appreciate. The magnolia seeds very soon lose their power of germinating.—A. C. BARTHOLOMEW, 75, *Tilehurst Road, Reading.*

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HARVESTING TUBERS FROM THE FLOWER GARDEN.

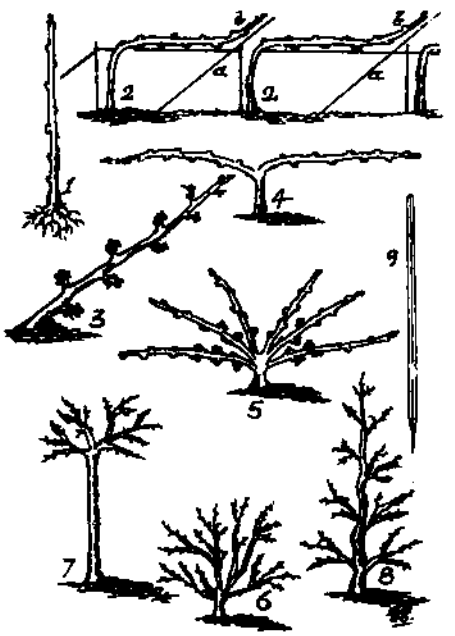
THE tubers of plants that have been well grown in the flower-beds should be finer now than they were when first planted out, and every care should be taken to keep them safely and quite sound during the winter months. The first of importance to be ready for lifting are the tubers of dahlias. Some of the cactus and small-flowered sections are very beautiful and well worth preservation. After the flowering stage has passed the tops should be cut off to within a foot or so from the base directly the leaves begin to fade and before frosts seriously damage them. Then carefully lift and place the roots in a dry, cool shed, leaving them there till the soil is dry and can be removed without injury to the tubers. Any dry storeroom will answer the purpose, or a dry cellar, but not a high loft where frost can enter from below as well as above. Dry sand is suitable for packing round the tubers, burying the crowns several inches also. Fasten name labels to stalks securely as well as to the tubers and place dry straw on all to keep out frost if it is severe. Gladioli corms should also be lifted with stems and leaves attached and be laid on a dry floor to finish ripening before storing the corms in paper bags or boxes in dust-dry leaf-soil or coconut fibre. Begonia tubers should be similarly treated in a greenhouse frame and finally stored in leaf-soil or coconut fibre in boxes in a dry part of the greenhouse. Do not forcibly remove the stems from the tubers, let them mature first.

GUARDING AGAINST FUNGUS IN THE AUTUMN.

The present year has been productive of fungus in a very bad form on various kinds of plants, fruit trees and vegetables. We should not wait till another year without taking measures to protect our garden crops from its ravages next year, as the spores live in the soil and on plants and thrive amazingly again directly suitable conditions obtain. Lime is a good preventive, and not only kills fungus in the soil, but improves the latter considerably. Where possible, mix lime with the soil and freely with garden refuse in cases where the latter cannot conveniently be destroyed by fire. The ashes of such refuse should be stored in a dry state in a dry, cool shed in readiness for use in the garden next year. Sulphur is also a good agent and, properly mixed to the consistency of paint, should be in due course painted on vine rods—taking care to keep it from touching the buds or eyes—and judiciously sprinkled in a dry state on the soil of the borders and under stages, even on the hot-water pipes in vineries and peach-houses, so that fumes may be given off when the pipes are gently heated to exclude frost. But the sulphur must not be applied to the pipes in plant-houses. Chrysanthemum stems and leaves should be burned forthwith, as rust and mildew often infest these. Both in the garden and glass structures absolute cleanliness should rule, then the risk from infection next year will be reduced to a minimum.

FORMS OF FRUIT TREES.

The season of fruit-tree planting has come again, and cultivators will be busy, first selecting varieties of the various kinds and the type of tree.



It is a mistake to plant many standards, pyramids or similar forms in small gardens. Cordons, single and double, and those in bush form are very serviceable for small gardens and also for large ones. More cordons can be grown in small space than large bushes, of course, and so the amateur is able to grow a really good selection of varieties of apples and pears. I am only making reference to forms of fruit trees now, in due course I hope to illustrate the work of planting. No. 1, one year old maiden; Nos. 2,2, horizontal cordons; *a*, *a*, supports for extending trees where convenient, shown at *b*, *b*,; No. 3, oblique-trained cordon; No. 4, double horizontal cordon; No. 5, fan-trained dwarf; No. 6, bush; No. 7, standard; No. 8, pyramid; No. 9, the necessary stakes to prepare.

THE WALLFLOWER.

Few lovers of gardens can do without the wallflower. In both the large and the small garden the plants look charming and their fragrance is delightful when well grown. The latter is a very important point, as, since these plants will grow in almost any kind of soil and in many positions, they are allowed to grow as best they can by some cultivators. But, like other plants, they return a grand reward for good cultivation. A wallflower plant will grow in poor soil or in a gravel path or between the courses of bricks in a wall, but the resultant flowers are small in contrast with those on plants growing in a fairly rich medium. The soil should be made as rich as that usually prepared for zonal pelargoniums, but while it is in a rather dry condition such soil should be firmed a little if light and sandy. Lift the plants with the aid of a hand trowel or fork, do not forcibly pull them up, mutilating the roots, as is often done. Plant with a trowel or fork and make firm the soil round the roots. Do not plant closer than 9ins. from plant to plant. Where it is possible to do the final planting in October the results are generally very good.

CYCLAMENS: SEEDLINGS AND SEEDS.

The seeds of these plants do not, as a rule, germinate quickly, and where there is a suspicion that more seedlings should result from, say, an August sowing, it is best to be patient and wait a month or so before giving up hope. Another sowing of seeds should be made now. The cyclamen thrives in a compost in which sweet, half-rotted leaf-soil is incorporated. Fibrous loam, which has been cut and heaped about three months, should form the prinicpal ingredient; 2 parts of this, 1 part of leaf-soil and a generous sprinkling of coarse sand. These form an ideal compost. Pans or flower-pots should be used, not boxes, as the latter are too dry and a constant moisture is beneficial. A substantial drainage should be provided and the compost placed in, gently pressed, and left with the surface ½in. from the top of the rim to allow the resultant seedlings room to grow in under the covering square of glass. Dibble in the seeds 1in. apart and not more than ½in. deep. In addition to the square of glass, place a sheet of brown paper on the pan to exclude sunshine. Later, when the seedlings appear, the paper must be removed, but not the glass. In January it will be time to tilt the glass, and in February to remove it entirely, when preparations should be made to pot the young cyclamens singly, also those resultant from the August sowing. GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

General Work.—At this season it is advisable to keep the kitchen garden as clean and tidy as possible, and directly such plants as peas and beans have finished they ought to be pulled up and burnt. All decaying vegetable matter should be collected and buried. On wet days examine potato tubers in store, and those selected for seed purposes may be set out in trays or boxes. In some districts the disease is rather prevalent, so it is essential that the bulk of tubers must be looked over at frequent intervals.

Parsnips.—These are dug up as required and the flavour is improved after a little frost. If, later on, we experience very severe weather, rough litter or bracken should be placed over the crop, while a quantity of roots ought to be lifted and stored in ashes or sand.

THE HARDY FRUIT GARDEN.

Grease-banding.—Few private gardeners follow the practice of grease-banding, but no doubt it is very efficacious in dealing with the female moths, which ascend the trees at this period of the year. Both parchment bands and "moth grip" or grease can be bought ready prepared. The bands are fixed around the trunk of the tree from 2ft. to 5ft. from the ground. First remove any loose or rough bark where the band will be fixed to prevent any moths creeping up between the band and the tree. Tie the bands both top and bottom with string, and then apply the grease or "moth grip" with a stiff brush. About 3ins. of grease will be ample, and care should be taken to keep it off the trees. Where stakes are used, it will be necessary to give each a band. The bands will need attention every few weeks, and the dead moths collected and burnt, otherwise they will dry up and eventually form a bridge for other insects. Apply a little more grease when necessary.

Raspberries, when planted in lines, should be from 5ft. to 6ft. apart, and if in clumps then 4ft. of space ought to be allowed in each direction. Although it is often stated that raspberries are shallow-rooting, they thrive better where the ground has been deeply dug or trenched. Select plants with plenty of fibrous roots, even if the canes are small; it will be found generally that strong large canes rarely possess many healthy fibrous roots. There are now several fine raspberries in commerce, but Red Antwerp is still among the first half-dozen.

THE FLOWER GARDEN.

Specimen Plants.—Plants in tubs or large pots that have been used as specimens in the flower garden or along walks and drives should be placed under cover before they are likely to be ruined by frosts. If arranged in a frost-proof structure and afforded water in moderation they will be useful, healthy plants next season.

Summer Bedding.—The wet and dull weather during the last few weeks has spoilt many of the occupants of the flower beds. Directly it is possible, clear the beds and put out such plants as wallflowers, polyanthus, myosotis, etc.; while if bulbs are used they ought also to be planted without delay.

Pits and Frames.—Rooted cuttings in pits and frames will need careful watering to prevent any damping off. Admit plenty of air whenever possible, to encourage a strong growth, and at intervals pick off all decayed leaves and flowers.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Jerusalem Artichokes.—The stems at this period may be cut over to about half their height; this will allow of the plants being more easily handled when the tubers are being dug up for use.

Salsafy.—This is another vegetable which, like the parsnip, may be left in the ground and dug up as required or stored in the shed among sand or fine soil.

Vacant Ground.—Sections which have been cleared of peas or root crops should be manured, where it has been decided to do so, and the ground dug or trenched, as may be found necessary.

THE FLOWER GARDEN.

Chrysanthemums.—It is possible even before this date to get large numbers of rooted shoots from around the base of plants growing in the borders. These shoots or young plants should be carefully forked up and severed from the parent plants. They should be set in boxes of medium fine potting soil, then watered and the boxes placed in a frame. Where a scarcity of any variety exists, it is wise to take these partly rooted shoots when procurable.

Scrophularia nodosa variegata.—This somewhat attractive plant, although old fashioned, is not so very often seen in gardens. Nor, perhaps, is this to be wondered at, when one looks through an up-to-date catalogue of hardy plants and fails to find such a name mentioned. The variegated figwort, for such is its common name, adds beauty to the borders for many months by its tall and stately stems so well furnished with variegated leaves. It is quite easily propagated by cuttings, which can be had in quantity from the sides of the stems of well grown plants. The cuttings should be secured now and dibbled into sandy soil in a cold frame and treated like viola cuttings.

Violas.—The cuttings are found in quantity as young growths about the centre of established plants. Oft-times it is possible, by giving a gentle pull when taking the cuttings, to obtain several with little roots attached. These should be dibbled into a frame straight away, and they need little or no preparation. To prepare the other shoots, cut immediately below a joint and remove a few of the lower leaves, make the finished cutting 3ins. long and insert in firm sandy soil in boxes or in a cold frame. When the cuttings are put in, give them a watering, using a rose on the can for the purpose. The frame should be kept closed and the cuttings shaded from bright sunshine for a week or two, afterwards gradually admit air for a short time each day, giving an abundance later on, on all favourable occasions, so that the plants are kept as hardy as possible.

THE HARDY FRUIT GARDEN.

Mulching.—There is no doubt that fruit trees send out young and fresh roots in autumn, and at the same time the leaves exhibit that choice and charming colouring which gladdens the heart of humble man. Here, then, is an opportunity to add something which will further sustain and build up fruitful and healthy trees. A mulch of old farmyard manure spread around the base and near the stem of each tree will provide material into which roots appearing near the surface can grow and feed upon. Where farmyard manure can be easily obtained all kinds of fruit trees and bushes will benefit by a mulching at this period of the year.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Oxalis floribunda is now flowering for the second time after being rested for a while and again started into growth. This plant is worthy of more general cultivation, as it is so useful for the unheated greenhouse. It only requires the shelter of a cold frame, from which it may be removed when it comes into flower. There is also a white-flowered variety. Both are very useful for filling hanging baskets for the greenhouse.

Oxalis purpurata, with very large, showy flowers, is now in bloom, and succeeds under the same conditions as O. floribunda. Both species are more or less hardy in the South at the bottom of warm south walls, and O. purpurata is now very fine in such a position. Dry roots of both species can generally be purchased during the autumn.

Cinerarias, Cyclamens and Chinese Primulas that have been growing in cold frames during the summer should now be removed to light, airy houses, where they can be given plenty of air and be kept well up to the roof glass. Many other plants that have been stood outdoors or in cold frames will soon require to be removed indoors, but as a rule many of them are better kept outdoors as long as possible, and temporary shelters can often be arranged where they can be protected with canvas blinds when frost threatens.

Irises.—There is quite a number of small bulbous and tuberous-rooted irises that are very suitable for the small unheated greenhouse. Most of them are hardy, but grown in pots or pans they are independent of weather conditions, and can be enjoyed in comfort indoors. They all grow quite well in any good potting compost. Some of the smaller species, such as I. Danfordiæ, Vartani, reticulata and its varieties are very beautiful when grown in small pans. I. alata, Histrio, persica, Bakeriana, orchioides, sindjarensis and Rosenbachiana are all suitable for this purpose. After being potted they only require the shelter of a cold frame until they come into flower, when they may be removed to the greenhouse or into the dwelling-house if so desired. I. susiana and iberica belong to a different section of the genus and are very beautiful when grown in pots. There are other species belonging to the same section, such as I. atropurpurea, Gatesi, Lortetii and paradoxa. They all belong to the Oncocyclus and Regelia groups, and are by no means easy of cultivation; but there is a set of hybrids between these two groups that has proved more amenable to cultivation, and although they grow outdoors on a warm border, they are well worth growing in pots for the cool greenhouse. Their flowers, which are veined on white, purple, violet and brown grounds, are very striking and beautiful, and always attract attention. They grow quite well in any good potting compost, using well drained pots. Three or four strong rhizomes may be placed in a 6in. pot. As the rhizomes run along the surface of the ground, they should be barely covered with soil when they are potted. After potting they should be stood in a cold frame in a position fully exposed to the sun. Very little water should be given until they have made a quantity of roots and have commenced to grow. They may remain in the frames, giving them plenty of air on every favourable occasion—until they commence to flower, when they may be removed to a cool greenhouse. The following are a few that are distinct and fairly cheap: Charon, Eucharis, Eva Hecate, Hera, Hesperia, Irene, Ismene, Jocaste, Mars, Medusa and Urania. J. COUTTS.
Royal Botanic Gardens, Kew.

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ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Preserving Flower Petals in Natural Colours (J. McG.).—Use 1 teaspoonful of gum arabic dissolved in 1 pint of boiling water. When the mixture is cold, dip in the flowers, lay them on a sheet of white blotting paper to dry. When quite dry, press in between sheets of white blotting paper. There is also a solution of wax on the market used for preserving natural flowers, but we are unable to say where it can be procured—probably from chemists. The gum arabic should also be obtained from a chemist.

Rose Queries (J. McG.).—Certain varieties of roses are not pruned in the usual way—*i.e.*, like the pruning of hybrid teas and hybrid perpetuals—but have the tips of the shoots cut off; this is done simply to remove the unripened portions only. The Bourbon section are mostly autumn-flowering; Zéphirine Drouhin, autumn-flowering; Purity, autumn-flowering; Coupe d'Hébé, we do not recognise this variety. Emily Gray is suitable for a wall. The Wichuraiana section is suitable for most walls, but not in very hot positions. For a high wall, Minnehaha, L'Ideal, Milky Way, Mme. Isaac Pereire, Mrs. F. W. Flight, Félicité et Perpétue, Tausendschön, W. Allen Richardson, Aimée Vibert, Claire Jacquier, Alister Stella Gray, Persian Yellow, Excelsa and Dundee Rambler. Hugh Dickson should be allowed to grow freely, thinning out to prevent overcrowding, and cutting off unripe tips to ensure quantity of flowers. George Dickson: procure as many secondary or late shoots on the plants as possible. H. E. Richardson: treat this the same as Hugh Dickson. Juliet: treat this similarly to the Austrian briars.

TREES AND SHRUBS.

Flowering Shrubs (T. H. H.).—The following are twelve very serviceable shrubs for your purpose: Andromeda floribunda, deutzia, forsythia, lilac, ribes, philadelphus, rhododendron, snowberry, arbutus, Buddleia globosa, Escallonia macrantha and laurustinus.

FRUIT GARDEN.

About Fruit Trees (Lady G.).—We are inclined to agree that "weather" is by no means the sole cause of the fruit trees failing to thrive and crop. In the first place, the fact that all sweet cherries are more or less self-sterile may be the reason that the flowers fail to "set" fruit, but in your case, apparently, it is not so much that the flowers do not develop into fruits as that "little or no blossom is borne by the trees." Self-sterility or fertility can in no way influence the formation of blossom buds or the amount of blossom produced—only can it affect the "setting" of the flowers that are produced. In the circumstances we think that the trouble lies elsewhere, and would suggest that in all probability the border is at fault. If the soil is at all cold and wet, and badly drained, or if lime is lacking, the trees will make coarse, rank growth at the expense of fruit buds. We think it would be well to make quite sure that the drainage is all right by taking out the old soil in the border and relaying the tile drains. When the soil is returned, add a quantity of broken lime rubble, and if at the same time wood ashes and basic slag can be added, so much the better, the latter at the rate of 4oz. or 5oz. to the square yard. This would undoubtedly do good, the best time to attend to the work being just as the leaves are falling in late autumn. If the roots were not pruned (as we note were the pears) last year, then they should be attended to at the same time. We think attention to these few points would do much to encourage fruitfulness. With regard to the pollination of the blossoms, if there are several varieties in the garden there will be little to worry about in this direction. However, if you would let us have a list of the kinds grown, we could advise on this point more definitely. Sterility occurs among apples, pears and plums just as with cherries, but here again, if several kinds are grown, effective cross-pollination should take place in any year. We think that the addition of lime rubble to all the fruit borders would be distinctly beneficial, and if there is a possibility of the drainage being at fault it should be attended to without delay. Cutting hard back as suggested for the plums is quite likely to do more harm than good, and it would be far better to carry out the ordinary pruning routine regularly and carefully. Of course, the cherries and pears—and plums too—should be summer pruned in addition to the winter work. No doubt the root pruning advised for the pears that are growing very strongly will do much good, though the good effects may not be immediately apparent. Nevertheless, if the border is at fault, root pruning alone will not render the trees fruitful. The treatment advised for the cherries would suit pears admirably. At sixteen years old, if properly pruned and cared for, the trees should be in their prime. Of course, the foot of a south wall is a very dry spot and frequent watering of the border during dry spells would be a great help, though it might not be needed so much in a season such as this. We have examined the apple spur and shoot sent, and both are in rather a bad way. The young shoot is covered with the apple mildew, a fungus disease very prevalent this year. Spraying with Bordeaux mixture in June and July is recommended as a control of this trouble, but we should prefer to rely upon the cutting out of every shoot coated with the white powdery mildew immediately it is noticed in early summer. Make quite sure that all such diseased wood is cut out when pruning this winter or a very bad attack next summer will certainly follow. The old spur sent is covered with moss and lichen, a sign that a good winter wash is long overdue. There is also a little scab present. Any of the proprietary winter washes might be used during the dormant season, or the simple home-made caustic soda wash will be effective. Two pounds of caustic soda dissolved in 10 gallons of water is the recipe. The Bordeaux sprayings in June will help control the scab, which appears to be slight. It may be a job to get trees so diseased and with spurs so aged back into good fruiting, and we would suggest that it might be best to grub them up and plant new ones. The peaches and nectarines are also in a very poor condition. They are very badly attacked by the silver-leaf fungus, for which there is no known remedy, and are also covered with red spider, a sign that their cultural management has not been all it should be. It would be best to grub these and replace them, as the silver-leaf cannot be got rid of and the trees are so poorly they would probably not recover in any case.

KITCHEN GARDEN.

Celery Diseased (J. M.).—The celery sent for inspection has been very badly attacked with the celery fly, which attacks in mild seasons may continue into December. The symptoms are in every way characteristic, the leaves assuming that brown and shrivelled-up appearance, becoming ultimately utterly valueless to the plant, while the stems cannot fill out properly. Where possible, it is wise to avoid growing successive crops of celery on the same ground. When only a few leaves in a bed are noticed, these should be pulled off and burned. A mixture of 3 parts soot and 1 part lime should be dusted on the leaves from April onwards. Paraffin emulsion is a good deterrent spray when the plants are in the seedling stages. Applications of nitrate of soda mixed with a little agricultural salt will effect a rapid leaf-growth, which is often desirable where there is a bad attack. Nicotine spray is also useful. All infected plants when dry should be collected and burned, to prevent further spread.

Tomato Plants Diseased (D. M. G.).—The leaves sent for examination are badly mildewed with the fungus so prevalent this season on account of the low temperatures, excessive moisture and lack of sunshine. Cut off and burn the leaves most damaged. If the disease occurs again next year, spray them with the Bordeaux mixture directly the mildew is observed under the leaves, as it is not wise to spray the fruits. Free ventilation is essential and each plant should have room in which to develop, the plants being 2ft. apart.

Names of Plants.—(T. A. D.).—1, Oxalis corniculata purpurea; 2, Sedum reflexum; 3, S. acris; 4, S. anglicum; 5, S. album var. brevifolium; 6, S. spurium; 7, S. rupestris; 8, S. Telephium; 9, Omphalodes verna. —— (S. H. B.). — Dimorphanthus mandschurica.

Wisley Trials, July 23rd, 1924.—THE following awards have been made to sweet peas by the Council of the Royal Horticultural Society after trial at Wisley:

AWARDS OF MERIT.

Flowers White.—Joan Ryder, sent by Messrs. Ryder; King White, sent by Messrs. J. K. King; Mascott's White and Edna May Improved, sent by Messrs. Ireland and Hitchcock; Constance Hinton, sent by Messrs. A. Dickson, Messrs. Dobbie and Messrs. W. J. Unwin.

Flowers Cream.—Cream Constance Hinton, sent by Dr. H. T. Hinton; Matchless, sent by Messrs. Dobbie and Messrs. Ireland and Hitchcock; Majestic Cream, sent by Messrs. W. J. Unwin; Hawlmark Cream, sent by Messrs. A. Dickson; Paradise Ivory, sent by Messrs. Kelway.

Flowers Crimson.—Charity, sent by Messrs. Ireland and Hitchcock. Other unnamed varieties very much like Charity were sent by Messrs. Barr, Messrs. R. Veitch, Messrs. J. Stevenson, Messrs. W. J. Unwin and Messrs. J. K. King. Crimson, Unwin's, sent by Messrs. W. J. Unwin; Crimson King, sent by Messrs. Morse, Messrs. Dobbie and Messrs. Webb; Maud Holmes, sent by Messrs. Barr; Sunproof Crimson, sent by Messrs. Dobbie and Messrs. Kelway.

Flowers Maroon.—Warrior, sent by Messrs. Dobbie. Other unnamed varieties very similar were sent by Messrs. W. J. Unwin, Messrs. A. Dickson, Messrs. W. H. Simpson, Messrs. J. K. King, Messrs. Webb, and Messrs. Ireland and Hitchcock. Nubian, sent by Messrs. Kelway; Maroon King, sent by Messrs. F. C. Woodcock.

CATALOGUES RECEIVED.

Messrs. Wm. Power and Co., 25 and 26, King Street, Waterford.—Bulbs.

Messrs. Robert Veitch and Son, Exeter.—Roses, Fruit Trees and Bulbs.

FORTHCOMING EVENTS.

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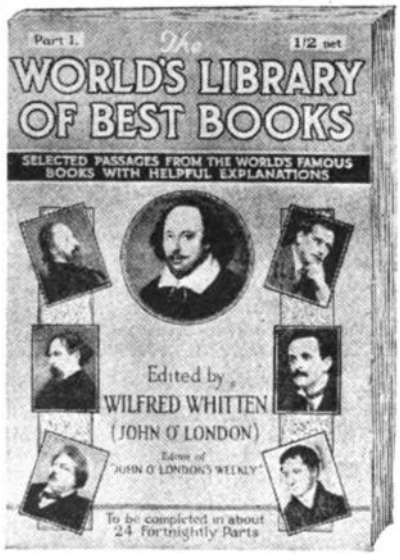

Edited by

WILFRED WHITTEN

THE purpose of this work is to give representative and extended selections from the World's Best Books. Each of these selections will be preceded by a clear, concise, and helpful introduction. In this way the Editor hopes that he will adequately convey to the reader's mind something of the *content*, the quality, the style and the significance of the world's best books.

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Tennyson's "In Memoriam."
Dickens' "Pickwick Papers."
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Dumas' "The Count of Monte Cristo."

PART II.
Rudyard Kipling's "Barrack-Room Ballads."
Carlyle's "French Revolution."
Byron's "Childe Harold."
Thackeray's "Vanity Fair."
Cervantes' "Don Quixote."
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Thomas Hardy's "Return of the Native."

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Milton's "Paradise Lost."
Macaulay's "History of England."
Anatole France's "Penguin Island."
Byron's "Don Juan."
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"The Arabian Nights." "The Third Calender's Story."

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Joseph Conrad's "Tales of Unrest."
Shakespeare's "Hamlet."
Robert Burns' Poems.
Maeterlinck's "Life of the Bee."
Gibbon's "Decline and Fall of the Roman Empire."
Goldsmith's "Vicar of Wakefield."

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Goethe's "Faust."
Froude's "Murder of Thomas à Becket."
Shelley's Shorter Poems.
Arnold Bennett's "The Old Wives' Tale."
Plutarch's "Lives."
Fitzgerald's "Omar Khayyam."
Edgar Allan Poe's "Mystery of the Rue Morgue."

PART VI.
H. G. Wells' "Tono-Bungay."
Dante's "Inferno."
Scott's "Red Gauntlet."
Meredith's "Richard Feverel."
Conan Doyle's "A Straggler of '15."
Sheridan's "School for Scandal."
Morley's "Gladstone."

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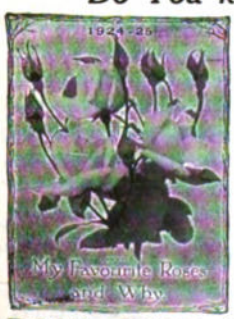

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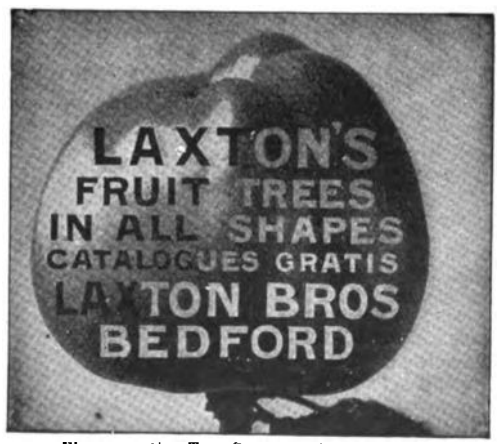

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THE GARDEN

VOL. LXXXVIII.—No. 2760. OCTOBER 11, 1924.

WE WOULD ASK OUR READERS TO REMEMBER THAT "THE GARDEN" IS PRODUCED FOR THE BENEFIT OF ALL GARDENERS. WE ARE ALWAYS PLEASED TO CONSIDER ARTICLES OR NOTES ON ANY HORTICULTURAL SUBJECT. WE ARE ALSO HERE TO ANSWER QUESTIONS.

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THE GARDEN

OCTOBER 11, 1924

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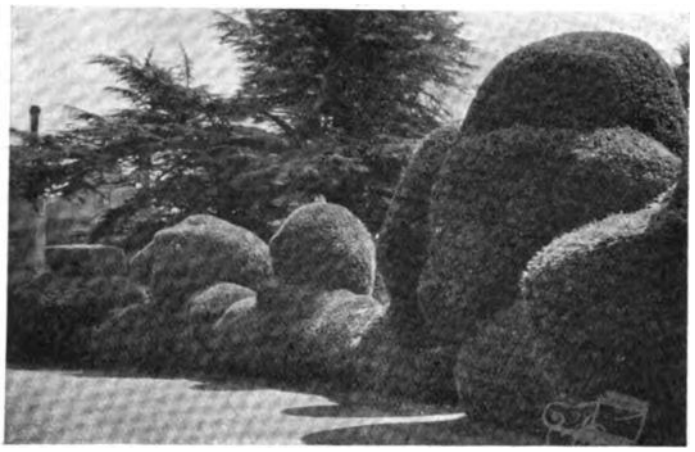

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LABELLING and LABELS

EARLIER in the year there was a considerable amount of correspondence in THE GARDEN concerning labels, but this correspondence presupposed a theory that most gardeners used labels, which they do not. I feel that it is now opportune to bombard my readers with a few remarks anent labelling. Of all diseases to which gardeners are most prone, inefficient labelling is the most deadly and the most insidious. This, of course, particularly refers to those who are interested in some special genus or are making a collection, for in this case a month's slackness in labelling will upset the whole of the plant names in a garden. If you have two plants together closely akin, one labelled and the other not, some day doubt will step in. You, or your gardener, will wonder whether the label applies to the plant in front of which it is placed, or some kind friend will tell you that the label obviously is meant for the other plant—and that is your undoing. I am just as slack in this respect as anybody else. I put off labelling until I become alarmed, and then I rush helter skelter into a welter of labelling; my memory refuses to bear its burden and I label a plant A, which it is not—and so the merry round goes on.

From the number of plants—often quite common plants—which are sent to this office for naming, it is certain that few people trouble about the correct name of a plant, for it is obvious that for every one who sends in a plant to be named there are a dozen who will not take the trouble. There is one fact that is certain, and that is that labelling is a necessity for all who aspire to rise above the beginners' class in gardening. And if you come to think about it, it is not so very difficult or laborious; there is only one rule to be observed. Write a label for every packet of seed and for every plant, before you sow the seed or plant the plant. Do not wait until the end of the day, and write all your labels at once, for this is how mistakes occur. If this rule were adhered to, there would not be so many faulty names in our gardens. A great deal of information can be given on the label without overcrowding—the name, where it came from, and when the seed was sown or the plant planted.

From the correspondence in THE GARDEN there appears to be a great divergence of opinion about the kind of label to use. This is a personal matter, for you may like your labels inconspicuous and so placed that only you know where to look for them, or you may like them so easily seen that your garden looks like a graveyard. I prefer the happy mean, and after several years of experiment I believe that I have found a perfect label. It is made out of a sheet of thin celluloid, a substance so easy to cut that your labels may be of any shape or size you like. As far as my experience goes, it is practically imperishable; wet does not rot it nor sun bleach the lettering. For seed pans or annuals an ordinary pencil is quite sufficient. Even when covered with mud from the drip of trees, the mud is easily brushed off and the name is as clear as ever underneath: an ordinary rubber is all that is required to erase the writing when the plant is removed from the seed pan or is dead. For permanent plants special xylonite ink, which can be used with ordinary pens, is all that is necessary. The writing will last as long as the label. For seed pans or nurseries white celluloid can be used, but this is a little startling in a rock garden, so the celluloid is now dyed, and you can buy it of a most excellent fawn colour which is sufficiently inconspicuous and yet clearly seen.

Naturally, this label will never oust the cast or enamelled labels, but celluloid is far less costly and labels can be prepared at home, which is impossible in the case of the moulded labels. They are surely cheap and flexible enough for nurserymen to tie to plants before despatch and thus do away with an extra labelling, for nurserymen's labels are notoriously short-lived. I for one would be perfectly willing to pay an extra penny or two for a plant which I knew was durably labelled. A new slogan might be invented. "Say it with labelling": at any rate, it makes better sense than "Say it with flowers."

E. H. M. C.

OUR NEXT ISSUE WILL BE A SPECIAL ROSE NUMBER.

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THE LARGE-FLOWERED HYBRID CLEMATISES

BY A. G. JACKMAN.

WHEN WELL GROWN, THESE ARE AMONG THE MOST BEAUTIFUL OF HARDY CLIMBING PLANTS.

IT is upwards of sixty years since the clematis first came into favour as an ornamental climber, and notwithstanding the improvements and more recent introductions in other climbing plants, it is still unrivalled for beauty and elegance. The introduction of the first species, C. Viticella, into this country dates back to 1569, and according to Loudon it was known in English gardens as the Virgin's Bower, this name being possibly intended as a compliment to Queen Elizabeth, who liked to be called the Virgin Queen. The name has also been immortalised by Cowper:

> Thrive gentle plant! and weave a bower
> For Mary and for me,
> And deck with many a splendid flower
> Thy foliage large and free.
> . . . . .
> Thy cause with zeal we shall defend
> And with convincing power;
> For why should not the Virgin's friend
> Be crowned with Virgin's Bower?

One wonders what eulogism Cowper would now have bestowed upon the various hybrids sprung from his Virgin's Bower.

Other species familiar in our gardens are CC. Flammula, paniculata, montana, montana rubens, graveolens, and the herbaceous species CC. recta and integrifolia. These are so well known that they require no recommendation, but there are others which are equally worthy of attention. Among these might be mentioned CC. crispa and campaniflora, both of which bear fragrant bell-shaped flowers. CC. tangutica and tangutica obtusiuscula are rampant-growing yellow species from Mongolia, C. Armandi an evergreen climber with panicles of white flowers from China, the winter-flowering evergreen C. calycina and C. cirrhosa from Southern Europe bearing spotted creamy yellow flowers, C. alpina a blue species from the Alps, the herbaceous climbing Texas species, C. coccinea with bright scarlet and orange flowers, and the two herbaceous perennials C. Davidiana with hyacinth-shaped sky blue, sweet-scented flowers, and C. grata or C. Jouiniana bearing panicles of bluish white flowers in great profusion. This article, however, is mainly concerned with the various large-flowered hybrids. These for size, beauty and diversity of colour far surpass the species. The various purposes to which they can be applied render them invaluable as decorative plants. Few climbers can surpass them for covering a wall, climbing an arch or pillar, or over trelliswork, covering tree stumps, rambling over bushes, or growing in a conservatory or cool greenhouse in either pots or tubs, or planted out in the border. Several varieties of the Jackmanni and Viticellæ sections are also adapted for pegging down in beds.

It has been found desirable from a horticultural standpoint to classify the hybrids into six distinct sections, combining varieties of similar characteristics and season of flowering. This classification will be found of assistance in making selections, and will act as a guide to their pruning and the various purposes to which they can be put. They are:

1. Azuræ type.—Climbing large-flowered spring bloomers (May–June), flowering from the old or ripened wood.

2. Floridæ type.—Climbing large double-flowered summer bloomers (June–July), flowering from the old or ripened wood.

3. Lanuginosæ type.—Climbing large-flowered summer and autumn bloomers (June–October), flowering successionally on short lateral summer shoots, the flowers dispersed.

4. Jackmanni type.—Climbing large-flowered summer and autumn bloomers (July–October), flowering continuously in profuse masses on the young or summer shoots.

5. Viticellæ type.—Climbing large-flowered summer and autumn bloomers (July–October), flowering successionally in profuse masses on the young or summer shoots, but not so continually as the preceding.

GRAND DUCHESS, A NOTABLE INTRODUCTION OF RECENT YEARS.

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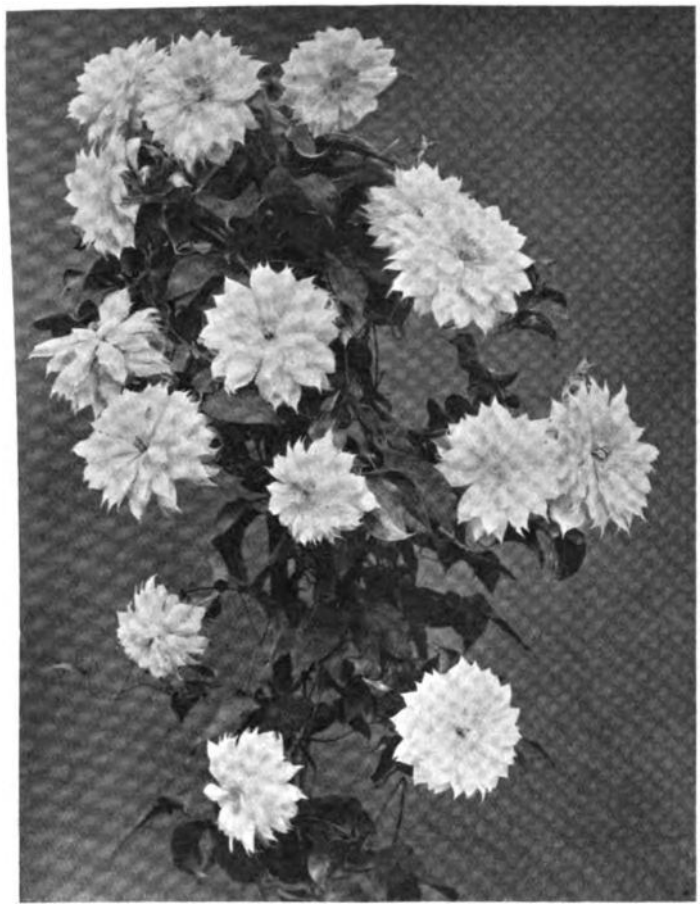

BELLE OF WOKING. A SUB SHRUBBY TYPE WITH PROFUSE MASSES OF BLOOM.

6. Wokingensis type.—Climbing sub-shrubby, medium-sized, campanulate, summer and autumn bloomers (July–October), flowering successionally in profuse masses on summer shoots.

The clematis thrives in most soils where the drainage is good, but, where procurable, a rich loamy soil will be found the best, to which may be added some good rotten manure, chalk or slaked lime. The hole should be dug at least 2ft. square by 2ft. deep. The plant should be carefully taken out of the pot in which it has been growing and the crocks removed, particular care being taken not to damage the shoots or roots. It should then be placed in the hole so that when filled in the top of the ball is about 2ins. below the surface of the soil, the earth being made firm round the plant.

The clematis prefers a partly shaded position. An easterly or westerly aspect is therefore preferable to due south, as the plant thus escapes the full blaze of the sun during the summer months, or a position where the roots are partly protected by adjoining shrubs or plants is also advantageous.

When required for growing in pots or tubs in the conservatory or cool greenhouse the clematis should be re-potted in March, and the young shoots trained into the position required. The temperature of the house should not exceed 55°, otherwise the flowers will not show their true character.

Pruning is an important operation, and should take place in February or early March.

The varieties of the spring-flowering Azuræ and Floridæ types which flower from the old wood only require the weak, straggling or overcrowded shoots removed, while the summer and autumn flowering varieties of the Lanuginosæ, Jackmanni and Viticellæ types which flower from the young shoots may be cut back to within two pairs of axillary buds, the aim being to encourage the development of vigorous young shoots. It is advisable, however, to defer this operation until the plants are thoroughly established. The varieties of the Wokingensis type should have the shoots cut back to where they have died down.

With so many fine varieties it seems almost invidious to mention names, but among those that have been introduced in recent years mention might be made of Nelly Moser, Lasurstern, King Edward VII, Lady Northcliffe, Lady Betty Balfour, Belle of Woking, Grand Duchess, Countess of Onslow, Duchess of Albany, Admiration and the two latest novelties, Crimson King, the brightest of all the reds, and The Bride, the most free-flowering pure white variety in cultivation, forming, indeed, a veritable bridal bouquet.

It is of interest to note that although C. Jackmanni was introduced over sixty years ago, it still retains its position as general favourite, and the name has been immortalised by Tennyson in his poem "The Spinster's Sweet-Arts":

An' I sits i' my oän little parlour,
An' sarved by my oän little lass,
Wi' my oän little garden outside, an'
My oän bed o' sparrow-grass,
An' my oän door-porch wi' the woodbine
An' jessmine a-dressin' it greeän,
An' my oän fine Jackman i' purple a
A roäbin' the 'ouse like a Queeän.

TULIPS AND THEIR CULTIVATION

BY C. W. NEEDHAM.

TULIPS are of two main sorts, in regard to colour; some have sap colours only, white or yellow as the case may be, others, in addition to the sap or mesophyll colour, have a pigment colour on the face of the inner side of the skin of the petal.

The whites and the yellows, without pigment colour, are the true selfs; those tulips having pigment colour on the epidermis of the petals, in shades of varying intensity of rose or purple, give coloured flowers; sometimes, in addition to this antho-cyanin pigment, there is present a yellow pigment, related in some way to the antho-cyanin pigment, and this gives the "shot" effect to the colour of the petals, as in John Ruskin; this yellow colouring matter in the segments rapidly fades as the bloom ages.

The rose and purple pigments on the white grounds give us the "roses" and byblœmen, or, to use the old English name, "purples."

Again, similar rose and purple pigments coming on the yellow grounds—sap colours—give us the red bizarres and the brown bizarres.

Tulips are divided into roses, byblœmen or purples, and bizarres. The roses and the byblœmen are on white grounds and the bizarres on yellow grounds.

In many tulips there is colouring matter in the blotch round the seed vessel, that is, in the blue or black base. English tulips have pure white or pure yellow bases. In speaking of the colour of a tulip bloom the base is neglected.

More than a hundred years ago the colour divisions were mainly yellow grounds and white grounds, bizarres and byblœmen. The white grounds only were esteemed by the early Flemish and French florists; the bizarres were discarded.

Soon after the introduction of the tulip into Europe about 1550, florists were at work on the flower, raising new varieties from seed, even though numerous varieties were already in existence, apparently owing their origin to the Turks. Flemish, French and English florists devoted their attention to the improvement of the flower, which had rapidly come into favour with all who cultivated it. As the outcome of the work of those who loved the flower and best knew its possibilities, a standard of perfection seems to have been evolved. This standard was not so much of an arbitrary dogma as an expression of what was most desired and an indication of the form in which the tulip could show itself to the best advantage.

Thus we got the florists' ideal of a tulip, its shape should be about one-half of a hollow ball when the flower is expanded,

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so that at one glance we may see the whole interior of the bloom. Its stem should be stout and erect, carrying the bloom well, and its colours should be pure and clear, the results of a basal ground of pure white or clear yellow. The petals should be broad, rounded and nicely imbricated, level on the top and making a perfect cup.

At all events, that was the English ideal. The Dutch had more regard to brilliancy of colour than purity of base, and with them the shape of the flower was unimportant.

On the first occasion of noticing tulip bloom one is attracted by its mass of colour, which arrests one's attention; then interest is awakened in its general form and appearance; later comes an appreciation of its merits and, from a delight in splashes of bold, gay colouring, we pass on to the desire for the soft tones—the melting shades; we go from contemplation of the yellow, the red and the purple to the appreciation of the intermediate tones and shades of colour. From the definite purples to the bewildering and fascinating shades of lilac and lavender, soft and dreamy, on through the suggestions of the blue into the blushes and pinks to the roses, indeterminate at first, then into bold, bright reds and on through the orange golden and yellow shades. Down the whole chromatic scale the eye moves, finding the expression of one's thoughts of the moment in the selected shades, whether indefinitely suggested and delicate in tint, or decided, unmistakable and bold in colour, nebulous and dreamy, or wide-awake and strong.

Some tulip blooms delicately hint at a shade, others speak out boldly in a decided way.

Observing some of the very old types and comparing them with some of the more modern types, we note the results of the efforts of the old florists at work among the purples with their white grounds, separating the reds from the blues and getting clear and distinct shades, and among the bizarres with their yellow grounds, brightening the reds and intensifying the purples, until on the one hand we see orange and gold in conjunction and on the other hand a shade of purple, almost black, superimposed on a lemon yellow ground. These results point the way for future florists to tread when putting their faith into practice in the raising of seedlings that shall surpass any known variety. Maternity completes womanhood, seedlings complete the florist.

The Flemish and French florists of old appear to have preferred the white ground tulips to the yellow grounds, and devoted themselves to the improvement of the byblœmen section, neglecting the bizarres. One is tempted to ask, is there any connection between their devotion to the byblœmen section and the facts that the white grounds seem dominant and the yellows recessant in seedling raising?

The section of May-flowering tulips called Darwins, introduced into commerce about twenty-five years ago by Krelage, appear to have been the work of some inheritors of the Flemish and French tradition, since the yellow grounds are entirely absent from the group, which appears to have been bred for a sound constitution.

The characteristics of the Darwin are its sturdiness and robust habit, its flowers being rather square-shouldered, its petals take off the stem almost at right angles and turn again at a sharp angle to form the cup; the unopened flower seems wedge-shaped.

The old Dutch florists' tulips are mainly egg-shaped in the bud and their petals long and brilliant in colouring.

The English florists' tulips have shorter rounded cups and clear pigment colours on pure white or clear yellow bases.

In the old days, a fine tulip meant a broken tulip; the selfs or breeders were appreciated for the inherent power they possessed of breaking well or badly. In these modern days tulips are more generally appreciated in their self-coloured or breeder stage. The English tulips were bred to break and to break well.

All tulips having the pigment colour before described will break at some time or other, whether they be Dutch, Darwin, English or Cottage tulips. Broken Darwins are commonly called Rembrandts. Yellows and whites, being true selfs without the pigment colour, do not break.

Tulips which are not Dutch or English florists' types, or Darwins, generally fall into the group called Cottage tulips. They are, doubtless, many of them, discarded florists' varieties which have survived owing to their sturdiness and persistent vitality. Tulip species are rare treasures.

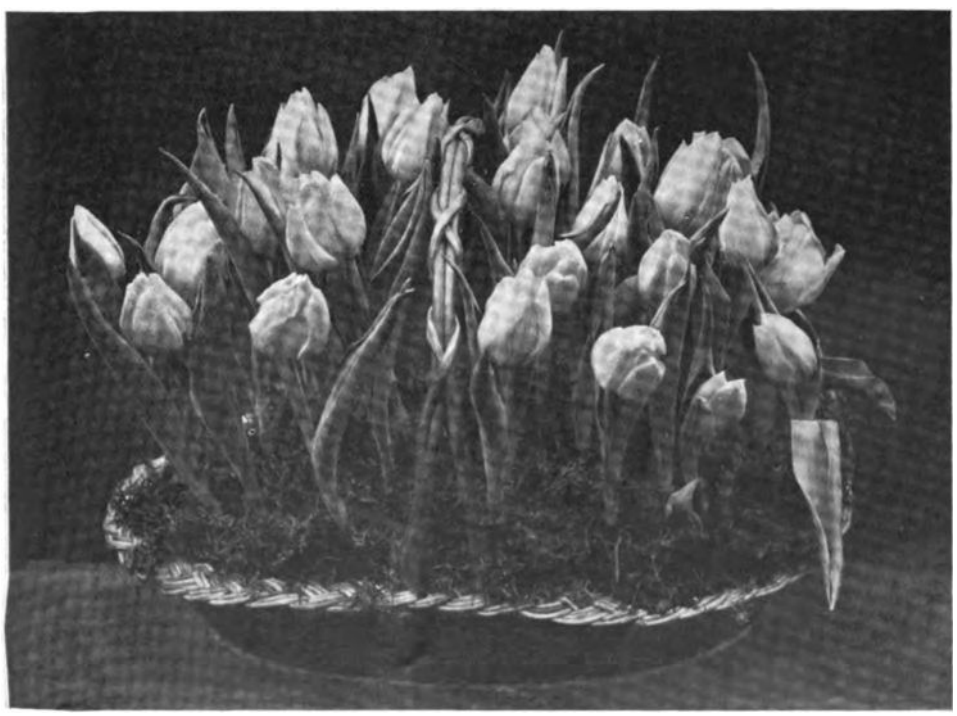
Of the early-flowering varieties the dwarf bedding flowers which may be expected to bloom in March or early April, the earliest, and some of the best, are the Duc Van Thol tulips in shades of red, yellow and white. Their price is usually about 15s. per 100, and very effective they may be made, grown in masses of colour schemes. There are other early but taller varieties, usually flowering in April or early May, suitable for bedding in groups of colours, embracing White Swan; in scarlet, Dusart, Artus, Couleur Cardinal, in height 14ins. or 15ins. or thereabouts, in decided bright colours; in red and yellow we have Duchesse de Parma with clear bright shades and a large yellow base and short cup, and an old-time flower, Keizerskroon, of red body colour with yellow feathering on the edge of its petals, once as plentiful as Emperor daffodil is now. It is very effective grown in a bed with wallflowers, the bloom is bold, of goblet shape, and lasts well.

The Duchesse is an especial favourite, its substantial petals are often delicately pencilled with red, though occasionally one sees a vase of the breeder type such as was shown in a group of old tulips by Messrs. Bath at an early meeting of the R.H.S. in May last. Messrs. Bath, by the way, had also examples of orange-scarlet in Grenadier and Prince of Austria, and both are fragrant.

Another example of an orange shade is Fred Moore, also scented, about 18ins. in height, having a starry base and being fairly cheap as quoted by Hogg and Robertson.

In yellows we may select from Montrésor, Chrysolora, King of the Yellows and Prince de Ligne, which grow 13ins. to 15ins. in height. A bed made of the crimson-coloured Macrospila, a form of Gesneriana, is most pleasing and gives off a fine perfume after rain. The bulbs are cheap.

In selecting varieties for the garden it is well to seek guidance from the nurseryman's catalogue for the economical expenditure of one's money as well as the satisfaction of our wants. Some lists are instructive; Barr's is notably



ONE OF THE CHOICE YELLOW VARIETIES, TULIPA MONTRESOR.

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informative—experience shows it to be a veritable index, carefully compiled, though most lists give useful details.

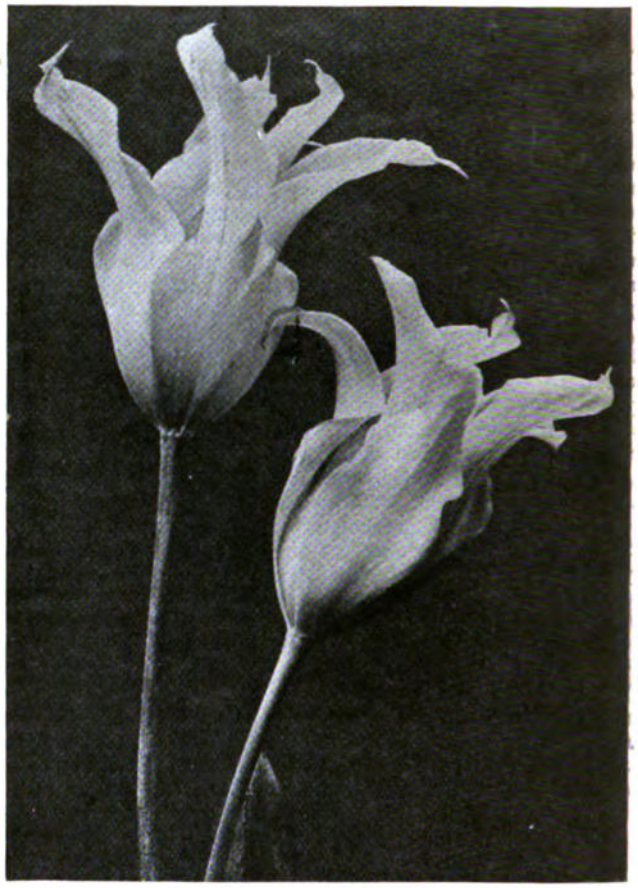
Among the Cottage varieties, there are, in crimson:

Gesneriana-spathulata, a type. In scarlet colours: Grand and Scarlet Emperor, about 2ft. in height. In orange-scarlet: Orange King and Grenadier, both scented and about 20ins. in height. In yellow: Mrs. Moon, with pointed petals; Gesneriana-lutea, Bouton d'Or and Inglescombe Yellow. Bouton d'Or in a bed by itself and "well done" makes a fine display of large blooms. Inglescombe Yellow is somewhat later in blooming, but gives noble flowers. Both are very suitable for cutting and grow about 2ft. high. In primrose shades there are Solfatarre and Vitellina.

Prince of Orange is a delightful old Dutch tulip, perhaps the best one in bright red with a flush of gold; it deserves a special place and it lasts well. The bulbs may cost 3d. each; the blooms will be priceless if the plant is well grown. Other fine old Dutch tulips are Velvet King, a purple; Dom Pedro, a bizarre; and Bacchus, another purple. This last may cost 9d. per bulb, but it is worth it.

A quaint yellow tulip is Retroflexa, and a green one with waved petals is Viridiflora. A pretty little brown dwarf tulip is Persica and suitable for rock gardens. Præstans is orange-red in colour and often has four or five blooms on a stem; it comes from Bokhara. Sprengeri is orange-scarlet and the last tulip to bloom. Saxatilis is a delicately shaded satiny rose. Sylvestris, a sweet-scented typical tulip from the Caspians. Fosteriana, from Bokhara, is one of the most brilliant scarlet red tulips, long in the petal and an early bloomer; some have clear yellow bases, others have blotched blue bases; the bloom is a very bright feature in the border in late April.

Kaufmanniana, from Turkestan, is another gorgeous bloom when it comes Turkey red in colour; some blooms are creamy yellow. Extremely interesting is this tulip species. The bulbs of many of the species tulips have to be collected and imported, so are not very low in price, nor are they easily propagated here in this country, though easily grown.



TULIPA RETROFLEXA, A YELLOW WITH RECURVED BLOOMS.

A MAHOGANY-COLOURED BIZARRE, DOM PEDRO.

Turning to the more popular Darwins, we have in shades of vermilion Isis and Glow. Isis has rather a waxy coral look and comes into bloom somewhat early. We have Europe, with a clear base of white showing up well its beautiful shade of red, 26ins. high; and Mrs. Farncombe Sanders, with big bold square-looking red blooms standing 30ins. high, a notable variety; and the vigorous cerise-coloured bloom, Pride of Haarlem.

For shades of rose, there are: Baronne de la Tonnaye, a soft pink, tall, with a stem of 30ins.; the bloom has a slight "waist." Sought after as a cut flower. Julie Vinot is a sweet shade; and Loveliness shows itself well, the base being white. For a pale shade of rose there is the option of Psyche, over 30ins. high, and Suzon, about 28ins. tall. In salmon-pink shades comes Clara Butt one of the very popular flowers. In the purple shades we have Moralis and The Bishop—even though the latter is somewhat "eminent" in price. In lavender shades are Rev. H. Ewbank and Sweet Lavender, both over 2ft. in height. For lilac shades, Erguste and Electra, both having white bases; Dorothy, whose white base is blotched with grey; and the noble Philippe de Commines. Another mauve shade is Bleu Aimable. The two last-named varieties grow about 30ins. in height. Remembrance is a slaty lilac; also La Tristesse, which seems slightly tinged with yellow. Mrs. Potter Palmer is a rosy lilac shade, and Euterpe similar in shade but showing its tints off better because of its white base. For a blush shade there is Margaret, a very pretty bloom. Then we have the palest of the Darwins, White Queen.

Since "we must have blooms for the house," and in mid and late May flowers for vases are somewhat scarce, tulips offer themselves as a ready prey, as well for their decorative as for their lasting qualities. If one must cut tulip bloom it is well to select bulbs for the purpose and grow them in a spare bed, and thus preserve the flowers that are grown for display, decoration and delight in the garden.

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A SEASONABLE NOTE ON GREENHOUSE HEATING APPARATUS

THE approach of autumn should give warning to all who possess greenhouses to make ready for winter. Many a tale of trouble and disaster could be told of heating apparatus left severely alone throughout summer and found to be defective at a critical time when an enforced wait for new "parts" or competent labour has involved serious loss of valuable stocks of plants.

It is an extraordinary thing that despite the costliness and the supreme importance of the whole system of heating apparatus very many owners and controllers of gardens are guilty of neglect of this particular subject of consideration.

Fuel is costly, and in order to extract the maximum value or heating capacity from the fuel used it is essential that the heating apparatus shall in the first place be adequate to the demands made upon it; secondly that the installation shall be accurately planned, and thirdly that the whole shall be maintained in a thoroughly efficient manner.

It has very frequently occurred that economising in the matter of heating arrangements has started at the wrong end. A small boiler attached to a greater amount of piping than it is really capable of dealing with must be driven so hard that fuel consumption is excessive, and the wear and tear of the boiler is destructive.

Too small a quantity of piping for the cubic capacity of the house is equally bad, for that again means constant hard driving, waste of fuel, and strain on the boiler. The truly economical course is to have an adequate supply of piping, and a boiler of sufficient power to maintain a good temperature with quite moderate fires. Fifty feet of 4in. piping to every thousand cubic feet of space in the house is a satisfactory average, capable of easily maintaining a temperature up to 60°, which is high enough for all general purposes. The size of the boiler should always be 25 per cent. larger than that which would represent maximum power in relation to the quantity of piping. These are important points because they have a very direct bearing upon annual expenditure in fuel and in repairs, and in the event of necessity arising for repairs of considerable extent it is highly advisable thoroughly to investigate and ascertain whether a larger boiler or more piping is required. Waste of fuel is very often the outcome of a worn out or broken furnace bottom. A broken bar will allow unburnt or partially burned fuel to fall through to the ash pit. If that continues throughout the winter a large amount of fuel will be wasted. A new single bar may be put in at moderate cost. A cracked boiler will cause no end of trouble, and will be a constant cause of waste in expenditure as well as a source of annoyance. A cracked furnace door, or broken damper will also prevent satisfactory control of the fires. Generally speaking such features may be successfully welded by oxy-acetylene blow pipe, the modern method of perfectly healing broken metal without the old-fashioned patch and rivets.

Leaky joints in hot-water pipes should receive attention before winter sets in, as it is a risky business to have to empty and take down pipes during a spell of keen frosty weather. There is an immense advantage in having rubber expansion joints, and even where these are not already installed it is worth while to introduce them whenever a new length of pipe is fixed. Rubber-jointed pipes may rank as tenant's fixtures, but cement-jointed pipes are not entitled so to rank.

Furthermore, breakages frequently occur when disconnecting cemented joints, but with rubber expansion joints the task of disconnecting and re-fitting is simple.

An immense amount of trouble is caused through furring of the interiors of boilers and pipes, especially where water contains much chalk. Acid preparations are procurable which will dissolve the incrustation, but the fluid is expensive, and needs to be used with caution, for it will, if allowed to remain, also eat into the metal with disastrous results.

Sometimes pipes are so badly furred that something must be done, and in such circumstances the best plan is to procure sufficient diluted nitric acid, obtainable from merchants in commercial chemicals, pour them (with water) into the cistern, and put on a driving fire for a while. Be careful to turn all safety-valve taps on, as the acid will generate gas in the pipes. After the water has been driven round the pipes for an hour, and while still hot, draw all off from the boiler tap, using old buckets for the purpose. Let the fire down, in the meantime to prevent cracking the boiler, and when the boiler and pipes are empty and cool run a quantity of clear water through and out, to wash away as far as possible all trace of the acid. This means much labour, but it will save the situation so far as restoring the system to workable order, and will effect a great saving in the consumption of fuel. Indeed, every hot water installation should be thus flushed out at the beginning of every season, for no matter how careful one may be in using clean water for filling up the cistern, some impurities are bound to find an entrance to cause a sediment in the pipes. If there is much sediment the tap may be choked, and it will be necessary to take it out, permitting the unhampered escape of water and sediment. Always empty while the water is hot, and in active circulation, but always take care that by the time the pipes are emptied the fire is out.

There are those who maintain that it is unnecessary to empty the boiler an pipes for the period of the year when fires are not in use, but that appears to be a view which looks upon saving of labour as being the most important consideration. It cannot be beneficial to have stale, stagnant water remaining continuously inside the heating apparatus, and I would certainly urge that the better plan is to empty at the end of the firing season, flush out and refill at the approach of autumn.

See that all safety valve taps are open when refilling, and make quite sure that the pipes are quite full before lighting the fire.

The question of what shall be done to maintain a neat and tidy appearance of the hot-water pipes needs some consideration. The chief point is that nothing must be used which will give off injurious fumes when the pipes are heated.

Japan black or Brunswick black are sometimes recommended, but they can only be used when the house is empty, and it is necessary to have two or three fires to heat the pipes and exhaust the poisonous fumes before plants are brought into the house.

A paint made of graphite and pure boiled linseed oil may be used with safety in occupied greenhouses. It will give off a strong odour when first the pipes are heated, but the fumes are non-poisonous, and harmless to plants. Beware of cheap paint-oils which are frequently offered as being as good as linseed oil. These are frequently extracted from fish, and are quite unsuitable for the purpose under present consideration.

In commercial houses whiting is often used for coating pipes, and if a good quality of painters' driers is mixed with the whiting it will not readily rub off and the pipes will at any rate be kept clean and rustless.

Finally look to flues, chimneys and soot traps. It is surprising how often unsatisfactory fires are endured for long periods, the setting of the boiler, height of chimney and lack of under-draught all being held to blame, while the real reason is that flues and chimney are choked with soot and shale. Rake and clean out the whole of the smoke channel, and from time to time throughout the winter repeat this operation. Many a troublesome furnace will become easily manageable as a result of this precaution, but if despite of cleanliness the draught is defective, try the effect of a taller chimney-pot or a "cowl" on the top.

There is no doubt that irksome and laborious as the task of overhauling heating apparatus may be it is in the long run a means of saving labour and vexation, while the cost of essential repairs is money well invested which may very probably save several times the amount.

A. J. MACSELF.

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USEFUL SEMI-HARDY SHRUBS

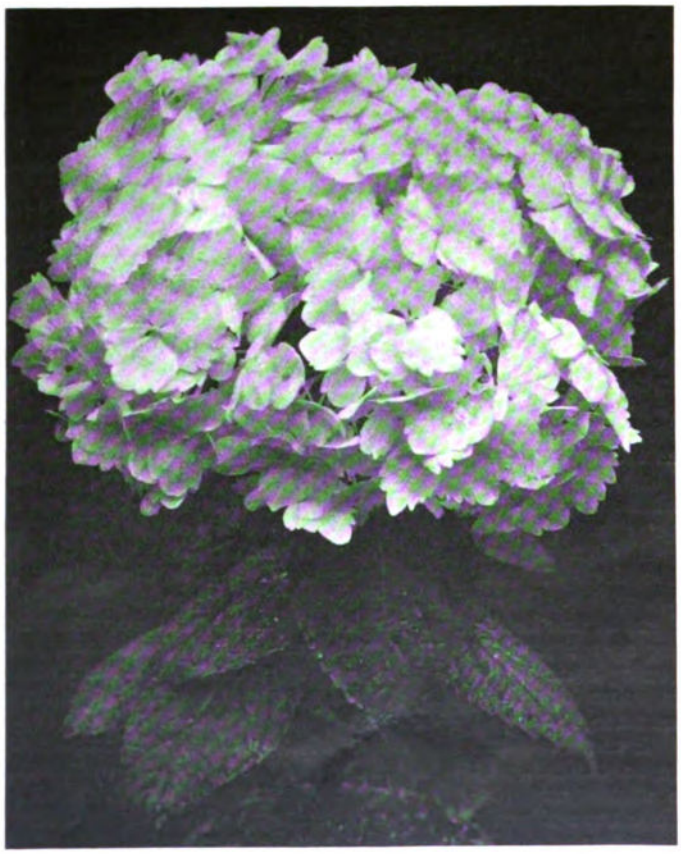
HYDRANGEAS ARE HIGHLY ORNAMENTAL LOW-GROWING SHRUBS, THRIVING WELL IN PARTLY SHADED POSITIONS, BUT FLOWERING MORE FREELY IN FULL SUN IF THEY ONLY HAVE SUFFICIENT MOISTURE.

WHEN hydrangeas are mentioned, one usually thinks of Hydrangea hortensis, no doubt because it is the most popular. The reasons for this are not far to seek when one remembers that it was introduced in 1740 and has given rise to more distinct varieties than any other. Recent introductions give the impression that it is almost capable of giving as much variation as a zonal pelargonium, and this idea is strengthened by older introductions from China and Japan, which vary greatly in leaf, stem and flower. The common hydrangea can be most successfully cultivated only as a greenhouse plant in most parts of Britain as plants from 1ft. to 3ft. high, though the writer has seen a pot plant 6ft. to 7ft. high and as wide. It was carefully staked to give the foliage the full advantage of light. Exhibited regularly at a local show it got larger every year until it dominated the big tent, and could not be overlooked.

THE HARDY AND MOISTURE-LOVING HYDRANGEA PANICULATA.

CULTIVATION.

Presuming that the plants have been wintered in a house from which frost was just excluded, they may be repotted in February or March, according as they are desired to be in flower, early or late. It will be an advantage if the plants are subjected to a little heat to excite them into fresh growth. When the buds are well started, the old balls may be reduced more or less and the plants re-potted into pots of suitable size. Drain the pots well. A good compost consists of one part loam, two parts peat, two parts leaf-soil, and sufficient sharp sand to make it porous. The potting should be done with moderate firmness. Water them with a rose on the can to settle the soil and place them back in the greenhouse. They should be watered with discretion at first, but as growth advances they will take clean water more and more frequently. When the flower-buds appear, weak manure water should be given twice a week, or some approved fertiliser may be used. As the buds begin to develop colour, the feeding should be gradually decreased and, finally, omitted altogether. In proportion to the heat of the house, atmospheric moisture will increase the size of the flowers; but as the blooms reach perfection more ventilation and a lower temperature will prolong their life. The house should be shaded on bright days, otherwise the colours will burn and the flowers be short-lived.



A HANDSOME SHRUB WITH SHOWY WHITE BLOOMS. H. MME. MOUILLERE.

As soon as the plants cease to be ornamental they should be pruned back slightly, and kept drier for a time till they break into fresh growth. They can then be repotted in a similar compost to that previously mentioned. By the time they are growing freely the weather will be suitable for standing them outdoors for the summer to make and mature their growth. Some feeding may be given for a time to promote good growth if considered necessary, but this should cease in good time to enable the wood and buds to mature properly before autumn is too far advanced.

Plants that are flowered in unheated houses or in the open air should not be pruned in the above way, because they will have no time to mature their young growths before the end of the growing period. The stems or shoots that have flowered may be cut back, more or less, to a good bud, and the leafy, unflowered shoots let severely alone to bloom the following year.

PROPAGATION.

Cuttings are easy to root in spring or early summer in a little bottom-heat. Those struck thus early can be pinched and kept growing to produce several heads of flowers the following year; but those rooted from midsummer onwards should be put singly into 3in. pots and shifted into 5in. pots as soon as they are well rooted. These late plants may be grown in a cold frame more or less tilted up at the back, watered and fed till they make a sturdy growth of 4ins. to 6ins., when the lights should be drawn right off to mature the wood and plump up the flower-buds. If well grown, these plants will give a single, large head of bloom suitable alike for the greenhouse

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or home decoration, and they will submit to forcing quite early in the year.

OUTDOOR CULTURE.

Near walls or fences, facing south or west, Hydrangea hortensis and its varieties can be grown as ordinary shrubs from the south coast as far north as Middlesex at least. Near the southern and western seaboards the plants make large bushes, and the flowers assume beautiful shades of pink, lilac, metallic shades of blue and bright blue, without any special treatment. Under glass the flowers are changed to blue shades by treatment with alum, sulphate of iron, cyanol and blueing powder. Modern varieties that respond well to blueing are Viscomte de Vibraye, Mme. Chautard, Maréchal Foch and La Marne. Other handsome modern varieties that may be grown outdoors as shrubs, as well as under glass, are Mme. E. Mouillère (white), Germaine Mouillère (white, fringed and of huge size), Etincelant (bright carmine and free) and Elmar (carmine-red). To these may be added H. Lindleyi (white, tinted with pink) and H. L. albo-rosea (white, shading ultimately to deep rose). Both have small leaves, though belonging to H. hortensis; they recently received awards of merit from the Royal Horticultural Society. Other varieties are H. h. Mariesii with large, mauve, outer flowers, and H. h. nigra, with dark blue stems, and worthy of cultivation.

HARDY SPECIES.

The most popular and best of the hardy species is the Japanese H. paniculata grandiflora, having all the flowers barren, enlarged, white and produced in an elongated panicle. The largest heads are produced by growing the plant as low bushes and cutting them down annually to about three buds of the young wood early in March. It can also be grown as a bush 8ft. to 10ft. high, with a wealth of smaller panicles that come to their best in August and September. The best of the American hydrangeas is H. arborescens grandiflora (or sterilis), which blooms from early June till frost, and has all the flowers barren and white. It is known in America as the ever-blooming hydrangea, and was introduced to commence in 1907, though it was grown privately by the discoverer and others for eight or more years previously. It was a wild find and not improved in cultivation.

Hydrangea quercifolia also comes from the United States, and is a fancy plant for the collector. The large, lobed leaves are very striking, but only the outer flowers are enlarged, sterile and greenish white or pink. It should have a sheltered position for the sake of its leaves, though not necessarily a warm one. The Japanese H. petiolaris (scandens) may be grown as a wall shrub or planted as a sprawling bush to ramble over the rocks in a large rock garden. The outer flowers are enlarged and white. Another very striking fancy species is H. Sargentiana, with leaves often 10ins. in length. Most of the above are in commerce at the present time and many more, especially in varieties of H. hortensis; and many of them are valuable because they bloom so late when most other shrubs are out of flower. J. FRASER.

RESULT OF THE ROSE COMPETITION

It is exceedingly gratifying to us to see how popular our Rose Competition has been among our readers, for from the thousands of lists sent in by competitors it is obvious that the rose is still one of the most popular flowers. The number of entries exceeded even our sanguine expectations.

The result by popular vote of this Competition is as follows:

1.—GENERAL McARTHUR

2.—OPHELIA

3.—MME. ABEL CHATENAY

4.—LOS ANGELES

5.—LADY PIRRIE

6.—MRS. HENRY MORSE

The winners are—

FIRST PRIZE, an order of £3 on any advertiser in THE GARDEN—

MR. E. WOOD, Goldsborough, Manor Road, Cheam, Surrey;

SECOND PRIZE, an order of £2 on any advertiser in THE GARDEN—

MR. E. D. BROSTER, The Gables, Wirksworth, Derbyshire;

THIRD PRIZE, any book published in the *Country Life* Library to the value of £1—

MISS KATHERINE ELLEN SHAW, Hatfield Place, Bath.

A Consolation Prize is awarded to

MRS. M. F. HULTON, Cat Hill, East Barnet.

IT might interest our readers to know that General McArthur was voted for by 56·8 per cent. of the competitors, Ophelia by 49·3 per cent., Mme. Abel Chatenay by 42·7 per cent., Los Angeles by 42·4 per cent., Lady Pirrie by 36·9 per cent., and Mrs. Henry Morse by 24·2 per cent. It is, therefore, probable that General McArthur is by a long way the most popular Hybrid Tea in existence. After Mrs. Henry Morse the voting on other roses dropped away suddenly, the next most popular being Caroline Testout with under 16 per cent. of the votes. It is amazing how quickly Los Angeles introduced in 1916, and Mrs. Henry Morse introduced in 1919, have gained a position among the first six Hybrid Teas, and this only proves in how short a time a rose of high quality spreads through the country.

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THE GARDENS AT WEMBLEY

THE gardens at Wembley fall naturally into three sections: those made and maintained by the Exhibition authorities; the exhibits of the horticultural trade; and the gardens attached to the Dominion and Colonial buildings.

We have already remarked upon the great work of making the large flower garden at the Wembley Park entrance, the long stretch of flower beds in the main avenue; the huge rock garden and the tasteful slopes on the south side of the lakes which provide an Empire waterway from New Zealand to India. Besides these important features, the Exhibition authorities have made themselves responsible for the gardens in front of the great Palaces of Industry and of Engineering and the raised beds which point the way to H.M. Government Building in the eastern section. Mr. E. White is responsible for this department.

The rock garden has proved to be an attraction to certain of the visitors, who have delighted in resting there in comparative quietness to enjoy the generous breadths of colour provided by thousands of Dianthus Allwoodii which have made the chief floral display since the Darwin tulip faded. On the north side of the lake the wallflowers and tulips have been succeeded by the brilliant bedding Dahlia Coltness Gem associated with white marguerites. For some reason not readily apparent, the fullest use is not made of the large handsome vases which break the long line of flower boxes. As a floral connecting link the two long lines of the dahlia are joined at the central flagstaff by the new Salvia Harbinger, which flowers continuously and yet keeps very dwarf.

We suspect that "art shades" have been relied upon for the effect along the southern front of the two large buildings. The yellow of the wallflowers and pale pink tulips were replaced, in due season, by the soft pinks and yellows of bedding pelargoniums and antirrhinums, with occasional mauves and whites. While this scheme will, no doubt, find its admirers, we venture to suggest that such are in the minority and that the position backed by the long stretches of grey concrete rather called for bright treatment. A bolder lay-out would probably have also been an advantage. Generally the soft pink colour is provided by Pelargonium King of Denmark, which has too robust foliage for the narrow beds, and, though not so badly as with Victory, which is also used, the flowers burn, even in the present season.

The "general idea" in the large flower garden and the main avenue seems to have been identical. The wonderful display of Darwin tulips was apparently to be followed by successional herbaceous plants. Never before has any public been in a position to enjoy such a floral feast as that provided last spring by those glorious Darwin tulips. These, we understand, were all from British-grown bulbs—bulbs grown principally at Spalding and a large proportion given by one of the chief growers of bulbs in England, in order that the Empire public might have an opportunity of seeing that our home-grown tulips fully equal in quality those from the Continent. The large beds were planted with separate varieties, the colour blending was good, so that a wholly admirable effect was obtained. It seems a pity that this policy was not continued—and it is difficult to see how the method of relying on several different herbaceous plants in each flower bed could have been expected to provide the floral display the garden and circumstances demanded. At the moment a number of dahlias, which apparently had been grown in pots, brighten the garden considerably.

HORTICULTURAL EXHIBITORS' GARDENS.

A large area was at first placed at the disposal of the horticultural trade, but, unfortunately, the demand fell short of anticipations. Still, the trade gardens cover a considerable space and are of great value and attraction. These gardens are planted and maintained solely by the exhibitors.

Messrs. Dobbie and Co. have one of the largest gardens, where, in association with Mr. James MacDonald, who maintains the excellent grassed portion, they have had seasonable displays, commencing with a good selection of Darwin tulips, pansies, wallflowers and forget-me-nots. Many beds have been planted with an excellent variety of roses, while the dwarf bedding dahlias are still making a beautiful display. Next, Messrs. G. Jackman and Sons have made a most agreeable garden, which is now known as the "Garden of Remembrance," in honour of those who fell in the Great War—a charming thought. The garden has a well built freestone retaining wall and an ornate stone garden house. Roses chiefly occupy the flower beds, and these have been especially successful. The surrounding borders have been interesting throughout the season with a good variety of flowering shrubs, including the beautiful clematises which Messrs. Jackman grow so well. Roses are also prominently shown by Messrs. S. Spooner and Sons, whose beds and long borders have been very bright and gay.

The most popular garden in the horticultural section is that of Messrs. Watkins and Simpson, the wholesale seed growers. It is a raised garden surrounded by an uncommonly good, low hedge of Retinospora pisifera aurea. Three low flights of York stone steps give to well kept paths, surfaced with toned red ballast, leading to the elegant pavilion, where the firm's representatives receive enquiries. The garden, which was designed for Messrs. Watkins and Simpson by Mr. A. Cecil Bartlett, is in keeping with the handsome pavilion and of the type suitable for a small country house. All the plants were grown at Feltham by Messrs. Watkins and Simpson, who have kept the garden in first-class order. From the opening of the Exhibition this garden has always been bright and full of attraction. Wallflowers, auriculas and polyanthuses commenced the season, and as their period waned they were replaced with antirrhinums of splendid free-flowering strains, lobelias, marigolds, salpiglossis and many other of their excellent novelties. Perhaps the most noteworthy of the newest plants is their Salvia Harbinger, an exceptionally dwarf strain of S. splendens. Seed was sown under glass at the end of January, and the plants have been constantly in bloom since the beginning of May and even now are barely a foot in height. The spikes are large and of intense colour.

Messrs. Kelway and Son have an informal garden where they have displayed many of their excellent delphiniums, peonies, pyrethrums and, of late, gladioli in quantity and of delightful colourings. The Langprim sorts have been also robust and graceful. Adjoining the Kelway garden is the City of Bath pavilion, complete with hot springs. In front Messrs. Blackmore and Langdon have been showing stately delphiniums, phlox, pansies and their well known tuberous-rooted begonias.

A large area has been laid out to the best advantage by Messrs. Wallace and Co. The several designs are so successful that there are gardens for almost every taste, and yet the whole is harmonious. A delightful rock garden, with waterfall dropping to an attractively shaped pool, leads to an uncommon garden which may almost be described as being a series of very broad stone steps flanked by herbaceous borders, which have been in season throughout the whole period. South of the rock garden is an interesting shrubbery from which a path winds to a rose garden with a sunken pool and enclosed by a good yew hedge. Messrs. Lowe and Gibson have, near by, a small garden of gladioli and border carnations; while Mr. H. Yandell filled an uncommon garden with his violas.

Dianthus Allwoodii, new perpetual border and the true perpetual-flowering carnations are shown in their garden by Messrs. Allwood Brothers, where, amid pleasant surroundings, many visitors have enjoyed the charm and fragrance of these beautiful flowers. The value of the Allwoodii is now well known and appreciated, and in floriferousness is almost equalled by the new perpetual-border hybrids. These, at Wembley, embrace many charming shades of colour, several, at least, are deliciously fragrant and have been blooming continuously.

A magnificent dahlia garden is provided by Messrs. William Treseder, Limited. All the types are included, and while most of the blooms would grace the show bench the varieties are also of value for garden decoration. The first flowers appeared in May, and as the season advanced the blaze of colour strengthened until, even at the end of September, there is a magnificent display.

A handsome collection of hardy trees and shrubs is shown by Messrs. Fisher, Son and Sibray. Cupressus Lawsoniana lutea, Retinospora pisifera aurea, R. obtusa Crippsii, Sciadopitys verticillata,

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Picea Omorica, Abies concolor, Cedrus atlantica and Podocarpus Koreana are the names of only a few of the splendid conifers to be seen. There are also equally good specimens of hollies, skimmia, Grisselina littoralis, ivies and dimorphanthus mandschuricus aurea variegata.

A well conceived rockery, flower borders and several of his quite small sunken gardens are exhibited by Mr. Ernest Dixon. These are all appropriately planted with, as the notice board states, ordinary stock from the nursery, and with a satisfactory result.

Fruit trees and bushes of all types are well represented by Messrs. Seabrook and Sons, Messrs. Laxton Brothers, Messrs. T. Rivers and Sons and Messrs. S. Spooner and Sons. The first-named has two "commercial plantations" of cordons, bush and standards on such stocks as Paradise and Jaune de Metz for the apples, and quince for the pears. Messrs. Laxton have made theirs a fruit garden beautiful, and it contains perfectly trained peaches, plums, apples and gooseberries, among other fruits. Espalier trees are especially typical, among the good standard and bush trees shown by Messrs. T. Rivers and Sons.

Orchids of great value in the scheme of glasshouse work are shown by Messrs. Charlesworth and Co. in specially built glasshouses. Further mention of these will be made when we remark on the plants and flowers under cover.

CORRESPONDENCE

GALLS ON THE LEAVES OF THE LIME.

SIR,—The enclosed illustration may prove of interest to readers of THE GARDEN, as it represents what are popularly known as

BLISTERS POPULARLY KNOWN AS "NAIL GALLS" STUDDING THE LEAVES OF THE LIME.

"nail galls" on the leaves of the lime tree, Tilia europæa. These galls are caused by a very interesting species of gall mite known as Eriophyes tiliæ, inasmuch as they were first considered to be a special vegetable formation accruing from the action of animal life. Later on it was recognised that the growths were due to the stimulus of one of these small mites. These growths are not true galls, but pseudo galls. The former are the outcome of the damage created by true gall-forming insects. These pseudo galls are of a bright reddish colour, small in size and tapering in shape. They are always to be found on the upper surface of the leaf. They do not cause a great deal of damage and to a slight extent beautify the tree.—C. LACEY, *Wimbledon, S.W.*

RHODODENDRON LODERI.

SIR,—The note under the illustration of this rhododendron on page 657 may prove unduly discouraging to those who wish to grow it. The statement that "it survives in the north but only grows to its full luxuriance in the south and west of England" is not in accordance with fact. It is hardier than R. Griffithianum (Aucklandi), which is one of the parents of this fine hybrid, and it flourishes luxuriantly on the west coast of Scotland as far north as Ross-shire, provided that it is grown in half-shade and given adequate shelter from wind.—HERBERT MAXWELL, *Monreith.*

SIR,—In your issue of September 27th there is a photograph of Rhododendron Loderi which is described as "surviving" in the North.

At Dawyck in Peeblesshire Mr. F. R. S. Balfour showed me this summer a number of plants of this hybrid 6ft. or more in height and in full flower. The blooms were large and numerous and their scent carried to a considerable distance. This was in a shady glen, where the plants are out of reach of the morning sun. Dawyck is a cold place and faces north. Gardeners cannot be too often reminded that the range of the more "delicate" Himalayan and Chinese rhododendrons is less limited by extremes of cold than by variations of temperature. It follows that, next to the frostless areas near the sea, the safest homes for them will be found where the conditions are such as to discourage too prolonged in autumn or premature growth in spring.—JOHN STIRLING MAXWELL, *Glasgow*

MICHAELMAS DAISIES.

SIR,—With reference to Mr. Jacob's article on Michaelmas daisies (page 675), I notice that he is asking for advice as to the best method of staking them. Mr. Dickson, head-gardener to the late Duchess of Bedford at Chenies, used to put in ordinary pea stakes when the plants were growing, and as the plants grew they quite covered up the stakes, which held the plants well together.—E. G. Q.

ORNITHOGALUM THYRSOIDES.

SIR,—I note that in a recent issue of THE GARDEN a correspondent speaks of Ornithogalum thyrsoides and the difficulty of growing it. I received some seed four or five years ago from Johannesburg and sowed it in pots. It came up freely and in about three years flowered in the same pots and again this year flowered freely, though so thick in the pots that I feared it was too crowded to flower. It seems evergreen, as it has never died off for me to venture to transplant. The seed has ripened well this summer.—(Rev.) W. OSWALD WAIT, *Herefordshire.*

RANUNCULUS LIBANOTICUS.

SIR.—I think there is little doubt that the above specific name should really be R. asiaticus, under which name I have grown for many years a very beautiful spring-flowering scarlet single-flowered ranunculus. I rather think mine came from Messrs. R. Wallace and Co. It has spread freely, but not by seed—I have never seen one—but by underground stems, after the same manner as Tulipa saxatile; but, happily, these young plants flower in due course, which the tulip objects to doing. I rather think there is more than one form, for I have had one with a yellow reverse, not nearly as good a plant as the all scarlet and black one. With regard to Tulipa saxatile, I wish someone could give me a recipe to make this tulip flower. It spreads by the yard underground. The lifting of the bulbs and the drying of them are impossible where they are. All the same, the lovely foliage is a joy in spring, forming a carpet of polished green of a delightful tone. In another garden it is almost a "weed," but there it is a flowering one: Why?—C. M. B., *Isle of Wight.*

ASTER AMELLUS BEACON.

SIR.—Like other Michaelmas daisies in this district, Aster Amellus Beacon, a new variety, has been late of coming into flower. It is quite a good variety with large flowers, described—with, perhaps, a little of the exaggeration we sometimes find in catalogues—as glowing carmine. It is quite a bright flower, and will be valuable as an addition to an important class of starworts. It has, also, a good erect habit, and here it requires no staking. It is rather more than a foot height.—S. A., *Lockerbie.*

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THE TREATMENT OF CARNATIONS

THE present time is an important one for the carnation grower. For outdoor carnations all layering should be completed, and in the case of the hardy perpetual border carnations, also Dianthus Allwoodii, cuttings can still be inserted, in fact, these root better at this time than in the early summer. Sharp sand is undoubtedly the best medium, and a cold frame where they are shaded from the strongest sun is practically all that is necessary. Autumn planting for all races of hardy carnations is becoming more and more popular, and providing there is a free drainage, undoubtedly the best results are obtained. The ideal position is a sunny one. A carnation abhors shade, and if there is any doubt about the drainage it is much better to raise the beds by adding additional soil. All carnations must have a certain amount of lime in the soil—in the case of heavy soils, freshly burnt lime is best; in the medium soil, old mortar rubble; but in a very light soil, pulverised chalk should have preference. Manure must only be added in small quantities—in heavy soils, horse manure; and in light soil, cow manure are best. This can be dug in immediately, then the beds will be ready to receive the young stock. No leaf-mould should be given to carnations at any time.

Too many hardy carnations are spoilt through deep planting. No more of the stem should be buried than is necessary, and if it is possible to plant without burying any of the stem at all, undoubtedly the plants prosper better.

Of the newer kinds of border carnations Saracen, with its French grey ground striped cream and crimson; Paula, white, pencilled red; and Sheila Gibson, a delightful shade of apricot, are best.

In the new hardy perpetual border carnation section, Sussex Lass (rose pink), Sussex Earl (deep heliotrope), Sussex Salmon and Sussex Empress (clear pink) are undoubtedly great advances; while in the Dianthus Allwoodii section, Arthur, as we saw at the Chelsea Show, is simply marvellous, with its red maroon shading; Elizabeth (clear salmon) and Beatrice (orange red) are wonderful varieties.

In the perpetual-flowering carnations, with this wet, cold season, those who are growing their plants out of doors will be well advised to bring them into the greenhouse as soon as possible, and if the plants have made very good growth, and they are only in 6in. or 7in. pots, it would be best to pot them on into larger pots, sooner than have the roots cramped and starved through the winter months. I suppose there never was a season when perpetual-flowering carnations made more growth, but with this growth, which is naturally very soft, thrip in many parts of the country have played havoc, and the use of an insecticide spray which is free from any deposit is best. If the insecticide spray has any deposit it does considerable harm by choking the pores of the leaf. It is folly to allow your plants to become starved through want of feeding, and then, if they are showing signs of this, to feed them to excess; feeding with some slow-acting organic food must be followed out gradually, according to directions, through the entire season. Split calyces in the autumn are invariably the cause of starvation followed by improper feeding; but your old perpetual-flowering carnations, if generously treated, produce tremendous quantities of bloom during the second year; but it should be remembered that for stock purposes these are not nearly so valuable as the younger plants—in fact, the leading growers in the country are no longer propagating from the older plants, but selecting the best of the newer stock for propagating purposes. Staking carnations should be carried out with wire circular plant supports, the result being that the plants grow much more naturally and also have more air space than if they are tied with raffia.

A BEAUTIFUL AND EASILY GROWN ANNUAL

ALTHOUGH an old and very ornamental plant, introduced as long ago as 1839, Impatiens Roylei, also called I. glandulifera, a native of India, is rarely found in gardens nowadays. It is a strong grower of stately appearance, attaining a height of 4ft. to 6ft., according to soil and position. Being a member of the "touch-me-not" group of plants, it sends its seeds in all directions at maturity, by means of the bursting pods. These seeds lie in the ground all winter and begin germination in very early spring. Owing to this fact, it is unnecessary to trouble about propagation once the plant has been established at one spot. All one has to do is to thin out the numerous seedlings, to transplant these if so desired, and to leave only one plant every three or four feet, which is a necessary distance if fine plants are wanted. This method of propagation is by far the best. Seeds which have been dried and stored germinate, as a rule, rather badly, and no doubt the rarity of the plant in gardens can be traced to this fact.

IMPATIENS ROYLEI ALBA, WITH ITS BEAUTIFUL WHITE FLOWERS SO EFFECTIVE WHEN GROWN IN MASSES.

Impatiens Roylei is of a greedy nature. It requires a very rich soil and a liberal amount of moisture. The position best suited to it is a shady or half-shady corner, although it also makes fine plants in open situations. In this last case, the growth is shorter and sturdier. Enormous plants which will strike anybody who sees them can be obtained with the greatest ease by giving specially selected specimens plenty of air, manure and moisture.

The thick, succulent stems of Impatiens Roylei are hollow and well developed at the base. They show numerous adventitious roots near their base which develop readily in favourable conditions. The nodes are conspicuously swollen and the internodes ribbed. All the tissues of the plant are of a noticeable pink colour.

The flowers are borne liberally all through the summer and autumn in large terminal inflorescences of graceful habit. They are pink with scattered reddish dots on the lower petal, ¾in. to 1¼ins. wide, 2ins. long, and of most peculiar build. The upper petal is bi-labiate and mucronate, the lateral ones most irregular and thrust forward, while the lower one is large and conspicuously ventricose, with a short spur. On the whole, the flowers recall vaguely the form of some orchids.

Besides the type form, a variety, alba, is also cultivated. It has the same characteristics, save the colour, which is pure white, and the absence of pigment in the tissues that makes it quite distinct from the earliest stage of vegetation. It is a very effective form, especially when grown in masses.

Both these showy balsams deserve the best attention and can be cultivated with great advantage. Their easy manner of regeneration makes them practically perennial plants. One of the best ways to utilise them probably is to grow them in odd semi-shady positions, where there is a sufficient supply of air and moisture—for instance, among trees and shrubs not too thickly planted. C. L.

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NOTES FROM CONTRIBUTORS

THE PRAIRIE BLAZING STAR OR BUTTON ROOT.

(LACINARIA OR LIATRIS PYCNOSTACHYA.)

IT was rather an agreeable surprise to see in several private garden exhibits of hardy flowers at a recent show a number of good spikes of this showy plant, which has been grown more or less successfully in the south-west of Scotland for a good many years. It has a rather dubious reputation in this part of the country, where the humidity is, to say the least of it, especially in a season such as this, not "below the average," and this year is far above it. I have never been able to diagnose with any confidence the precise cause of the loss of so many plants of the liatrises in our gardens, but I know that many have given up trying to suit these showy flowers, often justly called Gay Feathers. It was, therefore, a pleasure to see so many exhibits of L. pycnostachya at this one show. It is one of the best of these liatrises known to me, and I have seen a good many of the sixteen species said to exist, of which only a few are in cultivation. Certainly I know of none superior in effect to L. pycnostachya in gardens. Its tall 3ft. or 4ft. spikes with their handsome feathery-looking flowers at the summit form a striking object in the border in August, even earlier in some places. It is true that the colour of the flowers—approaching pure magenta—does not find favour with many, but it can be modified by association with other flowers or with plenty of greenery. L. pycnostachya is a prairie plant of the United States, and it is distributed over a very wide region, and I have been wondering if the loss of some of the plants may not have been due to their being collected in the more southerly habitats, say, from Texas. It ought to have a dry, light soil, so far as I have been able to decide, with an open, sunny situation. It appears to be hardy as a rule, but, as already mentioned, losses have been very frequent. It will be noted that I have named this plant "Lacinaria" or "Liatris" pycnostachya. The latter is the name almost universally adopted in this country, but I observed a little while ago that Britton and Brown adopt the title of lacinaria, apparently preferring Hill's name of 1762 to the generally accepted one of 1791, which is likely to be preferred by British growers.—S. ARNOTT, *Dumfries.*

THE CHATHAM ISLAND FORGET-ME NOT.

MANY have tried but few have succeeded in growing this magnificent plant successfully, but here are a few pointers that may prove helpful and lead to success for others who have not done well with the plant. To begin with, it is not hardy except in the most favoured parts of the country and—in addition to giving it your warmest and most favoured position—some measure of protection should be provided for the plants during the worst of the winter months. Secondly, it has a tremendous love for a top-dressing of seaweed in autumn, a dressing that may with advantage be allowed to lie upon the ground until it is completely rotted away and which, by reason of the salt it contains, no doubt does much towards protecting the roots from frost during the winter months. Never, if avoidable, disturb the roots and rely upon seeds for raising your new plants. During spring and summer full supplies of water should be afforded, but in winter the plant should be protected from excessive wet by means of a bell-glass dropped over the crowns. Treated thus I have seen this and its white variety attain a height of fully 2ft., with bold and handsome glossy green leaves and dense masses of the glorious blue and white flowers that were a joy to behold in April and May. In the type the centre of the flower is blue margined with white, but there is also—in Myosotidium nobile alba—a pure white form, although this is much scarcer.—SANDSTONE, *Hampshire.*

A NEW HYBRID HEMEROCALLIS.

I READ with particular interest the note in your issue of August 2nd on Mr. Perry's new hybrid Hemerocallis Lady Hesketh, which received an award of merit, R.H.S., on July 22nd. I have just produced a new

AN AMERICAN HYBRID HEMEROCALLIS OF SUPERIOR FORM.

hybrid which I have named Hyperion, which I believe surpasses any other in practically every feature, and from which I am hoping to develop a new race of larger and better formed hemerocallis. In view of the recent appearance of Mr. Perry's new variety you may be interested to publish a picture of H. hybrida Hyperion, which is a cross between Sir Michael Foster and Florham. The illustration shows very well the superior form of Hyperion both as regards the individual petal and the flower as a whole. Hyperion is 4oins. tall with stout, rigid stems; its form, as will be noticed, is superb. In size it is unequalled, as it is over 5ins. across and some flowers are even 6ins. wide. It is of heavier substance than any other and its texture is of the best. Its colour is also of the brightest and clearest quality, pure lemon yellow, according to Ridgeway. When I first began to subscribe to THE GARDEN I preserved only clippings, but I ultimately found its columns so full of material that I now preserve the issue intact. I am an amateur intensely interested in the future development of an intelligent horticulture in America as exists in England.—FRANKLIN B. MEAD, *Indiana, U.S.A.*

ANCHUSA ITALICA LISSADELL.

I WONDER if any readers of THE GARDEN have had any experience of the above variety of anchusa. I purchased seed of it in May, 1923, and by some mischance the seed-pan after the seedlings were well up was put in some out of the way corner and turned up again in the autumn, after the foliage had died down. As there appeared to be roots of some kind in the pan, I decided to give them a chance, so put the pan into a cold frame until the spring. In due course about seven small crowns pushed up their rosettes of leaves, so I just made a hole in the border and without disturbing the soil in the pan planted them as one clump. The young plants grew quickly and commenced flowering early in July. So far as I can see, the colour differs but little from A. italica Dropmore, but the habit of the plant is superior. Two plants in the clump have attained the height of 7ft. 6ins., and are now just as full of bloom as they were six weeks ago. Although growing to such a height, the plants have never been staked. They have made perfect pyramids of bloom and have been the admiration of hundreds of visitors. The catalogue description is as follows: "A beautiful border plant, producing large flowers of a clear gentian blue. H.P. Height 5ft." It seems to me a remarkable thing this variety of anchusa should attain the height of nearly 8ft. without a support, while in the same border A. italica Dropmore and Opal, in spite of every care, are beaten down with wind and rain.—F. C. KING, *Milnthorpe.*

THREE FIRST CLASS NEW APPLES.

NOT every new variety of apple that finds its way into commerce can claim to be tip-top in the best sense of such description, but the three varieties mentioned below can honestly make such a claim, in my opinion, notwithstanding the fact that one of the sorts has so far failed to gain the R.H.S. award of merit. This variety, Lord Lambourne, is one of Messrs. Laxton's new dessert apples, and is the result of crossing James Grieve with Worcester Pearmain, the latter parent contributing to the high colour and firmness of Lord Lambourne. Its good flavour and juiciness is, of course, obtained more directly from James Grieve. In size it is much akin to Worcester Pearmain, but it is somewhat flatter in shape than the latter. The yellow skin of Apple Lord Lambourne is nicely flushed with red, and its season for use is October and November.

An earlier variety of the same firm's raising is the Premier apple, which has gained the Royal Horticultural Society's award of merit. Its parents are Mr. Gladstone and Worcester Pearmain. The flavour is quite good and its colour is equal to a Worcester, which fact will make it a capital market sort and a probable rival of that old variety, especially as it ripens a week or so before Worcester Pearmain. The Premier is also a good cropping apple.

The third apple of these notes is quite a late variety, and one of the best—if not *the* best—yet raised by any firm, namely, Apple Laxton's Superb, a variety obtained by crossing Wyken Pippin and Cox's Orange Pippin. I have not eaten any apple I like better. The renowned Cox has at last a formidable rival in flavour and every respect, I am convinced, in Laxton's Superb. The fruit is slightly bigger than Cox, yellow of skin and strongly flushed red on the side most exposed. The flesh is white and of a delicious crispy sweetness; in short, the flavour is really first-class. Fruits will keep well into March easily. Its cropping quality is of the best and the variety is a strong, healthy grower. To any readers desiring to know of any new, thoroughly good varieties of apples I can honestly recommend the foregoing.—C. TURNER (gardener to Lady Ampthill).

FORTHCOMING EVENTS.

October 13.—United Horticultural Benefit and Provident Society's Meeting.

October 17.—Eastbourne Horticultural Society's Meeting.

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SIMPLE GARDENING

TREE CARNATIONS.

THE tree or winter-flowering carnation now finds a place in the amateur cultivator's greenhouse. Although considerable skill is requierd to grow plants and flowers really well, the plants are very accommodating and economical to grow as regards daily attention and fire-heat. In one case I remember the boiler failing, and as the winter weather proved kindly the carnations were grown without artificial heat, and the cultivator said he thought the flowers were finer than in previous years with heat. Too much heat is bad for these plants, but a judicious use of it, coupled with careful ventilation and watering, also shading, will ensure the most satisfactory results. Propagation of young slips should receive attention from this month onward. I know how difficult many amateurs find the satisfactory rooting of certain varieties to be, notably that lovely crimson British Triumph. In the autumn I do not experience any trouble in the matter; in spring I do. During this month good sturdy slips, taken from half-way up the stem, should be inserted in a bed of coarse, washed sand on a thin layer of rotted leaf-soil in a box or cold frame placed outside behind a wall facing north. Slightly split the base of each cutting, insert 2ins. apart, water and close the frame. Early in January cuttings so treated will possess tufts of roots. I rarely find it necessary to water the cuttings a second time up to this date and stage.

POTTING YOUNG FERNS.

The re-potting and division—where the latter work is advisable—of old specimens are best done about the month of February; but, of course, where there are small ones in tiny pots, it is a different matter. I am sure that many readers of THE GARDEN have in past years possessed such plants and found them deteriorate by the time spring comes, lower fronds turning yellow or brown and becoming useless. The timely re-potting in October prevents the loss of the lower fronds and increases the strength of the new—the young fronds. Between October and January many new roots are made if the plants are properly treated. This is the correct treatment: The compost should consist of fibrous loam 1 part, leaf-soil 1 part, old mortar rubble, sand and silver sand, combined, 1 part. Plants now in thumb pots, 72's, should be shifted into large 60's—pots 3½ins. across. Hard potting is neither necessary nor advisable at this stage; but clean, dry pots and crocks are essential, and firming of the soil may be done with the aid of a stout plant label. If the greenhouse is a very dry one the re-potted ferns should be placed in shallow boxes—those about the depth of the 3½in. pots—on a thin layer of ashes, leaf-soil or coconut fibre. This position, in the coolest part of the structure, will ensure steady progress of the plants throughout the winter and spring months. Avoid over-watering, but be sure that the soil in the pots does not get dry. If the atmosphere of the house is naturally a moist one the open stage will prove a suitable position for the plants.

PROPAGATION OF EVERGREEN SHRUBS.

The propagation of shrubs from cuttings is a very interesting occupation. We possess, most likely, a few favourite shrubs and would like to increase them, if possible; this may be done if the slips

are properly selected, prepared and inserted. Shoots of the current year's growth are the best and should be cut off with a tiny heel of older wood attached as shown at No. 1. This cutting is shown placed in the prepared trench at No. 2. Moderately firm ground on the north side of a wall or fence is the best for the cuttings. A small trench is made and coarse sand freely scattered in the bottom for the base of the cutting to rest in, then a callus will form, followed by roots in due course. Other cuttings are prepared as shown at No. 3, being cut off immediately below a joint. The leaves from that joint must be cut off. Make the soil very firm around the inserted cuttings, especially after frosts have occurred. The following year the cuttings will be tiny plants as shown at No. 4, but should not be disturbed too soon.

PLANTING RASPBERRIES AND LOGANBERRIES.

Although the raspberry is very extensively grown and not really difficult to cultivate there is much misunderstanding of the plants in regard to general treatment. The canes possess masses of fibrous roots which permeate the surface portion of the soil, and undue surface disturbance of the soil should be avoided. A firm rooting medium is also essential. The planting season is now at hand, and the work should be commenced directly the soil is in good condition; preparation should be thorough. Dig deeply, break up the sub-soil, add well rotted manure, take out the roots of weeds, select canes of medium strength not weaklings nor thick ones with few roots. Plant in rows 5ft. apart and 7in. from plant to plant; in clumps, 3in. each plant and 4ft. from clump to clump. Cut down the canes to within 1ft. of the roots; firm the soil and apply a surface mulch. Provide the necessary supports for the new canes next year. Loganberries should be treated similarly, but three times as much space should be allowed for the extension of the growth. Furthermore, these plants are splendid for training on rustic fences and posts, for forming a screen between the flower and the vegetable garden.

THE LAWN.

The lawn, and grass edgings to paths and borders, should be attended to in good time. We cannot afford to neglect them if we wish to have a really beautiful and attractive garden. So many amateur cultivators place their faith entirely in a surface-dressing of manure. I may shock these when I advise them to avoid such manures for lawns and reserve it for the fruit and vegetable garden. I have known a whole lawn have to be returfed through the excessive use of rotten farmyard manure in winter. Such manures often contain the seeds of strong-growing weeds, too. A mossy lawn should be thoroughly raked with a sharp-toothed iron rake now. Then, for a stimulant apply 1 peck of wood ashes, half a bushel of fine-ground lime and 3lb. of coarse bonemeal or finely ground bones per square rod of lawn. The ingredients, being well mixed, should be evenly applied but not brushed in; they will penetrate soon enough, and the small bones will be helpful all through next summer. Following this application, give a good dressing of sound loam passed through a 1in. mesh sieve.

GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Rhubarb.—The leaves and stems have died off, and now these should be collected with all the weeds and the bed made clean and tidy. The surface may be lightly pricked over with a fork, and then a mulching of partly decayed manure may be given. Where rhubarb is forced a few of the roots ought to be lifted and laid aside in a cool position well exposed to the weather until needed for forcing. Underneath the stage of a greenhouse or a cellar is well adapted for growing early rhubarb.

Dwarf Beans.—Late dwarf beans can be protected from slight frosts by placing lights over them at night or fixing a wooden framework on which could be arranged a few mats. A batch in full bearing is well worth the trouble, which will prolong the supply. Late marrows ought also to be protected from frosts.

FRUITS UNDER GLASS.

Strawberries.—Plants that were potted some weeks ago have filled their receptacles with roots, and now they may be fed with liquid manure at alternate waterings. Clear soot water is an excellent stimulant, it is also detrimental to various pests, while the foliage assumes that fine green colour so much desired by cultivators. All runners should be removed as they appear, and it ought to be borne in mind that one healthy single crown will give better results than two or three weak ones. The plants should occupy a place on a firm ash base, and be prevented from rooting through the bottom of the pots by giving the latter an occasional twist. Owing to the heavy rainfall the plants have been stood on strips of wood and plenty of space allowed between the pots to give the plants all the air and sunshine possible.

Pot Trees that have borne fruit may be re-potted or top-dressed at this season, and regarding their culture much depends upon this work, for unless the roots are healthy the size and quality of the fruits will suffer. Annual re-potting may not be necessary, and in such instances top-dressing will suffice. Clean pots and ample drainage are essential. The rooting medium should consist of good turfy loam with a moderate sprinkling of old mortar rubble and a 5in. potful of bonemeal to every bushel of the compost. Before re-potting allow the trees to become slightly dry at the roots, and the potting soil should be neither too dry nor too wet. Turn the plants out of their pots, and where the roots are closely matted together a receptacle one size larger will be needed. In other cases it will be possible to reduce the ball, and coarse-growing roots may be cut away, when the same size pot will suffice. Ram the soil as the work of re-potting proceeds, and allow enough space at the top for watering purposes. When top-dressing, remove as much of the top soil as possible with a pointed stick and replace it with fresh material. Then take the trees to the reserve ground and plunge the pots to their rims in ashes. See that the trees are not disturbed by wind and storms.

THE FLOWER GARDEN.

Carnations.—The layers are well supplied with roots, and where it is usual they can be planted in their flowering quarters or potted up and placed in cold frames for the winter. Give the ground a dressing of old mortar rubble and make the soil firm around the roots. If in frames, admit plenty of air, and remove dead leaves as they appear.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Brussels Sprouts.—Owing to the wet and somewhat sunless summer, plants have made a good deal of leafage and thereby have become rather crowded. A few of the lower leaves should, therefore, be cut away from each plant. This will not only facilitate getting among the plants for pulling the sprouts when ready, but will also allow light and air to reach the stems.

Celery.—It is time now to make a start with the further tying and earthing of the plants so that they will be quite safe should a spell of severe weather come.

Peas.—The later sown varieties have suffered from the bad weather, so much so that portions of the pods rotted before they were half matured; while more advanced pods seemed very slow at filling up. Spent straw should be collected when dry and set on fire; this material need not be taken away, but simply piled in a heap and burned on the ground, while the valuable ash should be spread over and dug into the soil.

THE FLOWER GARDEN.

Bedding Begonias.—When these plants are lifted from the beds it is usual to place them in cutting boxes with quite a quantity of soil clinging to the roots. This soil should be fairly dry now and should be cleared away from underneath and around the corms. Dead and decaying leaves and stems should be taken off at the same time, so that nothing is left about likely to cause damp. It is usual to keep the corms in cutting boxes, especially if the varieties are to be kept separate. The boxes should then be placed in a cool, airy, but frost-proof shed.

Carnations.—Where plants suffer if left out of doors in the winter, it will be safer to lift the rooted layers now and set them a few inches distant from each other in a cold frame. These plants should be transferred to prepared beds in March or April of next year.

Echeverias.—These somewhat old-fashioned plants are very useful for bedding purposes, and really they are effective either in or out of flower, but certainly more so when their graceful spikes are adorned with dainty reddish yellow flowers. Plants should be lifted now, and where younger ones have grown around the older plants they should be detached and set by themselves in one section of the frame. The older plants should also be kept together, and set so that the leaves just touch.

Roses.—Where cuttings of climbing or Wichuraiana roses were inserted last autumn, they should be in good condition now for transplanting to their permanent positions at arbours, fences, pergolas or poles.

THE HARDY FRUIT GARDEN.

Root Pruning.—Established trees which make a great deal of strong growths and bear little or no fruit should receive attention now in the way of root pruning. The usual mode of procedure is to dig out a trench around one-half of the tree, keeping 2ft. or more from the trunk according to the size of the tree. All large roots encountered should be severed, and it may be found necessary sometimes to go partly underneath the tree. On no account add rich manure or fresh soil when filling in the excavations, but simply put back the soil that was taken out. When feeding does take place, do so just underneath the surface soil, or on the surface. The remaining half of the tree or trees should be root-pruned the following year.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Chrysanthemum Parthenium var. fl. pl.—This double-flowered variety, although hardy, is an excellent plant for the cool greenhouse, and it is surprising it is not more frequently grown for this and decorative purposes generally, as it is very useful for cutting and making up. If cuttings are inserted at this time, good plants will be obtained for flowering next summer. The cuttings should be pulled off from the base of the old plants, and as they usually show signs of roots, they may be dibbled singly into small pots, afterwards standing them in a cold frame, where they should be given plenty of air at all times, as the plant is really hardy. Potted on as they require it until they are in 6in. or 7in. pots, they should be fine plants for next year.

Hydrangeas.—Some time this month large specimen plants that have been standing outdoors should be stored in a frost-proof building. A cold greenhouse is, of course, the most suitable place if the room can be spared. Failing this a shed with some top light will answer the purpose, or even a shed with an open front where canvas or mats can be hung up during severe spells of frost. Large specimens should be examined several times during the winter in case they need water, for if allowed to become too dry for any length of time they are apt to suffer. Young stock of hydrangeas should be stored in cold frames or in a cold greenhouse. Plants in frames may have the lights removed on every favourable occasion, taking care, however, that they are not exposed to too much frost, as the flower-buds may thus get injured. Young plants propagated this year will not stand drying off like large specimens if standing on a damp bottom. However, it is unlikely that they will require water until they are started into growth early in the New Year.

Crinums and Agapanthus.—Failing accommodation in a cool greenhouse these may be safely stored in sheds that are fairly frost-proof. This also applies to quite a number of plants that should be got under cover this month.

Roses for Pots.—Where stocks of roses are grown for pot work, they should, towards the end of the month, be lifted and placed in suitable-sized pots. The dwarf polyantha varieties are very useful for pot work, and plants raised from cuttings put in outdoors early last November are now ready for lifting and potting up. The stronger-growing varieties will require 6in. pots, while smaller plants are very useful in 48-sized pots. Some of the long roots should be shortened back and the plants potted firmly in a compost of good turfy loam, adding a 6in. potful of fine bone meal to every bushel of soil. After potting, the pots should be plunged to the rim in ashes in an open position outdoors. Plants treated in this way can be used for forcing early next year. They can be grown on for the second year, when they make good specimens. Stock is so easily raised by means of cuttings that it is not worth growing the same plants for more than two years.

Campanula Medium (Canterbury Bells) are very useful for the conservatory, large well grown specimens being very handsome. For this purpose plants should, some time during the month, be lifted and placed in pots. Large well grown plants may require 6in. pots, giving them a shift early next year into 8in. or 10in. pots. After potting at this time they may be stood in cold frames, where they should get plenty of air, removing the lights on every favourable occasion.

J. COUTTS
Royal Botanic Gardens, Kew.

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BOOK REVIEWS

THE manifold interest in agriculture is evidenced almost every other day by articles and books appearing on the subject and yet another falls to be added to the already long list. The present volume, "Soils and Crops," by John S. Gehrs, B.S., M.S., published by the Macmillan Co., price 6s. 6d., deals with conditions in America, although the production of crops and the methods employed in other countries of the world have been briefly considered. We agree with the author in that he is wise to take up an international view-point, the reader gaining thereby a wider and better appreciation of the subject. Much new material is incorporated in the little manual, which should prove exceptionally useful both to the teacher and student. All the main facts and principles of agriculture are treated concisely, yet nothing essential is missed out. The book gains much in being divided into three separate sections—the first treating of soils, wherein is discussed their texture and composition, with a few chapters on manures. Section two deals mainly with crops, their production and marketing. The last section is devoted to horticulture, embracing vegetable gardening, fruit-growing, plant propagation, and being completed with a short chapter on injurious insects and methods of control. The author makes it clear that much more work remains to be done, and that our knowledge of the soil and the crops is by no means adequate. The book includes a wide range of agricultural topics, being adapted for a large area, and is written in a simple and lucid yet instructive style suited for young students of the subject. Useful hints and exercises are given throughout its pages to teachers. It is well and clearly printed and copiously illustrated by means of numerous diagrams and half-tone blocks, while it shows every care in compilation. G. C. T.

THERE are few English gardens in which the rose does not find a conspicuous place and there are not a few volumes which speak both of the innumerable varieties from which to make a selection and of the methods by which to obtain success in their culture. But the book before us, "The Roses of Britain," by Lieut-Colonel A. H. Wolley-Dod (Taylor and Francis, London, 1924; price 5s.) is not one of these. Its scope is perhaps best indicated in the words of its sub-title, which runs as follows: "Detailed descriptions of the wild roses known to grow in the British Islands, with notes on their peculiarities and affinities, and on their comital distribution." The author has devoted twenty years to his subject, and the careful systematic account he gives of a very difficult genus of plants as represented in the native flora of this country should be of interest to those who may wish full descriptions of the wild roses from which so many favourite garden varieties have been derived. Definitions are first given of the four sections of the genus, Synstylæ, Stylosæ, Spinosissimæ and Caninæ, into which all our native roses are arranged by the systematic botanist. Thereafter follows the detailed descriptions of 17 species, 110 varieties and 48 forms, besides a considerable number of natural hybrids. The widely distributed Ayrshire rose, R. arvensis, is the first species to be dealt with. A full account is likewise given of the Scotch rose, R. spinosissima, the forerunner of many garden forms and a species which hybridises readily. But the descriptions of the dog rose and its allies, belonging to the section Caninæ, occupy by far the greater part of the book. Such species as R. canina, R. pomifera, R. tomentosa and R. rubiginosa, all of which have been of value in the production of attractive garden varieties, are described in great detail.

It is no easy matter to identify roses, and to the beginner using this book it would have been helpful if the author had supplied a key by means of which the different species could have been determined. The book rather tends towards that type written by a specialist for the benefit of specialists. The number of hybrids described goes to show that crossing must occur not infrequently in Nature and is not left entirely to the hands of the practised cultivator working in the precincts of his nursery or garden.

ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Asters Diseased (Miss A. H. M.).—The plants are affected by the black rot fungus. Although the roots may be healthy, or appear to be so, now, they are not. The fungus spreads upwards from the collar of the plant-stem or stalk. There is no cure in this case, and the best thing to do is carefully to remove the plants with roots and any soil adhering to them and burn all. Dress the soil in the bed with fresh lime, and do not plant anything there before next spring.

Plants for Herbaceous Border and Treatment of Heath Plant (D. M.).—It was quite correct treatment to mix the organic manure with the lower soil of the border, and bone-meal may be incorporated in the top portion. The superphosphate is best applied to the plants when the latter begin to grow freely. The sweet peas, Canterbury bells and delphiniums require more space than you are allowing them, so the width of the border should be 8ft. to permit of five rows of plants, including the Brompton stocks and violas having sufficient room to develop fully without undue crowding. As the heath plant is now doing well, apply clear water only; manures would probably kill the roots. Very weak stimulants should be applied when new growth begins after the flowering stage.

Dwarf Roses for Bedding (S. S. M. E.).—We feel that the following will be good varieties for your purpose: Florence Forrester, white tinged with lemon; Mrs. Elisha Hicks, blush pink; Mrs. W. J. Grant, pink; Lilian Moore, Indian yellow; Christine, Sovereign, rich yellow; Mrs. C. E. Shea, rosy scarlet; Lieut. Chauré, crimson; Colonel Oswald Fitzgerald, crimson; and Château de Clos Vougeot, dark crimson. We are pleased to hear that you propose to plant separate varieties in each of the beds, and would recommend that, as you are adding chopped loam, the soil is made quite firm before the planting is done. For the woodland planting, in addition to the varieties already selected we recommend Grüs an Teplitz, scarlet-crimson; Conrad F. Meyer, silvery rose; Moonlight, lemon white; Zéphirine Drouhin, bright carmine; Tea Rambler, coppery pink; and Gardenia, bright yellow.

Sowing Broom Seeds: Cutting Back Old Yews (Mrs. A. S.).—At a distance of a few feet apart small spaces should be cleared of weeds and foreign matter, then seeds of broom may be sown with every prospect of success. A few plants of double-flowered gorse would add to the effect. Broom (Cytisus) Andreanus is a very charming variety. If the old yews were cut down to within 2ft. of the ground they would probably die. Only the young shoots of these trees should be freely cut, at least once a year.

THE GREENHOUSE.

Treatment of Begonia (W. C.).—Begonia martiana grandiflora is a warm-house variety and is readily increased by tubers. In our correspondent's case the intermediate structure will be quite suitable.

Treatment of Liliums (H. J. T.).—All lilium bulbs are impatient of exposure to air. Bulbs purchased are always surrounded by moisture-conserving material and should be potted forthwith. The small stem-bulbs and off-sets from the parent bulbs that you refer to should be potted at once and then retained in a cold frame safe from frost till new growth begins.

Plants for a Cool Greenhouse (M.).—For spring and summer flowering the following would prove very satisfactory: Bulbs in variety, especially narcissi, Agapanthus umbellatus, azaleas, calceolarias, deutzias, fuchsias, hydrangeas, kalosanthes, marguerites, zonal pelargoniums, petunias, tuberous begonias. For autumn and winter flowering: Early bulbs and chrysanthemums which have been grown outdoors in pots during the summer. These, if well selected, would flower from October to Christmas. Echeveria retusa (in mild winters), Eupatorium riparium, zonal pelargoniums and primulas, especially Primula malacoides. A selection from these plants would result in flowers being available all the year round without the aid of artificial heat.

KITCHEN GARDEN.

Tomatoes not Ripening Satisfactorily (A. W. C.).—The plants needed more potash in the soil. Lack of this, coupled with the cold, sunless season, has caused many fruits to finish badly. It may not occur next year. Add 1 peck of dry wood-ashes to 10 pecks of compost next season when mixing the compost for the plants to fruit in.

Kidney Beans and Other Vegetables Unsatisfactory (E. G. G.).—You have evidently, treated the various crops well; but the past summer months have not been quite normal as regards weather, and have been favourable to insect life generally. Kidney beans require heat and moisture; they have had an excess of cold moisture, and not much heat from the sun. Many flowers have proved abortive, owing to cold preventing pollination. No doubt caterpillars have eaten many leaves of the vegetables. Apply lime now, or as soon as the soil is dug, at the rate of 6 oz. per square yard, leaving it on the surface till February. Bone-meal is good for the crops. Do not over-manure.

MISCELLANEOUS.

Various Questions (R. W., Stirling).—The daffodil bulbs will not bloom very satisfactorily next year after such drastic treatment, but they may do so in 1926 if the foliage next year is allowed to fade naturally. If expected to bloom year after year, all such bulbs must be left in the ground to mature their foliage. If the roses Golden Emblem and Betty Uprichard are planted in well worked and properly drained soil they will thrive, if it is of a clayey nature. The following kinds of shrubs should thrive round the bungalow: Laurustinus, Andromeda floribunda, guelder rose, deutzia, Hibiscus syriacus, lilacs, Pyrus japonica, philadelphus, rhododendrons, azaleas, flowering currants, Weigelia rosea, spiræas in variety, berberises, arbutus, veronicas, buddleias and jasmine.

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Names of Plants.—(H. M.).—1, Rudbeckia speciosa; 2, R. laciniata Golden Glow. ——(Rydal).—Lavender cotton, Santolina chamæcyparissus, easy to grow from cuttings inserted now.——(H. G. S.).—Rubus flagelliformis.——(F. S. G.).—Phragmites communis, "Spire Weed."——(L. J. G.).—Atriplex hortensis rubra, "Mountain Spinach."

Names of Fruit.—(E. C. P.).—We think the apple is Bismarck—though the sample is rather a poor one and we cannot be quite certain about this. Bismarck is a good cooker and should keep until February. Any nurseryman could supply trees of this popular apple.——(W. W.).—(1) Astrachan Red, in season in August; (2) Worcester Pearmain, in season in September and early October. The transplanting should do the trees good. ——(I. C.).—(1) Worcester Pearmain, (2) Peasgood's Nonsuch, (3) The Houblon, (4) Kerry Pippin.——(H. M.).—(1) Probably Rambour Papaleau, we cannot be quite sure about this as only one fruit was sent and that not yet mature; (2) Worcester Pearmain; (3) Charles Ross.

National Potato Exhibition.—Arrangements have been made for the National Potato Exhibition to be held this year at the Junior Trading Hall, Leicester, on November 13th, 14th and 15th, in conjunction with the Annual Horticultural Exhibition of the County of Leicester Education Committee and the Leicester and Leicestershire Chrysanthemum Society. Copies of the prize list and any further particulars required may be obtained upon application to the Organising Secretary, Mr. W. H. Morter, Cannon Hill Park, Birmingham.

Trial of Roses at Wisley.—The Director of the Royal Horticultural Society's Gardens reminds raisers of new roses of the trials that are in progress at Wisley. Raisers are invited to send six plants of each new variety for trial to reach him by the end of November. They will be planted with those already growing and with standard varieties for comparison, and judged by a committee of rose growers appointed for the purpose. The necessary entry forms can be obtained on application to him at R.H.S. Gardens, Wisley, Ripley, Surrey.

Sweet Pea Trials.—The secretary of the National Sweet Pea Society asks us to remind raisers that those who desire to include their novelties in the 1925 trials, which are to be held at the Syon House Gardens, Brentford, should forward the seeds at an early date, addressed to Mr. A. C. Bartlett, 318, Kew Road, Kew.

British Florists' Federation.—At a meeting of the Market Floral Committee of the British Florists' Federation, held at Monro's Salerooms, Tavistock Street, Covent Garden, on Monday, September 22nd, Mr. W. E. Wallace presided, and chrysanthemums were the only subjects brought forward. The following awards were made: First-class Certificates.—To Chrysanthemum Mrs. Jack Pearson. A variety of reflexed Japanese type and very early flowering. Flowers have been placed on the market so early as the middle of July and the supply has continued to the end of September. The flowers are of bright golden-bronze colour, which is effective during the daytime as well as in artificial light. It is suitable alike for disbudding and for spray blooms. As members of the Floral Committee had inspected the variety growing, the first-class certificate was awarded unanimously. To Chrysanthemum Mrs. Phil Page.—This is a rich reddish bronze counterpart of the former variety and is equally good disbudded or in spray form. This variety had also been inspected growing and received a unanimous award. Both varieties were submitted by Mr. Philip Ladds, Swanley Junction, Kent.

TRADE NOTE

It may be of interest to our readers to know that Messrs. Barr and Son have just received a consignment of the Sacred or Good Luck Lily from China, the first importation since the autumn of 1913. This is a variety of polyanthus narcissus which has been cultivated for generations in China, and produces more flower heads to the bulb than any other variety. It is easily grown in pots in pebbles and water.

CATALOGUES RECEIVED.

Messrs. Allwood Brothers, Wivelsfield Nurseries, Haywards Heath, Sussex.—Carnations.

Frank Cant and Co., Braiswick Rose Gardens, Colchester.—Roses.

Messrs. J. Hunter, Limited, Chester.—Agricultural Seeds.

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THE GARDEN

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THE GARDEN

VOL. LXXXVIII.—No. 2761. OCTOBER 18, 1924

A PAVED WALK SURROUNDED BY RAMBLERS.

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Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

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THE GARDEN

OCTOBER 18, 1924

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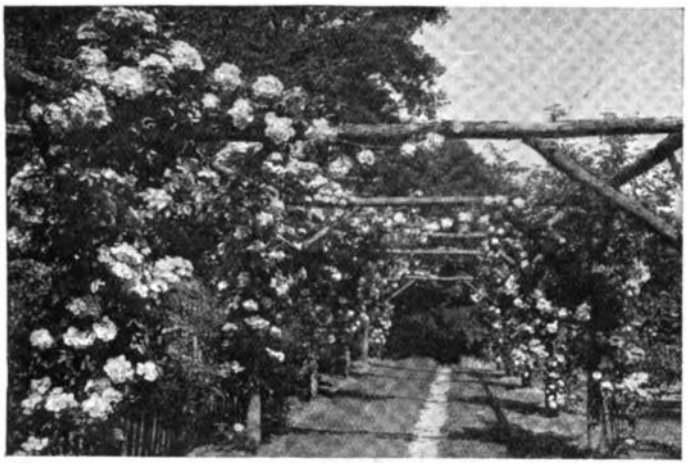

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ROSES

ROSES are beloved of poets—which might make you imagine that I have been digging into a dictionary of quotations to find suitable passages around which to write a few unnecessary words on roses. My remark, however, was introductory to saying that roses have always held the most prominent place of all flowers in the world's literature. Surely the reason is that they are unostentatious and that their simplicity is one of their greatest charms. Other flowers come and other flowers go in spasms of extreme popularity, but from the dawn of time roses have held the affection of mortals so chastely and so firmly that they are still the favourite flower.

It is not only in literature that the rose is pictured; old Indian and Persian miniatures frequently depict a rose in their flowery meads, while old mediæval manuscripts are full of them. Italian pictures often show roses in the background, usually climbing a palisade or rambling over a wall: in fact, the frequency with which they are found in art or mentioned in literature of all ages proves that the rose was constantly grown and beloved by people of all classes. Folklore is also on occasion connected with the rose. Did not Aphrodite fall into a bush of white roses while hurrying to tend her wounded lover? The thorns tore her white skin so sorely that ever after her blood has dyed the white roses a deep red. Roses are often mentioned in Maypole celebrations. Which only proves that love of the rose lies very deep in our hearts.

This love seems to come from the fact that the rose is the personification of all that is pure and unspoiled. Even with our modern craze for improvement it is obvious that a rose is always a rose, which cannot be said for many of our garden flowers. The shape may alter slightly and the colour be modified in various ways, but it remains a rose for all that. The only fundamental change appears to me to be the increasing lack of fragrance. In the old days and farther to the east even at the present time its fragrance is no doubt one of its main charms. Miles of roses are grown in the Balkans, in Persia and in India simply for the purpose of distilling the essence, but in the sophisticated west we are too much inclined to limit our perception to exterior appearance and to leave the essentials an inferior second. After all, the love of the rose does not depend solely upon its present appearance—that I firmly believe; rather is there a great deal of this love born in us, a legacy from countless generations who loved the rose for itself when flowering plants were few. Some day somebody will expound to us the psychology of flowers and explain why the beauty of the magnolia leaves us startled but cold, and why the rose, even a miserable and bedraggled rose, reflects an inward light and makes us warm and contented.

It is not that in the old days roses were not appreciated for decoration. Even in Roman times they were grown out of season and counted a luxury if produced in the winter; but it is certain that in days gone by there was more of the symbolical and less of the ornamental in the love of human beings for roses.

It is pleasant to see that something of this original admiration for simplicity and purity remains, for you frequently hear of the old Scotch roses or the York and Lancaster being asked for where they were forgotten fifteen years ago. Perhaps mankind is getting tired of playthings manufactured by itself for its own amusement and is returning to that old love of flowers that was not far apart from religion. If so, it is a good omen; for artificiality in anything is supposed to be a sign of decadence, and many of our garden flowers approach the artificial.

At any rate there is little doubt that a rose in any form is worthy of our sincere respect and affection. The rose cult is founded on a solid foundation deep down in our hearts and it is worthy of all the encouragement that we can give it. The Americans in their enthusiasm for strange cults have started a publication called "For Better Delphiniums." These stately Junoesque flowers are great favourites of mine, but they are raised in such perfection at the present time that this ebullition on the part of our American friends is perhaps a little excessive. If they had only directed their steps in the direction of a quarterly journal devoted to roses, it would have been more appropriate, for there is no flower so beloved the world over.

E. H. M. C.

IN OUR NEXT ISSUE WILL BE FOUND:

FUCHSIAS, by J. Coutts.

MORAINE AND SCREE GARDENING, by Clarence Elliott.

A BORDER OF SOUTH AFRICAN BULBS, by H. W. Canning-Wright.

SHOWS AND SCHEDULES, by Edwin Beckett.

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PERNETIANA ROSES

BY G. LAPLACE.

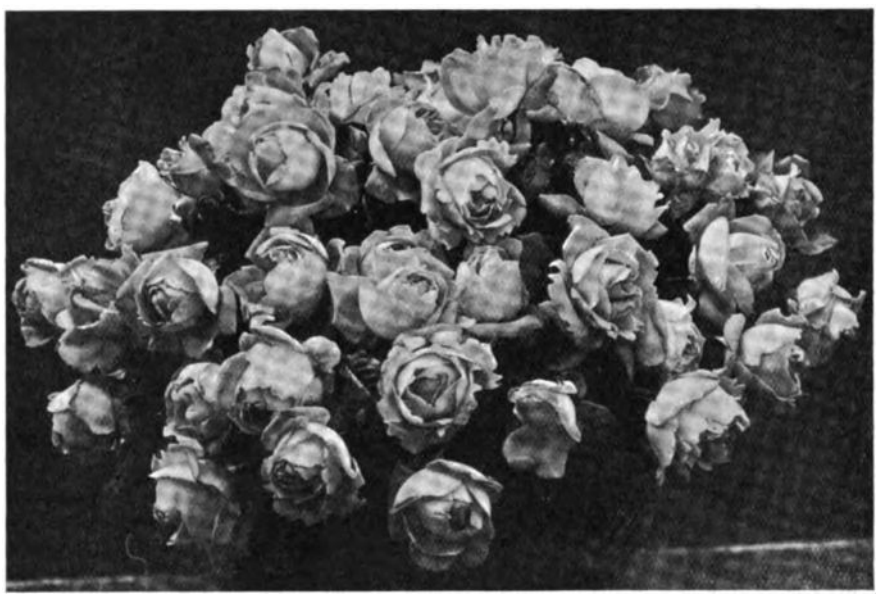
M. LAPLACE WAS IN CHARGE OF THE FAMOUS ROSE TRIALS AT BAGATELLE, NEAR PARIS, FOR MANY YEARS; SO FEW CAN SPEAK WITH SUCH AUTHORITY UPON ROSES.

THE appearance, twenty-five years ago, in the year 1900, of the first variety of a Pernetiana rose caused a sensation with the novelty of its colour. It was the result of crossing a form of Rosa lutea with a hybrid tea. M. Pernet Ducher of Lyons decided to try to raise roses, either yellow in colour or with a warm or coppery tinge, and the first attempt, resulting in Soleil d'Or, confirmed the hopes of this famous grower.

In other classes of roses yellow colours certainly exist—for example, in some of the teas—but they are inclined to be tender; Rosa lutea, on the other hand, is hardy, and at the same time is a vigorous grower, while its flowers are a good yellow. One of its varieties, called Persian Yellow, with double flowers, was a parent of Soleil d'Or, while the other was Antoine Ducher, a hybrid tea.

Soleil d'Or is a remarkable rose in the sense that its flowers are very full, of a colour varying from orange-yellow to a reddish orange; the growth is strong, but the bush is not heavily branched, while it is as floriferous as its parent, R. lutea. From the same batch of seedlings came Rhodophile Gravereaux, a very fine rose with single flowers, extremely vigorous and of a charming colour of soft rose shaded with yellow towards the centre.

M. Pernet Ducher's series of crosses have been so successful that he has increased his right to be considered the foremost raiser of roses in the world. In addition to his crosses several sports have appeared, while enthusiasts of other countries have also raised excellent Pernetiana varieties.



ROSE QUEEN ALEXANDRA, ONE OF THE MOST CHARMING OF PERNETIANAS.

At the International Exhibition held in London in 1912 the *Daily Mail* offered a large prize for the best rose exhibited. This was won by M. Pernet Ducher with the marvellous Mme. Edouard Herriot, the *Daily Mail* rose. Owing to its special colour—quite new in roses—of terra cotta shaded with yellow passing to clear rose, it aroused the admiration of countless visitors at this splendid exhibition. It is unnecessary to add that it is a vigorous grower and very free flowering.

At the present time there are, perhaps, more than a hundred Pernetiana hybrids, while the number is increasing rapidly, particularly as the remarkable Mme. Edouard Herriot is a good seed bearer and has given forth numerous offspring, not always worthy of their parent, owing to the haste with which certain raisers have placed them on the market before their worth has been proved. At the start it was easy to distinguish a Pernetiana rose; it is now somewhat difficult to point out the distinction between them and some other classes. In fact, hybrids obtained by crossing the first varieties a second time with hybrid teas follow the form of the latter; a careful examination, however, will show the influence of Rosa lutea by the number of straight thorns, the glandular flower stems and, above all, by the yellow colour or various tones of copper or rose more or less tinted with yellow at the base of the petals or on their under surface.

Soleil d'Or has a corolla in the form of a cup something after the shape of ramblers; varieties coming immediately after it have also this form, but their numerous progeny are more like hybrid teas in appearance. From the cultural point of view Pernetianas require the same treatment as other roses, the same temperature, moisture and light; but regarding soil a cool, deep loam gives the best results. Soleil d'Or, Juliet and varieties akin to them require to grow to some height to get the best flowering results, with a further growth if they are to flower in the autumn. Other kinds follow the habits of the hybrid teas.

In view of the number of first-class varieties a selection must be made, but taking into consideration certain facts, particularly that of an exceptional colour, some of even mediocre merit should be included in a list. At any rate, Pernetiana roses should be grown in every garden, large or small, and should be represented by a number of varieties owing to their vigour, their varied colours and their habit of flowering profusely over a long period.

Here is a list of good varieties which should give absolute satisfaction:

ANGELE PERNET (Pernet Ducher, 1924), a splendid rose, vigorous, of good habit, carrying quantities of smallish flowers, semi-full. Clear fiery red in colour, strongly tinged with yellow at the base. Very highly recommended.

ARTHUR R. GOODWIN (Pernet Ducher, 1909), reddish orange passing to salmon-rose.

ARIEL (Bees, 1921), orange-yellow tinged scarlet.

BEAUTE DE LYONS (Pernet Ducher, 1909), vigorous, with cup-shaped flowers, terra cotta, very free flowering.

CHRISTINE (McGredy, 1918), large flowers of a deep golden yellow, foliage of a brilliant green.

CONSTANCE (Pernet Ducher, 1915), fine cadmium yellow passing to golden yellow, large cup-shaped flowers.

ELVIRA ARAMAYO (Looymans, 1922), a strange colour quite unlike that of any other rose; it is nearly approaching an Indian red, strongly tinged with yellow at the base of the petals. The plant is very vigorous, while flowers of medium size are borne very freely.

FEU JOSEPH LOOYMANS (Looymans, 1922), a very pretty rose, vigorous, of a good yellow colour with an apricot centre.

GEISHA (Van Rossem, 1920), extremely vigorous, very free flowering, golden yellow.

GOLDEN EMBLEM (McGredy, 1917), large flowers of intense golden yellow with a few faint streaks of carmine on the outside.

INDEPENDENCE DAY (Bees, 1919). Its habit, growth and floriferousness make it one of the best introductions of the past few years. Its colour of flaming yellow and orange-apricot is particularly attractive.

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JEAN C. N. FORESTIER (Pernet Ducher, 1919), large full flowers, carmine tinged with red and yellow. The bush is very vigorous, while the foliage is of a vivid green. Particularly immune from disease.

JULES TREBART (Barbier, 1920), very full flowers, salmon-rose with a coppery centre.

JULIET (Wm. Paul, 1910), one of the most remarkable roses in the class, large flowers very full. The colour is rosy red, while the reverse of the petals is old gold, making a very original contrast.

LOLITA ARMOUR (Howard and Smith, 1921), good growth, large full flowers terra cotta.

LOUISE CATHERINE BRESLAU (Pernet Ducher, 1912), one of the most hardy and vigorous of the Pernetianas; large flowers of a fine salmon-pink, suffused copper.

LYONS ROSE (Pernet Ducher, 1907), salmon-rose suffused with yellow.

MABEL MORSE (McGredy, 1922), clear golden yellow, large full flowers, scented, a vigorous-growing bush.

MME. EDOUARD HERRIOT (Pernet Ducher, 1912).

MARIE ADELAIDE (Soupert, 1912), orange, keeps its colour well. A very fine acquisition.

MISS CONNOR (A. Dickson, 1920), yellow flushed with lemon at the base.

MRS. BULLEN (Pernet Ducher, 1916), carmine flushed with yellow.

MRS. BECKWITH (Pernet Ducher, 1922), small flowers very full, yellow with golden bud.

MRS. FARMER (Pernet Ducher, 1918), golden yellow, reverse of petals reddish apricot.

MRS. S. K. RUDGE (Howard and Smith, 1920), rich canary yellow flushed with salmon-rose.

MRS. WEMYSS QUIN (A. Dickson, 1914), intense canary yellow suffused with orange-yellow. A fine variety, very vigorous and free flowering.

MURIEL DICKSON (Hugh Dickson, 1915), vigorous, large flowers of a deep coppery red.

PAX LABOR (C. Chambord, 1918), large flowers pale golden yellow, becoming deeper as they open.

ROSE INDEPENDENCE DAY.

THE LARGE, DEEP GOLDEN YELLOW BLOOMS OF CHRISTINE

RAYMOND (Pernet Ducher, 1916), a good variety, soft peach becoming deeper rose towards the centre.

RAYON D'OR (Pernet Ducher, 1910), small growth, flowers of an intense golden yellow.

REV. WILLIAMSON (Pernet Ducher, 1921), very vigorous, numerous terra cotta flowers flushed with carmine.

SOLEIL D'OR (Pernet Ducher, 1900). See above.

SOUVENIR DE CLAUDIUS PERNET (Pernet Ducher, 1920), the best rose of the class—very vigorous and fine foliage—flowers during the whole season, very free flowering, pure buttercup yellow and of a perfect form. The long bud is sometimes tinged with red.

SOUVENIR DE GEORGE PERNET (Pernet Ducher, 1921), as vigorous as the last-named, extremely remarkable for the size of the flowers—Indian red in colour shaded with yellow; extremely hardy. The last two varieties have been named in honour of the two sons of the raiser who died fighting gloriously in the Great War of 1914–18.

SOUVENIR DE GEORGE BECKWITH (Pernet Ducher, 1919), large flowers of salmon-rose flushed with yellow.

SOUVENIR DE R. B. FERGUSON (Ferguson, 1922), a splendid variety of moderate vigour, with fine foliage and magnificent flowers, apricot yellow flushed red on the reverse of the petals.

THE QUEEN ALEXANDRA (McGredy, 1918), the most delightful rose of the class, distinguished by its intense carmine colour suffused with gold on the reverse of the petals, making an agreeable contrast. The bush is only moderately vigorous.

VISCOUNTESS ENFIELD (Pernet Ducher, 1910), large flowers copper-rose.

WILLIAM F. DREER (Howard and Smith, 1920), extremely vigorous, well branched of fine growth, flowers throughout the season, large, very full, soft rose, golden yellow at the base.

WILLOWMERE (Pernet Ducher, 1913), a fine variety, very floriferous, salmon-rose tinted with yellow at the centre.

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A RETROSPECTIVE APPRECIATION

OF THE NEW ROSES OF 1921

THE period which has intervened since 1921 has afforded sufficient time to secure a thorough trial and fair experience of those new varieties introduced in the year under review, and enables a decisive judgment to be formed upon those of outstanding merit, or proved excellence, or novelty.

The types selected cannot as yet be called the survivors, for there are unquestionably others not referred to hereafter which may yet establish their worthiness to a place in the garden.

Of the new varieties introduced in that year eighty-six were put down and tried out at Oxted. The result can be summarised briefly by the statement that the majority cannot, unfortunately, lay claim to novelty or to any marked advance upon those types we have already got. In this view criticism is mainly directed along the lines of the worthiness or otherwise of the type to an established place in a bed in the rose garden. Undoubtedly certain types may have points of merit and claims as exhibition roses, for growth under glass, or other special qualifications. These latter considerations appear to be of far less moment to those who grow roses primarily as a hobby than the major consideration previously enunciated.

Of the hybrid teas, two varieties of Messrs. McGredy are to be relied upon:

ETHEL JAMES, a five-petalled single rose, red flushed orange, somewhat similar to Isobel, but with a softer colour in the flowers, and a plant shape more compact and bushy.

PRINCESS VICTORIA.—Scarlet crimson blooms, with wonderful dark glossy foliage. Is an early bloomer. It should be closely watched for black spot, which must be attacked in time and eradicated, otherwise every leaf will go and the plants will die.

Two of Messrs. B. R. Cant's hybrid teas have proved themselves, viz.:

MRS. OAKLEY FISHER.—The best single rose produced for some years past. Blooms are orange yellow coloured, excellent for table decoration. The plants, which grow well, have a nice bushy shape.

A SHAPELY BRIGHT YELLOW BLOOM OF ROSE REV. F. PAGE ROBERTS.

ROSE SUNSTAR, OF EXCELLENT BUSHY GROWTH AND LARGE TRUSSES OF BLOOM.

REV. F. PAGE ROBERTS.—Bright yellow blooms of good size and shape. A dozen plants of this variety, grouped together, make a fine mass of colour.

MRS. HENRY BOWLES.—(Chaplin Brothers, Limited.) A warm pink. Grows well massed in a bed.

MINNIE SAUNDERS.—(Elisha Hicks.) A really free bloomer. Scarlet flowers with good erect plant growth.

SUNSTAR.—(Alexander Dickson and Sons, Limited.) This is well worthy of a bed entirely to itself, if only for its unique splashed red and yellow colouring. The plants do not grow tall, but are none the less reasonably strong.

ARIEL.—(Bees, Limited). This variety has proved so very effective this season that it has been decided to grow still more. Orange yellow colour, prettiest in bud, with adequate growth.

MAUD.—(William Paul and Son, now Chaplin Brothers, Limited.) Coral-coloured blooms in big trusses and of good foliage. The growth erect and rather tall.

Two dwarf polyanthas are of outstanding merit, viz.:

CORAL CLUSTER.—(R. Murrell.) Pretty coral-coloured blooms, but displaying an unfortunate tendency always to "throw back" to its Orleanistic parent.

DOROTHY HAWORTH.—(Bees, Limited.) Its only fault, if such it can be called, is that it grows almost too strong for a dwarf polyantha. The trusses of bloom are very heavy. Colour pink, in light and dark shadings.

Of climbers undoubtedly the best of this year is:

ALBERTINE.—(Barbier). A climbing Wichuraiana with flowers similar to Mrs. A. R. Waddell. Of excellent growth and a profuse bloomer. Also—

CLIMBING MME. EDOUARD HERRIOT.—(Ketten Frères.) A climbing sport of the well known Pernetiana rose. Blooms well, with fairly strong growth.

The foregoing have produced, under the conditions and environment of Oxted, the most successful results of the series of 1921. On the other hand, it must not be inferred for one moment that the

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remainder are failures, or not worth growing, for, indeed, some of them are quite good. The types specially mentioned, and this cannot be over-emphasised, are a personal selection based upon our own trials, and having strict regard to garden varieties alone.

This appreciation means this, at least, that they have entirely justified their place in the garden of every true lover of the rose, and will add much to his joy and pleasure in the cultivation of this queen among flowers "in her infinite variety."

Oxted. HERBERT L. WETTERN.

(*To be continued.*)

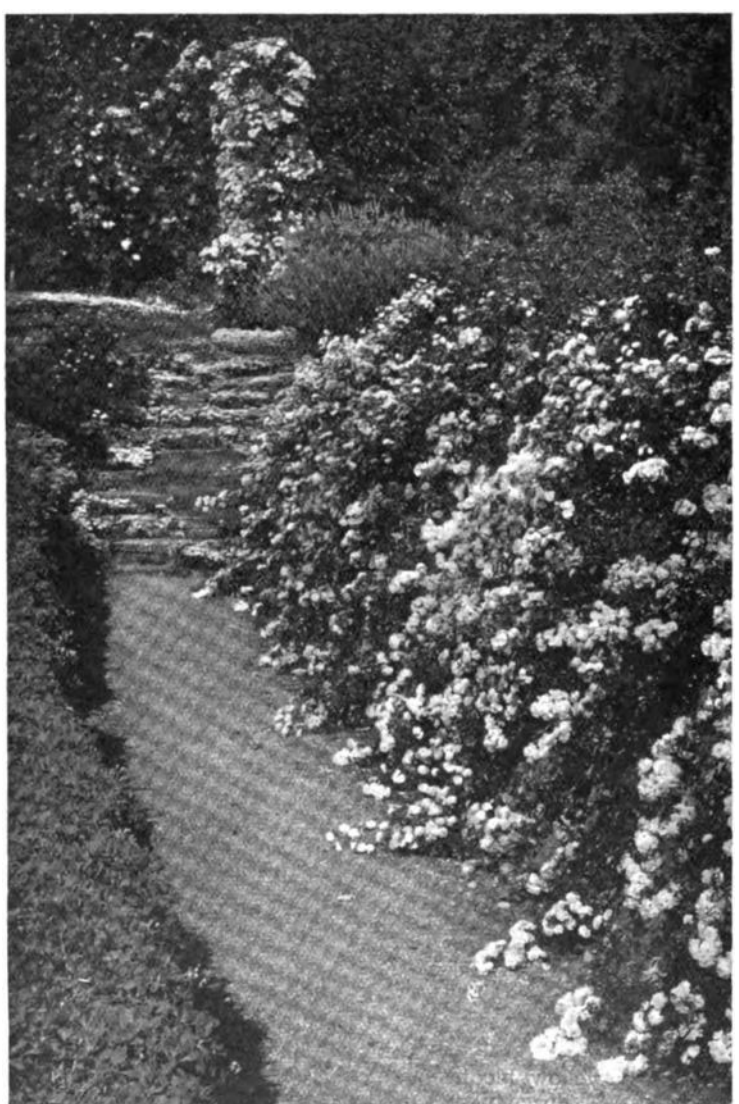
NOTES on the CULTIVATION of ROSES

THE doubts and fears of the beginner in rose growing nearly always concern soil—its suitability or otherwise; but, provided exhibition roses are not the object in view, such worryings nearly always prove to have been groundless, for quite good roses may be grown in any ordinary garden soil. The ideal soil for roses is a rich deep loam, a trifle inclined to be heavy. But as ideals, especially in gardening, are seldom attained, the wisest course is to make the best use of the soil of the garden, ameliorating it as far as circumstances permit.

Pure clay and pure sand will not grow any plant, no matter how lowly, so that rose growing in such would be foredoomed to failure. But with the sandiest of sandy soils and the heaviest clay much may be done, especially if after the soil preparations have been completed the right types of rose are chosen. Even in some of the very sandy soils in parts of Norfolk, the Wichuraiana hybrids grow and flower remarkably well, and it is this free-flowering cluster type that should be selected for very poor soils.

Where expense is no object, good loam may, of course, be imported, and then it is only a matter of making up the beds and planting them. Without going to this expense, these poor soils can generally be greatly improved by the addition of such materials as old potting soil, leaf-mould and any decayed vegetable matter that may be on hand. The best manure for roses, and especially on light soils, is thoroughly decayed farmyard manure. If this is not procurable, Wakeley's hop manure will be found a good substitute. This hop manure gives excellent results, and is of great assistance to the soil in addition to being a valuable plant food. The especial worth of both these substances on light soils is that, besides adding much-needed humus, they absorb and retain till needed large quantities of moisture. Chemical manures are not advisable for use in light soils when preparing them for planting, but bone-meal, if used at the rate of 6 oz. to the square yard, will provide a useful, slowly yielded store of phosphates. But whatever sort of manure is used for the rose beds, it should be well mixed with the soil and not placed in a layer under the top spit, as is so often done.

The first consideration when preparing a clay and, indeed, any heavy soil should be drainage, for unless the soil is properly drained roses cannot thrive. The old-time method of improving a clay soil was by burning it, but nowadays this is too expensive a method. The application of lime has, to the beginner, a surprising effect on heavy soils. A dressing of from 8 oz. to 10 oz. of freshly slaked lime per square yard soon breaks up clayey soils and deprives them of a deal of their sticky nature, transforming them into most valuable and fertile soils, which are capable of growing the finest of roses. But it must always be remembered that clay soils respond, even more than any others, to thorough and frequent cultivation. If they can be thrown up rough and left for the winter frosts to act upon them before being levelled for planting, an immense improvement in their texture is the result.



WICHURAIANA ROSES ARE ADMIRABLY SUITED FOR RETAINING WALLS.

With the medium soils, which are neither heavy nor light and which are decidedly in the majority in gardens, drainage is not usually necessary, and the preparation consists in digging as deeply as possible and adding manures as already suggested, bearing in mind that the rose is of the nature of a permanent crop and should be treated accordingly.

While the form and design of the rose garden does not come within the scope of these notes, it is proper to remark upon the need for shelter from keen winds. Abundance of air and sun are requisite and necessary for success in rose growing, but shelter is equally necessary. If the site is exposed to rough winds the needed shelter may generally best be provided in the form of a hedge, and for this purpose it is such hedges as of Penzance briars, the common sweet briar and Cydonia (Pyrus) japonica varieties among deciduous shrubs, and yew, cypress and holly of the evergreens that are most suitable, according to the height of shelter needed. But any hedge, except perhaps the lowest of hedges, requires time before it becomes effective, and where the shelter is required immediately it can be provided by such temporary means as wattle hurdles or stretching sheep netting along the windy side of the roses. When the permanent hedge has become of full height, these material substitutes will, of course, be taken down. Another and quite effective form of shelter may be obtained from a wire fence to which is trained some of the freer-growing rambler roses. But Crimson Rambler should not be so used, as it is too liable to attacks of mildew. Grüss an Teplitz, Tea Rambler, Félicité et Perpétue, Dundee Rambler, Blush Rambler and Bennett's Seedling are

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examples of suitable varieties. But if, as it should be, the screen of roses is to be really effective, the temptation to plant a number of varieties should be resisted. For a short hedge only one sort should be planted, and as that one sort the writer would choose Grüss an Teplitz.

Similarly, in the rose garden itself, or in the rose border, most pleasure and satisfaction are nearly always obtained when the number of varieties is restricted. Likewise, unless the beds are quite large, only one variety should be planted in each bed. If the garden design has provided rose beds of varying sizes—the present writer has arrived at the definite opinion, after a deal of consideration and having seen many rose gardens, that the best effect is seen when the varieties are so arranged that the brightest coloured varieties are placed in the largest beds. A large bed of a white or pale-coloured variety gives a cold and, except for a brief season, depressing effect.

Any attempt at a selection of varieties for a beginner to grow teems with difficulties and, as one could only generalise, would not serve any really useful purpose. The special object of the rose garden should be known; the nature of its soil, exposure and the personal tastes of the garden owner should also be considered. All the rose growers who advertise in THE GARDEN are invariably ready and willing to place their expert knowledge at the service of customers when the latter make their requirements known; and then, there is the Editor himself, who draws attention to his admirable "Service for Readers" on the first page. A letter to him setting out just what is wanted will bring a prompt reply of great value.

Whatever sorts are decided upon they should always be purchased from a reputable grower. We all know quite well that roses of sorts may be bought at auction sales and from certain stores at very low prices; but the risk of disappointment is too great to be run—and it is a penny-wise-and-pound-foolish policy to attempt to save a trifle on the plants after having prepared the beds.

The planting of the roses should be a deliberate operation and only performed when the weather and the soil are suitable. The gardener's test of the proper condition of the soil is to tread on it and see whether or no an undue quantity sticks to his boots; if so, he waits. The roses can always be temporarily laid in until the right time has arrived. Rose trees should never be planted when the roots are at all dry. If, when they arrive, the roots are seen to be dry, they should be placed in a pail or tub of water for a couple of hours or so to become thoroughly moistened. The soil mark on the stems is a good guide as to the correct depth to plant. If the soil is light the plants should be set a trifle lower than before, while with a heavy soil the reverse should be done. Any bruised or broken roots should be cut cleanly off. The hole for the plant should be larger than the spread of the roots, so that they may be regularly laid out to their fullest extent, care being taken to work the soil well around every root. If the garden soil is at all coarse it is a good practice to have ready sufficient prepared soil to cover the roots of the plant. A gentle shaking of the plant as the soil is being spread around the roots will ensure that they are in close contact with it. In all soils firm planting is essential.

Standard roses should be secured to stout stakes immediately. The stakes should be firmly driven into the ground before the rose is planted, so that there is not the slightest danger of injury to the roots. During dry weather the newly planted roses should be well watered and, if they are still in leaf, it is an advantage to spray the foliage on fine days for a fortnight. A. C. B.

COOL-GROWING ORCHIDS

ODONTOGLOSSUMS AND THEIR HYBRIDS.

THE premier position among the cool-growing orchids can easily be assigned to the odontoglossums, their numerous fine hybrids, and the odontiodas, the latter being bi-generic hybrids between the odontoglossums and the cochliodas, chiefly the orange-scarlet C. Noetzliana. No collection, however small, is complete without a few odontiodas, their brilliant flowers, graceful arching racemes, and the ease with which they can be grown successfully rendering them well-nigh indispensable. Among the odontoglossums there is a wide selection, even if the grower confines himself to the varieties of the popular O. crispum. Of the host of hybrids the beginner will find the following useful: OO. percultum, ardentissimum, amabile, Rolfeæ and eximium; but the best plan would be to visit some nursery where they specialise in orchids. The odontiodas are also both varied and interesting, and the nucleus of a collection could be formed by the acquisition of OO. Charlesworthii, Bradshawiæ, Chanticleer, Queen Mary and Vuylstekeæ.

For preference, a low span-roof greenhouse running from north to south, should be chosen; it ought to be away from buildings and trees, and in an open situation. Where a collection of odontoglossums and odontiodas is cultivated a few will need repotting at intervals throughout the year, but the bulk will require attention in August and September. Annual disturbance is not necessary, and providing other cultural details are correct the compost will remain in good condition for at least two years. When it is decided that a plant needs repotting, care should be taken to see that the new growth is about to produce roots, then it rarely feels the effect of being disturbed. Over-potting should be guarded against, but enough space should be allowed for the further development of two pseudo-bulbs. The pots are filled to one-fourth of their depth with drainage material, over which is placed a layer of moss to secure a free outlet for water. The rooting medium consists of Osmunda fibre 3 parts and chopped sphagnum moss 1 part. The latter is relieved of all weeds and washed to free it from snails, while the former is cut up into inch lengths and the dust removed with a fine sieve. It is well mixed together a few days before it is used, and should be in a moist but not wet condition. When repotting a plant the old decayed compost is picked out with a pointed stick, dead roots are cut off, and any useless back pseudo-bulbs removed. As a rule, three behind each lead or growing point is ample, and if it is desired to increase the stock the pseudo-bulbs so removed can be utilised for propagating purposes. Place them in small pots with plenty of drainage, and give them a shady part of the house until they produce a new growth, when they are treated the same as established specimens. When the plant is ready, the roots are spread evenly over the soil, and then more compost is pressed moderately firmly among the roots and brought level with the rim of the receptacle. The plant is arranged so that the young growth is as near the centre of the pot as possible.

If the variety is a valuable one the rhizome can be severed at intervals a few weeks prior to repotting, then growing points are often formed before the plant is disturbed. In this way healthy young plants are obtained, and when the repotting is done the old pseudo-bulbs are given a separate existence. For a few weeks after being repotted the roots should not be over-done with water, a light spray overhead will help the plants to get re-established, and they should be shaded from strong sunlight. Ventilation is necessary, and whenever possible the bottom ventilators, viz., those in the wall, should be open, but the top ones are only opened during mild and congenial weather. An average temperature of 55° to 60° Fahr. is maintained, but during a very cold spell 50° Fahr. will be ample, while the maximum figures are exceeded in summer when the sun is strong. Much, however, can be done to keep down the temperature; the blinds are lowered early, just before the sun reaches the glass, and the house is thoroughly damped down by sprinkling water on the stages, floor and walls. Cleanliness is an important factor, and thrips are occasionally troublesome, but this pest can be destroyed by fumigation.

The chief points in cool-house orchid culture are judicious ventilation, a more or less moist atmosphere according to the period of year, shade from all strong sunlight, careful watering at all times, freedom from insect pests, and in never allowing a plant to produce its full complement of flowers unless it is well provided with roots and is healthy. Slugs and small snails must be watched for, or they will devour the flower spikes just as they appear at the base of the pseudo-bulb. T. W. BRISCOE.

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ROSE NOTES FROM "THE GARDEN" 1871—1924

IT seems fitting in this, our Special Rose Number for 1924, to give extracts from articles on roses in back numbers of THE GARDEN. It is interesting to dip into old volumes and see what was popular in the 'seventies. From the first volume of THE GARDEN, 1871–72, we have taken two extracts, both from articles by S. Reynolds Hole, the famous Dean Hole. Many of the roses in his list have entirely disappeared, but no doubt a few are still to be found in some old-fashioned gardens.

"I have only to append, in its completion, the little list of very hardy roses for beginners, to be planted immediately in soil well drained and dry and manured, away from trees, but not in a bleak, exposed position:

Gloire de Dijon, Noisette.
Souvenir de la Malmaison, Bourbon.
Alfred Colomb, H.P.
Baroness Rothschild, H.P.
BaronnePrévost, H.P.
Caroline de Sansales, H.P.
Comte de Nanteuil, H.P.
Général Jacqueminot, H.P.
John Hopper, H.P.
Jules Margottin, H.P.
La Ville de St. Denis, H.P.
Mme. Boutin, H.P.
Mme. Boll, H.P.
Mme. Caillat, H.P.
Mme. Clemence Joigneaux, H.P.
Mme. Rivers, H.P.
Maréchal Vaillant, H.P.
Senateur Vaisse, H.P.
Victor Verdier, H.P.
Blairii No. 2, Hybrid China.
Charles Lawson, Hybrid China.

I omitted the last rose when speaking of those which bloom only once; but he has pleaded with me for admission every time I have passed through my rose garden, reminding me how many years he has faithfully served me with large and beautiful roses, and at last convincing me that I should do an injustice to him, to myself, and to the young amateur if I did not include him in my list." 1872.

"BARONESS ROTHSCHILD.—One of the most beautiful and, so far as I have tested it, one of the most reliable of our light-coloured roses, for though short in limb, she is strong and sturdy in constitution. It seems ungraceful to describe a lady thus, but in writing and speaking of roses one meets with strange antitheses. Of this very rose, and only the other day, a rosarian said to me, 'Ah, yes—isn't she lovely!' and then added, with a tender pensiveness, 'I do believe that I've given the Baroness more than double her share of—manure!'" 1872.

Then comes an interesting query and answer from the volume of 1874, obviously answered by the Dean in his inimitable style.

"GARDEN ROSES AND HUMAN HAIR.—I have been informed that human hair is now used in the cultivation of roses. Can any of the readers of THE GARDEN tell me if they have tried it, and if so, what soil it is the most suitable for?—A. W. (S. R. H. replies that he knows something of the converse of this theory, *i.e.*, of the application of roses in the cultivation of human hair, having largely used 'rose oil' in his youth, and believing that when Leech's hair-cutter compared the perfume of a bean-field to 'the most delicious 'air oil,' that particular oil was in his thoughts; he also desires to express his admiration of roses, not artificial, as ornaments of the hair, and is not at all surprised that she wore a wreath of them and made such a profound impression upon the gentleman, who sang her praises that night when they first met; but he has no experience of the influence of ringlets upon roots, whether ebon locks would darken, or curls, which vulgar little boys call carroty, would brighten the complexion of the rose, having only torn his hair, metaphorically, in the rosarium, when frost or fungus have destroyed his hopes.)

Next comes a topical note which is applicable at the present time and, in fact, is a useful suggestion for the planting of climbing roses in the open.

"CLIMBING ROSES ON GRASS.—There are remedies for some of our garden troubles if people will only try to find them out. There are few more unprofitable and tedious labours than that of eternally pruning and training climbing plants. In many positions we can never avoid this in a modified degree; in others we can avoid it, and get a much more beautiful result in doing so. For example, many vigorous trailers and climbers are more beautiful planted out on banks of turf and let alone than under the most careful training. Such effects are, of course, most suitable for the wilder and more picturesque parts of gardens; but in a modified degree they may be carried out in any part of the garden. By this is meant that

TYPICAL TEA ROSES FROM "THE GARDEN" OF 1886.

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climbing roses might be allowed to grow naturally, and be at the same time so thinned out and otherwise attended to that they would not become weak in flower or growth." 1877.

We give the next note with its accompanying illustration as a sample of the form of tea roses in the 'eighties—not so different in form from those grown nowadays.

"A BUNCH OF TEA ROSES.—Many are the beautiful forms that have been produced in this lovely section of our cultivated roses; their beauty is undoubtedly of a more refined order than that of the Hybrid Perpetuals, while their individual characters are, as a rule, more clearly marked. Triomphe de Rennes, the subject of the present illustration, is a rose of eminent merit, excellent in form, most delicate in colour—warm white deepening to full lemon colour—and unusually distinct in foliage. The leaves are deeply toothed and of a dark glossy green, with a characteristic waving or twisting, so that the identity of the bush cannot be doubted when out of flower; these features also give it a distinctly ornamental aspect. Its high value as a cut flower when easily arranged in a simple glass may be seen in the engraving. To be quite correct, Triomphe de Rennes is a Noisette, a subdivision commonly classed under the head of Tea roses." 1886.

A MODERN HYBRID TEA.

During the 'nineties there seemed to be little of importance in the rose world, but in 1903 we find the first mention of Dorothy Perkins, introduced late in 1902.

"ROSE DOROTHY PERKINS.—A very beautiful hybrid of the wichuriana class, with pink flowers nearly or quite 2ins. across and rather light in the centre. The glossy foliage is distinctly pleasing, and closely approaches to evergreen in this section. A very charming variety. A.M. May 20. From Mr. E. Potten, Cranbrook, Kent."

In 1905 we pick out a note on Richmond which had just been received at Kew.

"ROSE RICHMOND.—This new Hybrid Tea, judging from a couple of plants flowering in the greenhouse at Kew, appears likely to rank with, or even excel, Liberty as a forcing rose. It is a rather brighter red than Liberty and very fragrant. Although only small when received, it is growing freely, and promises to be a perpetual bloomer. Of American origin, it is said to be a cross between Lady Battersea and Liberty. From the demand for plants in America it has evidently caught on, 150,000 having already been disposed of.—A. O."

Mme. Abel Chatenay was exceedingly popular in 1907, and is still third in our list of the best six hybrid teas, a fine record of popularity.

"ROSE MME. ABEL CHATENAY.—I regard this as queen of the rose garden. It seems happy almost anywhere, and makes tall, strong, leafy growths, upon which the exquisite flowers are borne in profusion. It is not only vigour of growth and leafiness that constitute the chief attraction, but the flowers are of very distinct shape, the petals pointed and composing a full fragrant, handsome bloom, while the colour is a mingling of salmon and rose, quite a distinct shade, even in these days, when new roses are plentiful. I commend this rose, and advise all who have not got it to do so in the coming autumn. Another rose I greatly admire is La Tosca; it is of the Viscountess Folkestone race, but the stems are stronger and the flowers held more upright. The colour is deeper. La Tosca is a clear pink rose, very sweetly scented, and excellent for cutting. It will probably become very popular." 1907.

In 1910 the Editor answers a complaint that General McArthur was too flat in form.

"ROSE GENERAL MCARTHUR.—I note on page 494 'Alvaston' does not care for this rose. How strange are the tastes of individuals! I am acquainted with those who look upon this as being one of the most useful of all roses for freedom of flowering, stiffness of flower stems, rich colour and, what is important, its sweet fragrance. General McArthur was sent out by Messrs. E. G. Hill and Co. in 1905, consequently it is of American origin, and has made much progress in this country since it was introduced. From mildew it is immune with me, and that is another point in its favour."

There is a plea for the fuller recognition of the old China rose in 1915, which is timely, for they are now coming back again into our gardens.

"We have an idea that the exquisite old fashioned roses which bear this distinctive name are in danger of being ignored. Yet it cannot be questioned that some of their modern representatives are sufficiently effective in their form and colouring to preserve this charming race of fragrant roses from premature extinction. Many of them are as delicately tinted as the Teas or even the Rosa pernetiana creations. Since the memorable days when the late Dean Hole of Rochester sang the praises of the 'Brave Old Monthly,' the China roses have made a very remarkable advance in the direction of artistic perfection."

While in 1924 we find that the six most popular hybrid teas, according to the vote of our readers, are General McArthur, Ophelia, Mme. Abel Chatenay, Los Angeles, Lady Pirrie and Mrs. Henry Morse. The dates of their introduction into commerce were 1904, 1912, 1894, 1916, 1910, 1919. This proves that a rose introduced thirty years ago can still be third in the popular vote—a fine record of popularity. Thus it will be seen that THE GARDEN caters extensively for the rose lover.

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FRUIT AND VEGETABLES AT VINCENT SQUARE

THE Royal Horticultural Society's Autumn Fruit Show appeals to the professional gardener to a greater extent, possibly, than either of the other big shows throughout the year. This show is essentially the gardeners' show. A common meeting ground for the craftsman in friendly rivalry to meet in open competition some of his life long friends, forgetting for the moment friend and foe alike, awaiting the decision of the judges.

MESSRS. WATERER'S EXHIBIT OF APPLES.

This is the crucial moment of his life. Is success to crown his efforts for the care and devotion taken and given, or is disappointment to follow? Whatever the outcome it would be difficult, nay impossible, to find in a body of men a finer spirit of true sportsmanship than is to be found in the gardeners on this great occasion. Success or disappointment alike creates the spirit to continue in friendly rivalry for the coveted prizes, and long may this spirit continue.

Despite the difficulties of the season—and no season passes without presenting to the exhibitor many difficult problems—this is the occasion when one is not to be disappointed. The impression on entering the Hall last week was that somehow the Show was different from its predecessors. This is explained by the fact that there were fewer trade exhibits than usual.

The Royal Horticultural Society in revising its schedule and offering prizes worthy of the occasion, has made a step in the right direction, as was evidenced by the large number of entries in competitive classes; so much so that nearly the whole of the Hall was taken for this purpose, to the exclusion of the large trade exhibits.

The impression of the Show as a whole was that it was a very fine one. Looking at it broadly one could imagine that perfection had been reached. Only when one looked very closely into the exhibits could one see the effects of the damp and sunless season.

This was particularly noticeable in the grape section. There have been finer and better grapes at previous shows. This is not a criticism in a petulant spirit. Everyone knows from experience with such a sunless season, restricted artificial heat, etc., the difficulties have been well-nigh insurmountable in bringing grapes to a state of perfection. Despite the difficulties, some of the exhibits were worthy of the occasion, others, alas, were not. Lack of colour and finish, as well as irregularity of bunch and berry were pronounced in several exhibits. In the collections of dessert fruits evidences of the season were again discernible, but on the whole the fruits were very good.

In the collections of hardy fruits there must be no stint of praise. Colour, size and cleanness of specimen dishes were marked features, equal to anything seen in more favourable years. In the single dishes section competition was again very keen, but here the usual standard of excellence was slightly lacking. In the counties' competition many fine dishes of pears and apples were exhibited.

Foremost among the trade exhibits was Mr. J. Allgrove of Langley, to whom a gold medal was awarded. Without a doubt this was one of the finest exhibits of its kind that has been seen. The staging was excellent and the specimens without exception were perfect. Chief among them was Rev. W. Wilks, Rival, Wealthy, King of Pippins, Emperor Alexander and Charles Ross apples and Marguerite Marillat and Mrs. Leden pears.

Messrs. Notcutt of Woodbridge also staged a very fine collection of hardy fruits. We do not remember seeing a fruit exhibit from this firm before, certainly not of such dimensions as on this occasion.

The hardy fruits shown by the Barnham Nurseries were also of first quality, and included such apples as Belle de Boskoop, Newton Wonder and Crimson Bramley.

Messrs. Laxton in the smaller class exhibited an attractive collection of apples and late plums, while Messrs. Spooner's exhibit of apples and pears was much admired, among the apples being Houblon and Golden Spire.

Our illustration shows Messrs. Waterer's stand of fruiting trees in pots and also gathered fruits. The main exhibit was of their fine new apple John Waterer, which bears heavy crops of exceptionally large fruit. As a cooking apple we can confidently recommend it to our readers.

The Hollesley Bay Labour Colony's exhibit of fruit grading was interesting and instructive.

Other exhibits were by Messrs. Bunyard with apples and pears; Messrs. J. R. Pearson and Sons with Apple Charles Eyre; Mr. Parsons with his Worcester Berry, a cross between a black currant and a gooseberry; Messrs. T. Rivers and Sons with apples, pears and the late Cherry Guigne de Winkler; Messrs. Daniel Brothers with their late black currant.

Everyone left the Show with the conviction that the standard of excellence was well maintained and that with a more favourable season competition will be keener and entries larger.

Note.—Owing to lack of space we are, unfortunately, unable to mention the prize-winners in the different fruit classes.

The Vegetable Show was held in conjunction with the above on Tuesday, 7th inst., and, as might have been expected, there was a large number of entries, and much of the produce was of a very high standard. Nevertheless, something appears to be wanting in the way of arrangement and staging, as there is no reason why vegetables, if properly displayed, should not be as attractive as fruit and flowers. This applies more especially to the single dish classes. In some cases, owing to certain of the competitors not staging their entries, there were serious blanks, which cannot possibly be overcome, except that some rule should be made and enforced to ensure staging.

The most important class was No. 1, which asked for twelve distinct kinds of vegetables. There were four entries, and each was of much merit. The first prize was won by Major Pam, Wormley Bury, Broxbourne (gardener, F. Streeter, a young cultivator of much promise). He showed remarkably well Exhibition leeks, Early Giant cauliflower, Sutton's Pink celery, Tender and True parsnips, very fine carrots (Sutton's New Intermediate), Dwarf Gem Brussels sprouts, Best of All tomatoes, Perpetual peas, Rochford's Market Improved cucumbers, Sutton's Improved Black beet, a very fine dish of Arran Comrade potatoes, and Ailsa Craig onions. Second, Viscount Hambleden, Greenlands, Henley-on-Thames (gardener, W. Turnham), with a remarkably fine collection, but somewhat weak in celery and onions, especially good being Acquisition leeks, Red Intermediate carrots, Best of All tomatoes, Gladstone peas and Sutton's Black beet. Third, Mr. Naylor, Grinshal, Shrewsbury, his onions and Brussels sprouts being particularly good.

Class 2, nine distinct kinds of vegetables, in which quality and size were to be shown as being most suitable for table use, brought out a very strong competition and made an attractive display. Mrs. Jenner, Wenvoe Castle, Cardiff (gardener, H. Wheeler), was a splendid first with a faultless collection: it would be difficult to imagine a more perfect set. It consisted of White celery, Golden Ball onions, Colossal beans, Gladstone peas, Aviator tomatoes, Exhibition Brussels sprouts, Arran Comrade potatoes and Matchless carrots. There was not a weak dish in it. Second, Mr. W. H. Myers, Swanmore Park, Bishops Waltham (gardener, G. Ellwood) This also was a remarkably fine exhibit and was but little behind the first prize. especially fine being Early Gem carrots, Best of All beans, Perfection tomatoes and Stirling Castle potatoes.

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Class 7, six distinct kinds of salad vegetables, these were splendidly shown, Viscount Hambleden beating Major Pam with a very fine collection of celery, beet, mustard and cress, Iceberg lettuce, Best of All tomatoes, Delicacy cucumbers. Major Pam lost by a discoloured dish of endive. The lettuce in this collection was particularly fine.

Class 6, six dishes of onions. Mrs. Jenner was well first—indeed, seldom has a finer collection been seen; the bulbs were of fine size and shape, solid and of a fine finish. The varieties were Ailsa Craig, Premier, Golden Ball, Crimson Globe, Royal Keeper and Silver Globe. Second, Viscount Hambleden.

Mrs. Jenner was a very successful winner in the single dish classes, winning first prizes for Brussels sprouts, long carrots, white, purple and yellow turnips and a single dish of onions, thus winning the challenge cup for the greatest number of points. Earl Beatty (gardener, A. Bennett) was successful for scarlet runner beans and yellow tomatoes. The runner beans were a splendid dish.

In the Single Dish classes, first prizes were obtained: for French climbers and French dwarf, by Mrs. Wallis Toller, Weybridge (gardener, G. Crabb); for globe beet and long beet, by Mr. F. C. Stoop, West Hall, Byfleet, Surrey (gardener, G. Carpenter); for white celery, by Mrs. Farnham, The Height, Witley, Surrey (gardener, J. Binnington); for red celery, by Sir Charles Nall-Cain, Brocket Hall, Hatfield (gardener, T. Pateman); for cucumbers, by Mr. W. H. Myers (gardener, G. Ellwood); for leeks, by Mr. W. C. Phillips, Clarence Road, Wood Green; for marrows, by the Rev. T. G. Wyatt, Horley (gardener, J. E. Shirley); for parsnips, by Mr. W. H. Tyzack, High Wycombe; for short carrots, by Mr. W. H. Myers; for peas, by Sir Charles Nall-Cain; for white potatoes, by Mr. W. H. Tyzack for coloured potatoes and red tomatoes, by Mr. G. Thorn, Sprotland; and for any other dish (maize or Indian corn), by Sir Charles Nall-Cain.

Class 3, six kinds of vegetables: First, Mr. Day, Newnham, Berkhamsted, who staged fine Intermediate carrots and excellent leeks and onions. Second, the Rev. F. Wyatt, Yalding, Kent, with very finely coloured Intermediate carrots and good tomatoes and potatoes.

Class 4, collection of twelve varieties: First, J. H. Henderson, West Woodhay House, Newbury (gardener, J. Pike), his best being Majestic, Great Scott, The Ally and Mr. Breese. Second, Sir Charles Nall-Cain (gardener, T. Pateman), with good specimens of Majestic, Snowdrop, Arran Victory and Rhoderic Dhu.

Class 5, six immune varieties of potatoes: First, the Rev. Canon Leigh, Edenbridge, who staged The Ally, Majestic, Great Scott and Mr. Breese in good form. Second, Mrs. Jenner, Arran Comrade and Majestic being excellent among others in this collection. Third, Sir Charles Nall-Cain, Brocket Hall, Hatfield.

NEW AND RARE PLANTS.

PRIMULA SIAMENSIS.—A fine species with leaves like a primrose and semi-pendent flowers of a soft lavender with a white centre. A valuable cool greenhouse plant. A.M. Shown by the Director, Royal Botanic Gardens, Kew.

ASTER MME. E. BERNARD.—A fine Amellus, flowers 2ins. in diameter, rose lilac in colour, good general appearance. A.M. Shown by Mr. F. G. Wood.

ASTER MRS. PIERPONT MORGAN.—A good Michaelmas daisy with flowers of blush pink with pale yellow disk, graceful habit. A.M. Shown by the Hon. Vicary Gibbs, Aldenham House, Elstree.

ASTER WELLS' FAVOURITE.—A free-flowering Amellus with flowers of a pleasing mauve shade. A.M. Shown by Mr. W. Wells, jun.

CHRYSANTHEMUM J. COTTON.—An early Japanese variety. The colour is bronze red with old gold reverse. A.M. Shown by Mr. G. Carpenter, West Hall Gardens, Byfleet.

CHRYSANTHEMUM PRIMROSE POITEAU.—A fairly large-flowered early variety primrose yellow in colour, the florets are broad. A.M. Shown by Messrs. Lowe and Shawyer.

CHRYSANTHEMUM REGINALD A. ROOTS.—A fine variety with ivory flowers about 6ins. in width; the florets are twisted at the tips. A.M. Shown by Mr. W. Roots.

ESCALLONIA MONTEVIDENSIS.—A Brazilian species and not really hardy. It is a late flowerer and is attractive with the spikes of small white flowers against bright green leaves. First-class certificate. Shown by Messrs. Robert Veitch and Son.

HIPPEASTRUM SP.—The flowers are translucent white with a green tube. A.M. Shown by Major A. Pam, Wormley Bury, Broxbourne.

KNIPHOFIA NELSONII.—Rather small flowers of a good orange colour. A late-flowered species but of good habit. A.M. Shown by Mr. R. C. Notcutt.

PRIMULA SIAMENSIS, A FINE SPECIES.

ORCHIDS.

LÆLIO-CATTLEYA SARGON VAR. GLORIOSA (L.-C. Lustre × C. Hardyana).—An unusually large plant, the last made bulb of which carried a spike of four immense flowers, each measuring 9ins. across, the petals being 4ins. in width. Of rosy mauve colour, the broadly developed labellum ruby-crimson and with golden venation in the throat. First-class certificate. Shown by Lieutenant-Colonel Sir George Holford, K.C.V.O., Westonbirt, Tetbury, Gloucestershire.

LÆLIO-CATTLEYA PROFUSION VAR. ARABIC (L.-C. Serbia × C. Hardyana).—A free-growing plant which bore a spike of four flowers, the segments compactly arranged and of mauve-pink colour, the labellum standing out prominently on account of its large size and deeper colouring, the frontal area being crimson-purple, with a crisped margin. First-class certificate. Shown by Messrs. J. and A. McBean, Cooksbridge, Sussex.

NEW CHRYSANTHEMUMS

THE subjoined awards were made to new varieties by the Floral Committee of the National Chrysanthemum Society on October 6th.

Messrs. Lowe and Shawyer sent two vases of magnificent blooms of Mrs. R. C. Hamilton to show that this variety, which was raised in their nurseries and received a first-class certificate at the Crystal Palace in 1913, is identical with Cissbury Yellow, the variety which received an award of merit at the recent R.H.S. Autumn Show at Holland Park Hall. This sport crops up periodically, and has, at different times since 1913, received such names as Early Buttercup, Knaresbury Yellow and Golden Glory. The incurved form is, as was clearly shown by the blooms before the N.C.S., obtained when plants are "stopped" early in June. Plants stopped a fortnight or so later throw blooms of Japanese type but identical in colour and foliage, and it was in this form that Mrs. R. C. Hamilton, the original, received the award in 1913.

G. CARPENTER.—A large Japanese variety with fairly broad florets. The colour is almost a brassy yellow with a tinge of gold, which gives much the colour of the Australian sovereigns of respected memory. There is also just a suggestion of green in the undeveloped florets in the centre of the blooms. It seems to be a good variety for home decorative purposes. First-class certificate. Shown by Mr. G. Carpenter.

J. COTTON.—This is a smaller but sufficiently large Japanese variety of beautiful shape and most gorgeous colouring and quite the best of its type now in season. It is of rich velvety crimson colour, which seems full of life and is enhanced by the golden reverse showing at the tips of the mature florets and in the centre of the blooms. First-class certificate. Shown by Mr. J. Cotton.

PRIMROSE POITEAU.—The great value of this primrose-yellow sport from the well known white variety, Blanche de Poiteau, lies in its uncommon colouring and bold handsome form. Like the type, it is a large flower made up of substantial florets of incurving edges. First-class certificate. Shown by Messrs. Lowe and Shawyer.

REGINALD A. ROOTS.—This is a splendid, medium-sized Japanese chrysanthemum which should be in great demand. It is a very round flower made up of narrow florets which are rolled similarly to those of the best type of cactus dahlia. It has the colour of high-grade cream-laid notepaper with a slight suggestion of ivory white in the centre of the bloom. At a little distance the flowers have the appearance of fluffy snowballs. First-class certificate. Shown by Mr. L. W Roots.

SUNBEAM.—A splendid incurving Japanese variety of useful size and good substance. The broad florets vibrate rich glowing yellow colour. First-class certificate. Shown by Messrs. W. Wells and Co.

FORTHCOMING EVENTS.

October 21.—R.H.S. Fortnightly Meeting.

October 22. — Sheffield Chryanthemum Society.

November 6 and 7.—National Chrysanthemum Society, at Vincent Square.

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GARDEN SOILS AND THEIR TREATMENT

A USEFUL ARTICLE ON HOW TO WORK DIFFERENT GARDEN SOILS. MANY OF OUR READERS EXPERIENCE DIFFICULTIES WITH AN ABNORMAL SOIL, AND THIS ARTICLE HAS BEEN WRITTEN TO HELP THEM.

GARDEN soils may be considered from many different standpoints, but in deciding upon the method of treating them to increase their productivity some special reference must first of all be made to the question of their porosity or otherwise. I always divide them into three distinct groups which are as under:

(*a*) Those which are impervious or practically so.
(*b*) Those which are semi-pervious, and
(*c*) Those which are very porous.

The object one aims at in treating garden soils is to bring them all within the second group. Soils which are semi-porous, and therefore more or less pervious to moisture invariably prove more satisfactory as mediums for growing flowers, fruit and vegetables in, than do soils which rain runs off, or which, on the other hand, are so porous that they dry up a few hours after a thunder-storm.

These three groups of soils comprise many other classes of soils, and it will be convenient in the present article to consider six of these last individually. Those which are impervious include heavy clays and chalk marls, those of the second group consist of the medium loams and manure-sick land, while the porous group contains only those soils which are termed calcareous sand or very light sand indeed.

Heavy clay soils may be regarded as practically impervious to moisture. In the worst examples rain runs off the surface, leaving this soft and sticky, but failing to reach the roots of one's plants. While such soils keep moist much longer than any others, if they once get dry, the difficulty of thoroughly moistening them again is enormous, as will be apparent. Strong clay loams, a kind of intermediate class, are not quite so troublesome to work. These will let a reasonable amount of moisture pass through to the roots, although in many cases this is barely sufficient. The working of these soils, however, is a costly matter, although ultimately they can be got into a state of high productivity.

The first thing that must be done, therefore, with heavy clays is to improve their texture mechanically. Their impervious character can be reduced and in consequence the porosity increased by working in coarse materials both of a mineral and a vegetable or animal character. Thus, ashes prove exceedingly valuable if dug into strong clays, provided that they are used only in reasonable amounts and that the ashes are well sifted, while strawy stable dung and half rotted vegetable refuse, even of a semi-woody character, do wonders if worked in. Ordinary digging, however, is quite insufficient, and trenching to the depth of a yard, although an exceedingly expensive operation, will undoubtedly pay for itself in the end. Where true trenching cannot be carried out, thorough bastard trenching of the ground will be the only alternative, and care should be taken to mix whatever manure is used thoroughly with the lumps of clay. The surface of such soils should be left as rough as possible, and work started at the earliest moment, so that the frost can get into the clods and break them down.

There is also a chemical way of treating these impervious soils, this applying more to the heavy clays than to the chalk marls. Quicklime, if worked in during the trenching operations, will combine with the clay and liberate potash, breaking down the soil in doing so. Heavy liming for several years in succession will do wonders to increase the productivity of such soils. With regard to those which are already chalky it will be wise to follow up the liming by the use of acid fertilisers as stimulants, otherwise such soils may become too alkaline in character to suit the majority of flowers and vegetables.

As regards soils of the second group, *i.e.*, those which are semi-pervious, I need hardly devote a great amount of space to the treatment required by medium loams, as it is well known that these soils can be kept in their present high state of fertility by the generous use of organic manures, either animal or vegetable, every season, supplemented by the application of suitable artificial stimulants from time to time. The only warning that I would give with regard to this class of soil is that it may become either too acid or too alkaline by the over-application of such artificials. Care should be taken to avoid this, as otherwise the fertility will be reduced. If the custom is to use acid stimulants, such as sulphate of ammonia and superphosphate of lime, periodic liming will be essential; while if the gardener, on the other hand, is fond of applying basic slag, basic superphosphate, cyanide and so forth, all of which tend to increase the alkalinity of such soils, the periodic use of some of the well known acid stimulants will be equally essential to keep the soil in a normal condition.

Those soils, however, which are manure sick, and which are almost invariably of a medium character, require special comment, as it is waste of time and money sowing and planting them without first attending to their condition. Manure sickness may be due to many things. First of all to undue generosity in the application of organic manures such as stable dung and vegetable refuse; secondly, to the over-use of artificials; and thirdly, to the accidental application of some material either poisonous in itself or containing some definitely poisonous constituent.

The first step in the right direction is to give up manuring such soils with dung or vegetable refuse for a season to see how this acts. In many cases if this is done such soils at once become productive. For those upon which it is suspected that too much chemical material has been applied, the same advice holds good. No chemicals of any kind should be used for a season or two, and this will frequently bring these soils to productivity again, or conversely, the use of some artificial of an entirely opposite chemical character, *e.g.*, an acid salt like superphosphate instead of a basic material such as basic slag, may do the same.

Soils which have been poisoned can almost invariably be saved by heavy liming. This mode of treatment can be resorted to in the case of those subgroups just mentioned, but I never advise it unless absolutely essential, as heavy liming is exceedingly destructive of plant food, and very often unnecessarily so. Soils nowadays can be poisoned in a variety of ways, but the chief danger is iron poisoning, due to the use of fertilisers containing iron as "intensifiers." There is nothing for it in such cases but to use quick lime at the rate of half a pound or even a pound per square yard, forking it in immediately, and risking the destructive effect it has on the contained humus.

We now come to the third group, *i.e.*, those soils which are porous, and some which are very porous indeed. The first class in this group includes those soils which are best described as calcareous sands. They are light in character, though not unduly so, and contain a very fair though not too generous an amount of chalky or other calcareous material. Nearly always these soils are very poor in humus, hence one method of treatment is obvious to the gardener. Such added humus, however, will not wholly bring this soil into a high state of fertility, or only after an exceedingly long period has elapsed.

No lime of any description must ever be applied during the treatment of this kind of ground. If it is, the soil will fall back as regards fertility instead of this being increased. What is known as the "acid" treatment must be adopted in every instance, and this consists of dosing the soil both in winter and summer with artificials of an acid character, which will slowly but surely rob the land of its excess of lime. For summer use, nitrate of soda or sulphate of ammonia, ordinary super-phosphate and a variety of other materials can be used with great advantage, while in the early winter a material known as double superphosphate can be applied at the rate of an ounce or even more per square yard. A certain amount of this is sure to be wasted—it is unavoidable—but in being washed through the soil it will act on the lime contained and reduce this amount to an appreciable extent. Acid sodium phosphate has been recommended with a similar object in view, and although this is much more costly than the other, it is said to be remarkably useful for improving the fertility of such land.

We are now left with light sandy land to consider, and this is the most troublesome and expensive of all to improve

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as regards fertility. It is not hopeless, however, as many gardeners imagine, but it may take a long period of years to attain the object in view.

Very light sandy land is invariably poor, and cartload after cartload of dung or vegetable manure can be dug into it without making any appreciable difference. This is due to the fact that the humus supplied is immediately washed through the soil and into the subsoil on account of the excessive porosity. What we want to do, therefore, if waste is to be avoided as regards manure, is to improve the mechanical condition before adding humus, and then there is reasonable hope that such manure as is used will be held.

With this object in view an application of clay or chalk marl is recommended if it is possible to obtain it. These materials are spread on the surface in lumps at the rate of one hundredweight per square rod or even more if possible. Early autumn application is absolutely essential, as these lumps of material are only very slowly acted upon by the frost and broken down into a coarse powder which can be worked in. It will be necessary in most cases to rake off unacted upon lumps next March, but, of course, these can be saved for use the following season.

While early application of clay or marl is so essential, manure itself should be used at the latest possible moment, *i.e.*, not now, but next spring, immediately before the land is sown or planted. Sticky, moisture-holding materials such as cow manure and pig manure give the best results, and heavy dressings must be used. The destructive action of quick lime must be avoided on such sandy soils which are sour by using chalk or ground limestone, and a pound per square yard will be perfectly safe. Generally speaking basic fertilisers should be avoided, unless such diseases as clubroot of cabbages make their appearance. E. T. ELLIS.

CORRESPONDENCE

A CORNISH VINERY NEAR PENZANCE.

SIR,—This illustration of a vinery in Cornwall may prove of interest to your readers. This vine is over 100ft. long and one of the largest

ONE OF THE LARGEST VINES IN OLD ENGLAND.

in England. It carries a prolific crop of grapes, necessitating extensive propping of the vine. It shows what can be done under careful and attentive cultivation.—T. E. CORIN, *Penzance*.

KNOT GARDENS.

SIR,—As the writer of the article on this subject in THE GARDEN of September 6th, I am naturally greatly interested in the information given by your correspondent "J. H. H." in the issue of October 4th regarding "fea-berries" and "raisins." On the evidence he supplies it seems impossible to doubt that the first mentioned were really gooseberries, yet it is difficult to understand how they could have been used satisfactorily as an edging for the invariably small beds which made up a knot garden. Rea speaks of designing a draught of twenty-three divisions "each to be two feet six inches broad, then the Fret will be nineteen yards six inches square," and these dimensions may be taken, I think, as average ones. For these little "knots" deciduous bushes such as gooseberries seem strangely unsuitable as a bordering, and the drastic clipping absolutely necessary if there were to be any room left in the beds for plants would nullify any hope of fruit. Much the same objections would apply to ribes, but grape vines might possibly be trained on low trellises, and these may be the 'raisins" referred to, as your correspondent suggests. Clarity of description, however, was not the strong point of the old-time writers on gardening, and their works abound in problems which the modern horticulturist finds hard to solve!—R. E. HEAD, *Somerset*.

TOMATO CULTURE.

SIR,—I was much interested in the illustration and note on growing tomatoes on a roof, page 688, issue October 4th. It is surprising how much an enthusiast will do in adverse circumstances. Mr. House, a business gentleman in Bournemouth, has grown some very fine crops of tomatoes on a large roof over shops with low walls as retainers. Also, he possesses a very charming greenhouse on the same roof and garden frames. In the latter he grows violets, mustard and cress, radishes and other crops, and in the greenhouse roses and tree carnations. The last named are his favourite flowers and, judging from the condition of the plants and their large well coloured blooms, he knows how to treat them. Such enthusiasts deserve real large gardens.—G. G.

THE SCARLET PIMPERNEL.

SIR,—I have been very interested to read on page 669 that "H. P. M." has been growing the scarlet pimpernel as a border plant. For many years I have grown the blue pimpernel in a similar way. This is not a very common flower. It flowers as profusely as the scarlet, while its flowers are cornflower blue. Alas! I fear I have lost it in a recent move, for none of the seed I brought with me germinated. As compensation I have discovered in my newly made garden a large plant of wine-coloured pimpernel which I have never seen before. It has flowered well and is covered with seed. It is a colour which would tone well with magenta and grey, and if "H. P. M." would care to send me his address I would be delighted to send him some seed to experiment with. May I say what great pleasure and interest I find weekly in THE GARDEN. Many thanks for the great trouble which must go to its production.—(Mrs.) GWENDOLYN ANLEY, *St. George's, Wych Hill Lane, Woking*.

BULBS IN POTS.

SIR,—At this season when everyone is concerned with the planting of bulbs, I venture to tell you of a method I have employed for many years with unfailing success for indoor culture. The bowls I have used are those made by Messrs. Harris and Son at their potteries at Wrecclesham, Farnham, and sold by Messrs. Liberty and Co. The bulbs are grown in moss gathered from the hedges (*never* moss fibre) and preferably the fern-like moss. A good layer of moss is put in the bottom of the bowl and the bulbs put in closely, ten to twelve bulbs into each bowl (according to the size of the bulbs and the bowl). The moss is "tucked" closely and firmly round, and pressed down tight. No charcoal is used. The bowls are kept in a cool dark cupboard until the roots are formed (two to three weeks) and then brought out on the sitting-room window-sills. The amount of water required depends (1) on the weather and the amount of sunlight, (2) on the heat of the room in which they are kept. My bulbs have always flowered well and kept the house gay for months, and been the admiration of everyone, including the people who have greenhouses and skilled gardeners. The kinds which I find most successful are: Daffodils Golden Spur and Princeps, Narcissus Barrii Conspicuus, Roman hyacinths, Scilla sibirica and purple crocus (yellow are not so good). Tulips do *not* do well—I think they require soil.—M. M. S., *Bath*.

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HEALTH AMONG THE CHRYSANTHEMUMS

THE chrysanthemum habitually puts up with a great deal of mismanagement and neglect, without very serious consequences, during its cultivation by many amateurs. Nevertheless, it is true that it has quite a large number of enemies, both insect and fungoid, to which it not infrequently succumbs: also that these enemies may be dealt with satisfactorily and kept under control in the majority of cases.

Perhaps the greatest cause of disease is due to attacks of many fungi. Oidium chrysanthemi, the chrysanthemum mildew, is especially prevalent where an attempt is made to grow more plants than the houses will properly accommodate. It has the appearance of a thin, whitish powder dusted over the leaves, and it should not be confused with the bloom on the young growth of every healthy chrysanthemum. To guard against it the plants should be kept equally free from coddling and cold winds, and in case of infection may be sprayed with a solution of sulphide of potassium.

A more uncommon disease is that caused by the fungus sclerotinia. This is to be noticed first as a white mould or mycelium, which penetrates the stem and ultimately gives rise to numerous black spores within it. In the later stages the treatment recommended is destruction of the plants by burning. Spraying or covering with slaked lime has also been found to be quite effective in controlling this disease.

Puccinia chrysanthemi, one of the rust fungi, is the cause of the rusty or light orange-coloured spots which are so common an occurrence on the leaves of the chrysanthemums. It is a fungus which spreads rapidly, owing to its possession of two sets of spores: the summer spores, rusty brown in colour, which carry on infection over the summer, and the winter spores, which do not germinate till spring. All infected leaves should be burned, those remaining in the plants sprayed all over, and the soil around the plants soaked with a solution of sulphide of potassium.

A dark red-brown spot sometimes found on the leaves is not so dangerous, but may receive the same treatment. It is caused by Septoria chrysanthemi.

The leaves and flowers of the chrysanthemum provide food or recreation for a considerable number of small creatures, to the detriment of the plant both in appearance and health. Aphides are probably the chief offenders and are most troublesome to deal with, owing to their small size and rapid powers of reproduction. If only a small number of these creatures are noticed, whether on leaf, bud or blossom, very thorough measures should be taken at once. For leaves an emulsion of soft soap and tobacco with the addition of a little paraffin (say half a wineglassful to a gallon and a half of emulsion) may be sprayed on the under and upper surfaces of the leaves, or powdered tobacco or pyrethrum may be used with a bellows sold for that purpose. For flowers the latter method only is suitable, and should be carried out with care, so as not to disfigure the flowers. Syringing very thoroughly with water may be successful, but requires constant repetition. If ants' nests be in the immediate neighbourhood, it may be well to give the plants repeated dressings with the above emulsion or some tried insecticide, as well as any treatment of the soil thought desirable, as the ant cultivates the aphis for its own purposes, placing out individuals on plants which give promise of being suitable for new aphis colonies, and keeping an eye to their welfare. So that if the aphis is not wanted the ant should be eliminated, apart from any damage that he may himself carry out.

A strong pocket magnifying glass will be found useful in observing the diseases of plants.

Some leaves may be found showing areas of a lighter colour. These are caused by a small leaf-mining maggot which turns into a blackish chrysalis and then into a fly, which should be destroyed before it has time to lay eggs and start the trouble over again. The species illustrated, known as Phytomza affinis, is one of the commoner kinds. Such leaf-miners need double treatment. Leaves which show signs of "paths" should be picked off and burned, or dropped into an insecticide, and the plants from which they are picked syringed at frequent intervals by a well mixed wash of a wineglassful of paraffin to a gallon and a half of water, to render the leaves obnoxious to the fly. Indoor plants should have a weekly fumigation while the fly is about. The writer wishes to thank Mr. J. B. Wroe for information on several points from his useful handbook.

If an insect be seen to carry a stiff-looking beak, it may probably belong to some species of sap-sucker, and from the gardener's point of view it would be better dead. Of these, frog-hoppers are most conspicuous; but other green or brown "bugs" may be found which weaken the plants considerably by sucking the sap through their sharp beaks and causing distortion of the young leaves and sometimes injury of the buds. Some species are said to live on aphides and other insects, but unless a gardener is something of an entomologist, it may be well to pick off and destroy all such visitors. They may frequently be found on young leaves near the terminal buds.

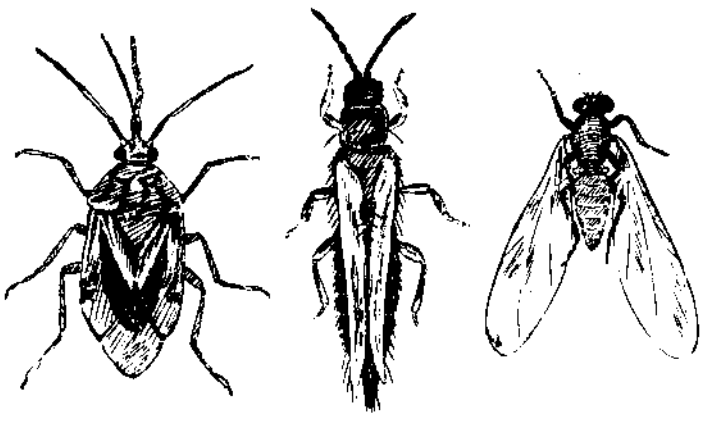
THE SO-CALLED "PATHS" OF THE LEAF-MINING MAGGOT.

Lygus pratensis is said by Mr. Lang to be one of the greatest offenders, but there are others. A brown species, frog-like in shape, with a short beak and no antennæ, has been found on young growth with disfigured leaves and buds. A glass tube is useful in collecting these insects, and a newspaper or tray held underneath will prevent the loss of those that fall or jump to the ground when disturbed.

Buds are liable to be attacked by caterpillars and leaf-miners as well as aphides, and need watching so as to keep them perfectly and thoroughly clean before they open.

Roots may be attacked by wire-worms, which are the larvæ of the skipjack beetle and are thoroughly destructive pests. They have a brown polished skin, are about an inch long, live four or five years, and are often numerous. Therefore it is as well to treat any ground on which chrysanthemums are to be planted, or from which the soil for them is to be taken, with a dressing of gas lime, vaporite, alkali waste or kainit. If wire-worms should be found where plants cannot be disturbed, vaporite may be sown in the earth, insecticide used, weeds removed and the earth frequently stirred. Traps of carrots, etc., may be buried and frequently examined, and small heaps of leaves covered with tiles may be arranged as traps in suitable places.

Leather-jackets are the larvæ of the daddy-longlegs and are soft grubs of a greyish brown colour with a small



From left to right: (*a*) LYGUS PRATENSIS, (*b*) MINUTISSIMA, (*c*) PHYTOMZA AFFINIS.

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head and a blunt end. They are exceedingly destructive to chrysanthemums as well as other plants. Where they are suspected, the earth should be examined, on and just beneath the surface, and the grubs collected and destroyed. The soil may be treated with the same remedies as for wire-worms. The daddy-longlegs itself should be caught with a net and destroyed whenever it is seen to be prevalent, which will be in early summer and autumn.

Thrips do a certain amount of harm to chrysanthemums by sucking the sap from the leaves and so lowering the health of the plants, and also by their presence impairing the speckless perfection of the flowers even when they do not actually injure them. Thrips minutissima is one among several species that gives trouble in this way. It is little more than 1-16th of an inch in length, has narrow iridescent wings covered with hairs, and to the naked eye appears to be black. Thrips are apt to abound in hot, thundery weather, and are hence often known as thunder-flies. They may be dealt with by fumigation or syringing with an insecticide.

The principal objection to using insecticides for leaf destroyers, etc., is that they may also, along with the pests, kill several kinds of larvæ that are most useful in their activities against them. Of these the most valuable is the lady-bird, whose larva, black speckled with orange, having six rather prominent legs and a pointed tail, spends all its active life in hunting and eating aphides. The hover-fly larvæ are equally voracious among aphides. They are soft and somewhat slug-like, of a green, grey or brownish tint and have a habit of holding up the aphides away from the leaf while they suck their juices.

That strange and beautiful creature, the lacewing fly, is hatched from larvæ of the same habits and is often covered with the empty skins of its victims.

If sufficient of these larvæ can be collected and placed upon plants infected with aphides they will soon clear off those most troublesome pests.

M. BROOK.

THE GARDENS AT WEMBLEY

(Continued from page 701.)

THE OVERSEAS GARDENS.

INDIA, the "Gem of the Empire," always comes first in the minds of English people, and we imagine the majority of the multitude of visitors would place India's garden first among those of the Dominions and Colonies at the Exhibition. The beautiful, fascinating India palace stands on high ground, commanding a view along the lakes to the extreme western side of the Exhibition grounds. The gardens, which are principally on the western side, were designed and controlled by Mr. A. Cecil Bartlett, the Kew landscape gardener, and they are a fitting ornament to the lovely palace. A broad, level walk flanked by flower beds gives the needed terrace effect, and from this the ground slopes pleasantly to the outer boundary, which is marked by tall, shapely cypresses alternating with more flower beds. On the slopes there are groups of palms, bamboos, various ornamental shrubs and a particularly successful large oval-shaped bed of brightly coloured maples rising above a groundwork of white marguerites, among which salmon pink gladioli have been and still are flowering freely. The bed is bordered by large plants of pelargonium King of Denmark, of which in this western aspect the abundant flowers do not burn. Along the terrace walk and in front of the Indian Theatre, bright colour, grace and fragrance are, as they should be in the garden of India, the keynote. Cannas, which were freely planted in association with other suitable plants, are flowering freely and give a very tropical effect. Many Lilium auratum and other species rise above beds of coleus and silvery centaureas. The dwarf scarlet salvia Harbinger is associated with standard Abutilon Thompsonii of rich golden colour and Lilium auratum. Free-flowering begonias of Lloydii and Major Hope type, Lobelia cardinalis, Lippia (Aloysia) citriodora, heliotropes, dwarf and standard, and plenty of brilliant scarlet Pelargonium Paul Crampel are the names of some others of the plants which help to give the floral display. Alternating with the beds on the palace side of the terrace there are many fine specimens of Arundinaria nitida, whose graceful stems give a delightful effect. These are balanced on the opposite side by equally tall examples of Bambusa aurea.

Burma's garden, like its building of wonderfully ornamented spires with tinkling bells, is of quite distinct character and is, we believe, typical of the gardens of the wealthy in that country. The principal feature is the ornamental canals, which intersect at a beautiful bridge house. These canals give to pleasant grassy slopes which, as in neighbouring India, are beautifully green and even. On the higher slopes there are quaintly shaped beds well filled with tropical plants and flowers. Ceylon, which possesses, in Peradenyia, perhaps the most beautiful garden in the world, does not seem to have "gone in" for gardening, and is chiefly noteworthy for the well built glasshouse where Messrs. L. R. Russell display their well known plants.

To the lover of uncommon plants the garden of South Africa is the most interesting in the whole of the Exhibition and it is exceedingly well kept. The principal features are the kopje, which makes a most suitable home for many native plants collected from the Karroo, and the protected rock garden adjoining the building, where may be seen many of the most curious plants of the Empire. This garden was made by Mr. Frank Frith, horticulturist to the Cape Railways, who, luckily, has remained to watch over his most interesting contribution to the Empire's botany and horticulture. Not only were the very many plants shipped over from the Cape, but, to ensure success, their native soil was also brought, with the added result that the surface now teems with an enormous variety of seedlings, many such as never before have been seen in this country. When the Exhibition closes, these succulents will go to enrich the collections at Kew, Cambridge and Edinburgh. Space will not permit the mention of a tithe of these valuable plants, but the principal genera are cotyledon, crassula, gasteria, aloe, haworthia, staphylea, euphorbia, encephalartos, sarcocolon, senecio and testudinaria; while among the bulbous plants are crinum, babiana, watsonia, brunsvigia, agapanthus and richardia, with clivias and, of course, pelargoniums.

Canada is well served with space for gardening, and around the Canadian Pacific Railway's building Mr. H. Hemsley has made a very attractive garden. Conifers, such as Douglas firs, pines and golden yews, enter into the scheme, and there are well filled beds of roses, pelargoniums, marguerites and other plants set in ample greensward. Beyond there are similar conifers to those already mentioned and large beds of scarlet pelargoniums.

The tree ferns of Australia immediately attract the visitor's attention. A great many dormant stems, 5ft. or so in height, were sent over last year to Messrs. L. R. Russell, Limited, who are responsible for Australia's garden. These were started into growth at their nursery, and in due season stood along the front of the building as specimen plants. The many flower beds contain an agreeable variety of plants. Plumbago capensis, tall centaureas, tobaccos, maize, pentstemons and others all play their part in the scheme. While there is a very complete collection of fuchsias and, at the western entrance, large beds of Pelargonium Paul Crampel provide brilliant masses of colour.

Malaya has a magnificent pair of chamærops palms with smaller specimens of phœnix and such, but had no opportunity of outside gardening. New Zealand contented itself generally with several beds of rhododendrons in the spring, a row of Club Palm (Cordyline australis), Eucalyptus Globulus, small native plants and a few beds of summer-flowering plants, with ample green slopes.

In the eastern section the largest and most important colonial garden is that of the West Indies, which was designed by Mr. A. Cecil Bartlett. The various flower beds of Begonia semperflorens rosea and tall Abutilon Thompsonii, and dwarf blue ageratum, which is largely grown in the islands, browallias, plumbago, roses and antirrhinums, have all been planted to good effect. One very successful bed was of Galtonia candicans rising above pink antirrhinums. Palms are an important feature of the garden.

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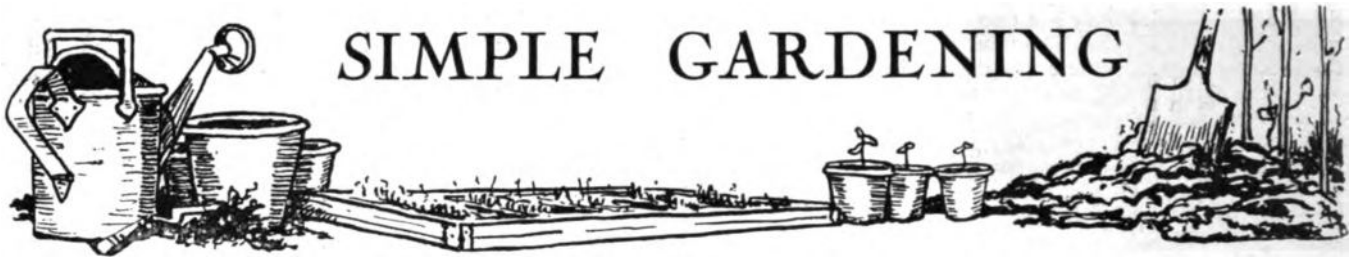


WINDOW PLANTS IN WINTER.

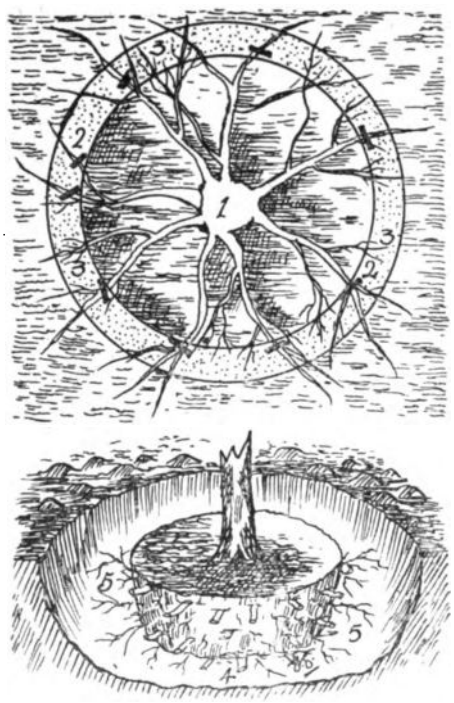
WHEN one has grown flowering and foliage plants in one's windows during the summer months one wishes to keep the latter gay and interesting throughout the winter months too. The task is not really a difficult one, as there are both plants and bulbs to select from. To be successful in growing plants and flowers in dull, sunless days, much will depend upon the arrangement: there should be more room allowed for the plants to grow in. Of course, in dealing with window gardening, window boxes outside must be taken into account. Do not wait until all the summer-flowering plants have faded before re-filling with the winter ones, as it is very important that the plants have a chance to form new roots and thus take possession of the soil before the very cold weather comes. Where it is possible take out all the old soil and replace with fresh—loam, leaf-soil, sand, a little well rotted manure or a small quantity of bone-meal. A compost of this kind will enable the plants to flower freely in early spring. As regards pot plants, it is advisable not to re-pot now any more than is absolutely necessary. Furthermore, the drainage of each one should be made perfect. The following are a few suitable plants: Abutilons, begonias, chrysanthemums, cinerarias, primulas, Echeveria retusa, Eupatorium riparium, zonal pelargoniums and cool greenhouse ferns, as well as bulbs. The latter, too, in window boxes with wallflowers, myosotis, arabis, aubrietia, polyanthus and daisies.

POTTING SOILS: TREATMENT OF THE TURVES.

The successful cultivator of greenhouse plants, and, in fact, many others grown in boxes, pans and borders restricted in size, must have a good stock of loam of a fibrous nature to form the base of nearly all composts. Such turves should be cut and stacked now. It is very interesting work, though, perhaps, backaching sometimes if the turves are wheeled a considerable distance. But the enthusiast is not conscious of a backache: he only sees the sturdy chrysanthemum plants he intends to grow next year, the lovely curled-back "grass" on the carnations, the massive cinerarias and healthy specimens of many other kinds, including rock and border plants. Wireworms are mostly found in the top 3ins. of grass land; examine the turves closely for these pests before stacking the turves, and destroy all found. Cut off any long grass first; that which has been grazed closely by animals—even rabbits—is the best; it cannot contain too much fibrous matter. Stack the turves, grass side downwards, with a layer of rotted manure and a light sprinkling of fresh lime between each layer. Tread down each layer as it is placed in position. Form a sharp-angled roof to the heap to prevent rain-water percolating through. A heap of this kind will be matured for use, for many kinds of plants, three months after stacking; for choice subjects five months hence.

ROOT PRUNING FRUIT TREES.

Apples, pears and plums, with peaches and nectarines, the latter both under glass and outside, chiefly, come under this heading. Frequently, trees not



bearing fruit satisfactorily are root-pruned and brought into a fruitful condition. The work is best done in October. An experienced cultivator may, with safety to the trees, cut off roots all round in one year, but I advise the inexperienced to cut them half round one year and half the following autumn. A tree about seven years old should have a trench taken out 2ft. 6ins. from the stem, the trench being about 16ins. wide. These distances will serve as a guide. Only cut off the strongest fibreless roots. No. 1, tree stem; Nos. 2, 2, roots, with dark lines across to be cut; Nos. 3, 3, 3, roots, finer, more fibrous, to be retained. Work under and cut off the tap root, too, placing the cut end, No. 4, as shown; Nos. 5, 5, fibrous roots retained. Fill up the trench with good loam and make it firm.

OUTDOOR CLIMBING PLANTS.

Some of these are now presenting a straggly, untidy appearance and calling for the attention of the gardener. The latter, who understands them, can see beauty in those long branches, some of which are beaten to and fro by the winds, and he knows that timely attention now will result in added beauty next year. It is well to note whether the plants have filled their allotted space and, if so, to restrict growth accordingly, and this may be done by cutting out, judiciously, some of the longest shoots so that the shorter ones can be trained in. If the space is not filled, retain all young shoots, provided they will not be overcrowded. Evergreen climbers at all times show overcrowding very plainly, but the deciduous ones appear to be all right now, but not when they are bearing leaves. These facts should be taken into consideration at the present time. There are several purposes for which climbers may be planted; some to form a screen, some for their beautiful foliage mainly, others to furnish old buildings, walls, fences, arches, pergolas and pillars; and, as the planting season is coming, the plants should be purchased so that each one will be suitable for the position selected. Clematises like a rich, loamy rooting medium with a small quantity of leaf-soil and rotted manure. Roses thrive in a more retentive soil, and for other climbers generally a medium heavy loam will be suitable. Now is a good time to prepare all the borders.

PARSLEY.

We miss flowers in the winter time when provision for a supply of them has not been made. We also miss parsley leaves when they are not duly provided. The July sowings generally provide the winter crop, but it is a difficult matter to induce the plants to grow in some soils. In very heavy soils, and especially during the recent long spell of wet weather, plants of parsley make poor growth and the leaves turn yellow, very disappointing when we look for those nice deep green ones so appreciated. With a view to helping cultivators who are now disappointed with their crops, I suggest that they construct a raised border in a sunny position—where clayey soils obtain—and mix some old mortar rubble with the top 6ins. Failing mortar rubble use ordinary gravel and stones freely, but not ashes nor cinders, as parsley grown in such a rooting medium often cankers badly. The young plants should be lifted with roots intact and replanted carefully in the new border or cold make-shift frame. Allow a space of 1ft. all ways between the plants.

GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Asparagus Beds.—Directly the foliage is ripe it can be cut off, all weeds removed, and the beds made clean and tidy. A dressing of partly decayed manure should be afforded, not forgetting the outside or slopes of the beds where the roots and crowns are often more or less exposed to the weather.

Globe Artichokes.—Plants left in the beds will need a little protection during the winter months, and now they have died down the crowns may be surrounded with ashes or straw litter.

THE FLOWER GARDEN.

Roses.—During the next few weeks any alterations in the rose garden may be carried out, and the replacing of worn-out trees by newer and improved varieties. New beds ought to be trenched or dug two spits deep, and a layer of decayed manure will eventually be beneficial if placed sufficiently deep so as not to come in contact at once with roots of the trees. Select strong-growing varieties with good foliage, they thrive better and are less susceptible to mildew.

Storing Tuberous Plants.—Such plants as begonias, Lobelia cardinalis, dahlias, cannas and Salvia patens are best lifted for the winter and stored in a frost-proof shed or cellar. Keep the roots fairly dry.

Lawns.—Leaves are falling rapidly, and they should be collected at frequent intervals to prevent the ruin of the grass. When the mowing is finished for the season, the machines should be cleaned, and coated with oil before putting them away for the winter.

THE HARDY FRUIT GARDEN.

Cuttings.—Bush fruit, such as white red and black currants and gooseberries, are increased by means of cuttings, which can be prepared at this season. Choose well ripened shoots, which should be about 18in. in length. Make a clean cut at a joint, and remove the lower buds of gooseberries, red and white currants to secure a clean stem; but with black currants the basal buds are left intact. The cuttings should be inserted in lines 1ft. apart, and in depth about one-third of their length. They should be quite perpendicular, or the result will be a badly shaped plant. A little sharp sand will be an advantage to assist in the formation of roots. Although now is a good time to propagate these fruits, such work can be continued during the next few weeks. In the meantime the cuttings may be tied in bundles and their heels laid in soil or ashes until an opportunity occurs for planting. Protection from birds is essential, or loss of buds may result. When securing a new stock of black currants, the variety September Black should be given a trial.

Loganberries and allied fruits can also be increased by cuttings, while layering of the growths is also recommended.

Staking and Tying Trees.—Where trees have already been staked in previous seasons, it will now be necessary to examine them, and if required new stakes and ties must be given to prevent disaster during the autumn gales.

FRUITS UNDER GLASS.

Late Peach House.—In this house all the sunlight and air possible should be admitted to secure the thorough ripening of the wood. Until the foliage is ripe the trees may be syringed daily to keep in check insect pests; at the same time see that the roots do not suffer from lack of moisture.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Asparagus.—As soon as the stems have browned and withered they should be cut over and, together with all weeds, cleared from the ground. A mulch of good farmyard manure should then be spread over each bed as a top-dressing.

French Beans.—These have not done quite so well this year. The plants were slow to make headway, hence they were late in flowering and producing pods. The wild winds, too, which were experienced later tossed the plants about, doing much damage to the foliage. All spent plants or those destroyed by frost should be cleared from the ground.

Rhubarb.—There is no doubt a good dressing placed around and over the ground between the crowns has a marked effect upon the rhubarb supply. Even if no farmyard manure can be spared, leaf-mould will provide good feeding material for the roots. This covering should be spread over as soon as the leaves and stalks have died down and all have been cleared away.

THE FLOWER GARDEN.

Bedding Begonias.—Young plants raised from seed sown in the early part of the year, and which were pricked off and grown in frames, should be lifted now, the small corms placed in cutting boxes and treated similarly to those which have been used in the flower-beds.

Dahlias.—The tubers of these plants and also of Salvia patens should be taken up from the borders and stored in a shed or other outhouse where they will be quite safe from frost. Any soil which clings to the roots and tubers may be left thereon until it dries up under storage. Where a number of varieties are grown and require to be kept distinct the tubers should be placed in boxes and the name of the variety securely fixed to each box. Gladioli corms should also be lifted, then tied in bunches labelled, and hung from the rafters in an airy shed.

Lilies.—In time the panther or pardalinum lilies become so crowded that they do not give of their best, therefore those having beds in a crowded state should have the withered stems cleared away and the bulbs lifted. The beds should be deeply dug or trenched, with farmyard manure or leaf-mould incorporated as the work proceeds. The largest and best bulbs should then be selected and planted 5ins. or 6ins. deep and 9ins. apart.

Irises.—The bulbous section—like lilies—also get into crowded groups and so require to be taken up and separated, then replanted so soon as the beds or stations have been dug and enriched with fresh loam or old manure. The bulbs should be set 2ins. or 3ins. deep and about 4ins. apart.

THE HARDY FRUIT GARDEN.

Grease banding.—We are reminded that the wingless females of the winter moths ascend the fruit trees about this period of the year, and if some kind of material smeared in grease is tied so as to form a band round the stem of each tree it will prevent the moths from reaching the branches above and from obtaining places in which to deposit their eggs. The grease or other sticky material used should be renewed occasionally throughout the winter.

Fruit Bushes.—Any worn-out or useless plantations of gooseberries, black, red or white currants, should be cut down now and consigned to the flames. Later on the ground should be thoroughly trenched and manured.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.).
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Bouvardias, which are so useful for winter flowering, will stand in an ordinary greenhouse where a temperature of about 45° to 50° can be maintained; but where they are grown for a supply of cut flowers they are better kept a little warmer if a regular supply is to be kept up. Where they have been planted out for the summer they may be placed in suitable-sized pots, or else planted out in a raised bed in a low pit. They are very subject to attacks of white fly and begonia mite. The latter is easily prevented by the use of the sulphur vaporiser and the former by the use of some approved remedy or fumigating with hydrocyanic acid gas. Bouvardias are so beautiful and useful that it is surprising they are not more generally grown.

Anchusa Italica var. Dropmore is very useful for the cool greenhouse during the spring. Good strong plants should now be lifted and placed in pots. Three or four plants may be placed in an 8in. or 10in. pot. The plants may be stood in a cold frame or may be stood outdoors at the bottom of a sheltered wall, plunging the pots to the rim in ashes. The varieties Opal and Pride of Dover are equally useful for the same purpose.

Veronica speciosa, of which there are many fine varieties, is very useful for the greenhouse during the autumn months. If cuttings are put in during this month, they will make fine plants for next year; they root readily in a close case in a cool house. Young plants raised from cuttings last year have been in flower for some time now, and if so desired can be grown on for next year, when they will make fine large specimens, which are very useful for standing in the conservatory beds. As they are more or less hardy in the south and west, they only require the shelter of a cold frame during the winter months, while during the summer they are best stood out in the open on a clean ash bottom. If they are pinched several times during the growing season they make fine bushy plants.

Lily of the Valley is always popular for greenhouse decoration and for cutting during the winter and spring months. Where required for Christmas flowering strong crowns should now be potted up. Twelve to eighteen crowns may be placed in a 48-sized pot. After potting they should be stood outdoors in an open position, plunging the pots to the rims in a bed of ashes, all hardy herbaceous plants forcing more readily after the crowns have for some time been freely exposed to the weather. If required for Christmas, about six weeks should be allowed for ordinary crowns. If retarded crowns are used, they will respond more readily to forcing. For a hardy plant lily of the valley will stand unusually high temperatures. When forcing they should be plunged in a case with a temperature of 75° to 80°, but with such high temperatures care should be taken to put a little air on the cases during the night. If this is neglected, a rise in temperature may result in the crowns being scalded. Where large quantities are required, the crowns may be packed into boxes. Where the supply is home grown it may be lifted in turfs and placed in boxes. By this method one is always sure of a good supply of foliage to go with the flowers. Where the supply is home grown a fresh bed or beds—according to requirements—should be put down every year. With good cultivation home-grown crowns are just as good as imported.

J. COUTTS.
Royal Botanic Gardens, Kew.

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ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Herbaceous Phloxes (A. C. B.).—The spikes sent for inspection are attacked by stem rust about 6ins. from the top of each. The sap vessels are contracted and the rust fungus affects the pith of the stem, first causing abnormal swelling and then total destruction of pith stem and leaves. The recent weather conditions, combined with too much moisture at the roots and the cold, have caused the rust to spread on the more tender varieties. It has occurred in similar seasons before. Cut off the tops only of all affected plants and burn them. Lift the roots in due course, divide them and replant in fresh soil deeply dug, enriched with manure and a free dusting of wood ashes and bits of charcoal.

Hibiscus syriacus, Rabbits and Fungi (C. G. L.).—Hibiscus syriacus should flower freely every year in your district if the plants are grown in a poor soil; nothing more is required. It is not desirable to spray plants to prevent rabbits eating them, as such spraying, to be effectual, would damage the plants. Fresh tarred twine, fastened to small sticks about 6ins. above the ground and encircling tree stems or borders, will usually deter rabbits. We do not know of any process whereby fungi can be sprayed with a view to its preservation. It can be so preserved in alcoholic spirit placed in air-tight bottles.

TREES AND SHRUBS.

Curious Growths on Oak Tree (G. J., Bridgwater).—These peculiar growths on the twigs of oak which you sent in for inspection are known as artichoke galls, resembling very much a hop flower with imbricated scales. At first it is of a green colour, but becomes brown with age. The real gall is a small acorn-shaped body within these scales. It is caused by an insect known as Aphilotrix fecundatrix. Gall formation is the result of contact with special cells and it follows that the insect deposits its eggs with the greatest exactitude. The two important factors at work in connection with gall formation are the activity of the vegetable sap on the one hand and the influence of stimulus due to animal agency on the other. The whole question is a difficult one. There are a great many different forms of galls on the oak caused by a number of hymenopterous insects.

FRUITS UNDER GLASS.

Treatment of Orange Trees (A. P.).—The most suitable compost for orange trees, whether in a border or tubs, is one made up as follows: Good fibrous loam, one-half; leaf-soil, old cow manure and sandy soil similar to that found in heath land, in equal proportions, one-half. Thorough drainage is essential, also plentiful supplies of water, especially in the growing stage. A close, adhesive soil, alone, such as you have used, is not suitable. The compost should be lumpy and porous. The trees like exposure, through ventilators, to night air when there is no frost. A night temperature ranging near 50° Fahr. is suitable from autumn to spring.

FRUIT GARDEN.

Harvesting of Pears (E. M. H.).—We think the pears are as follows: No. 1, probably Beurré Claireau; is usually ready for picking by the fourth week in September and will keep until the end of November, in a good store; the single fruit sent is on the small side for this variety. No. 2 is probably Calebasse Bosc; the fruit is malformed and not quite typical; does not keep well, and is but a second-rate kind at its best. No. 3, Winter Nelis, a good late pear, keeping until well after Christmas; will usually hang until the first week in October with advantage. All the fruits are rather poor specimens of their kinds. With regard to harvesting, all should be picked just as they become ripe—a little before rather than later—and during the next week or so should be tested for ripeness fairly frequently. The test is to take the pear in the hand and raise it gently to a horizontal position If it parts from the tree readily it is right for harvesting, but if any tugging or pulling is required it is best left for a while. All the pears on a tree may not be right for gathering on the same day, and only those that come away easily when so lifted should be gathered. Whether or not they are harvested at the right time has great bearing upon their keeping qualities, and only by frequently testing as advised can the work be successful. The actual date when ready varies with the seasons.

MISCELLANEOUS.

Various Questions (Miss D. R.).—Plant the bulbs in a naturally warm, dry border forthwith, cover them with ordinary soil 2ins. deep above the crowns after placing a handful of dry sand around each bulb. Do not apply water. The best leaves of the sorrel plant are those from one year old plants. Good light soil is suitable. Now is a good time to transplant to fresh ground. In spring the flower stems will grow but should be pinched out regularly, or, if left, to develop, the leaves would be very small. It is quite possible that the aster plants referred to grow from seeds sown broadcast in the border where you saw the plants in bloom. Direct sowing in the border often proves more successful than sowing in boxes and transplanting resultant seedlings.

Wild Garden Planning (E. F. W.).—Books dealing with this subject usually deal almost exclusively with herbaceous perennials. One such is "The Book of the Wild Garden," by S. W. Fitzherbert.

Goldfish Changing Colour (A. B. B.).—Goldfish are all descended from a greyish-green carp, and they have a strong tendency to revert to their ancestral colour. The gold fish were originally artificially produced from golden varieties. In a brood of goldfish bred at the Zoological Gardens some time ago from brilliantly coloured fish, a large percentage never obtained the golden colour, but remained greyish-green. At birth the fish are always greyish-green and it is only when some months old that they obtain a golden colour.

What is a Wardian Case? (A. O.).—A Wardian case is a movable frame with glass roof and sides. It is practically air-tight, but the top opens so that air can be admitted to remove excess of condensation from the glass. It was invented by N. B. Ward, who described it in a pamphlet "On the Growth of Plants in Closely Glazed Cases," 1842. Such cases maintain fairly uniform conditions of moisture and atmosphere throughout a long voyage and the plants require no watering.

Unsuitable Water for Plants (T. A. M.).—You cannot do more than you have already done regarding the treatment of water in bulk. As the district, Windermere, is a rainy one, some effort should be made to collect as much rain-water in tanks or cement cisterns as possible, for the benefit of pot and choice plants, as the rain falls so that it shall not be contaminated by soakage into the peaty soil. Simple arrangements would be sufficient. Water that must be used from the soil, stagnant water, etc., would be much improved by the addition of a pint of ammoniacal water, obtained from the gas works, mixed with sixty or seventy gallons of the water several hours before such water is applied to plants. Mix 1 peck of agricultural salt with, approximately, six barrow-loads of the leaves, mowings, etc., and turn the heap several times before the materials are used as a manure. Half a bushel of lime per 40 sq. yds. would be a suitable dressing for the ground.

Names of Fruit.—A. B.—We think the apples and pears are as follows:—1 Beurré d'Amanlis; 2, Doyenne du Comice; 3, Gascoyne's Scarlet; 4, Allington Pippin; 5, Wellington (syn. Dummelow's Seedling); 6, Allington Pippin; 7, Wellington; 8, Possibly Wealthy, but too bruised and discolored to say for certain; 9, Possibly Dutch Mignonne; 10, Allington Pippin; 11, Cox's Orange Pippin; 12, Yorkshire Beauty.—S. T.—We think the fruits are as follows:—1, Hawthornden; 2, Cannot identify from sample sent, which was much squashed; 3, Claygate Pearmain; 4, Probably Maréchal de la Cour, but malformed; 5, Summer fruits of Nec Plus Meuris; Calville Rouge d'Hiver. The No. 5 apple from the wall tree is we think, Winter Majetin.——G. S. L.—Asters: 1, Aster Novæ Angliæ var. pulchellus; 2, Aster Novæ Angliæ var.; 3, Aster cordifolius. Grasses: 1, Dactylis glomerata variegata; 2, Festuca glauca. Shrubs: 1, Cornus albus; 2, Muehlenbeckia axillaris. Apples: 1, The large red apple is Bietigheimer Red; 2, The green apple is Wellington (syn. Dummelow's Seedling); 3, The orange red apple is Duchess Favourite. Fuchsias: 1 and 2, Fuchsia macrostemma vars.; 3, Fuchsia macrostemma gracilis; 4, Fuchsia, macrostemma gracilis variegata; 5, Fuchsia macrostemma globosa.

Names of Plants.—R. S.—The chrysanthemum bloom sent is one of the various sports from Madame Marie Masse and is known in the South as Pink Masse. It may be known under another name in Scotland where the variety Madame Marie Masse is continually sporting to different shades.——N. W.—Wild Juniper, Juniperus communis.——Col. S.—Isoplexis canariensis (syn. Digitalis canariensis). Greenhouse evergreen shrub, not hardy in this country. ——(G. P., Sheffield.)—Cryptomeria japonica.——(S. B.).—1, Lonicera nitida; 2, Clematis heracleifolia.

TRADE NOTE

A PARTICULARLY attractive and useful hybrid musk rose that will in all probability share the undeserved fate of several of the same class unless attention can be drawn to it now is Vanity. (Raised by Messrs. A. J. and C. Allen.) This variety has large trusses of a delightful shade of rose pink flowers, single in form, about 3½ins. to 4ins. across, all of which open perfectly in all weathers. It is a very vigorous grower and easily attains 6ft. to 7ft., but the value of it lies in the fact that it is continually in bloom, and it is hard to portray the beauty of a specimen bush of this variety in full bloom. It was introduced in 1920 and would now be in demand if only it had been more extensively shown. It is a variety which will delight all rose lovers and will lend itself to most effective results planted for a hedge.

CATALOGUES RECEIVED.

Messrs. H. Merryweather and Sons, Limited, The Nurseries, Southwell, Notts.—Roses.

Messrs. D. Prior and Son, Limited, The Nurseries, Colchester.—Roses.

The Hampton Plant Company, 12, New Malden, Surrey.—Roses.

Messrs. H. Lane and Son, The Nurseries, Berkhamsted.—General Catalogue.

Mr. A. H. Mee, 46, Waterloo Bridge Road, London, S.E.1.—Bulbs, Fruit Trees and Roses.

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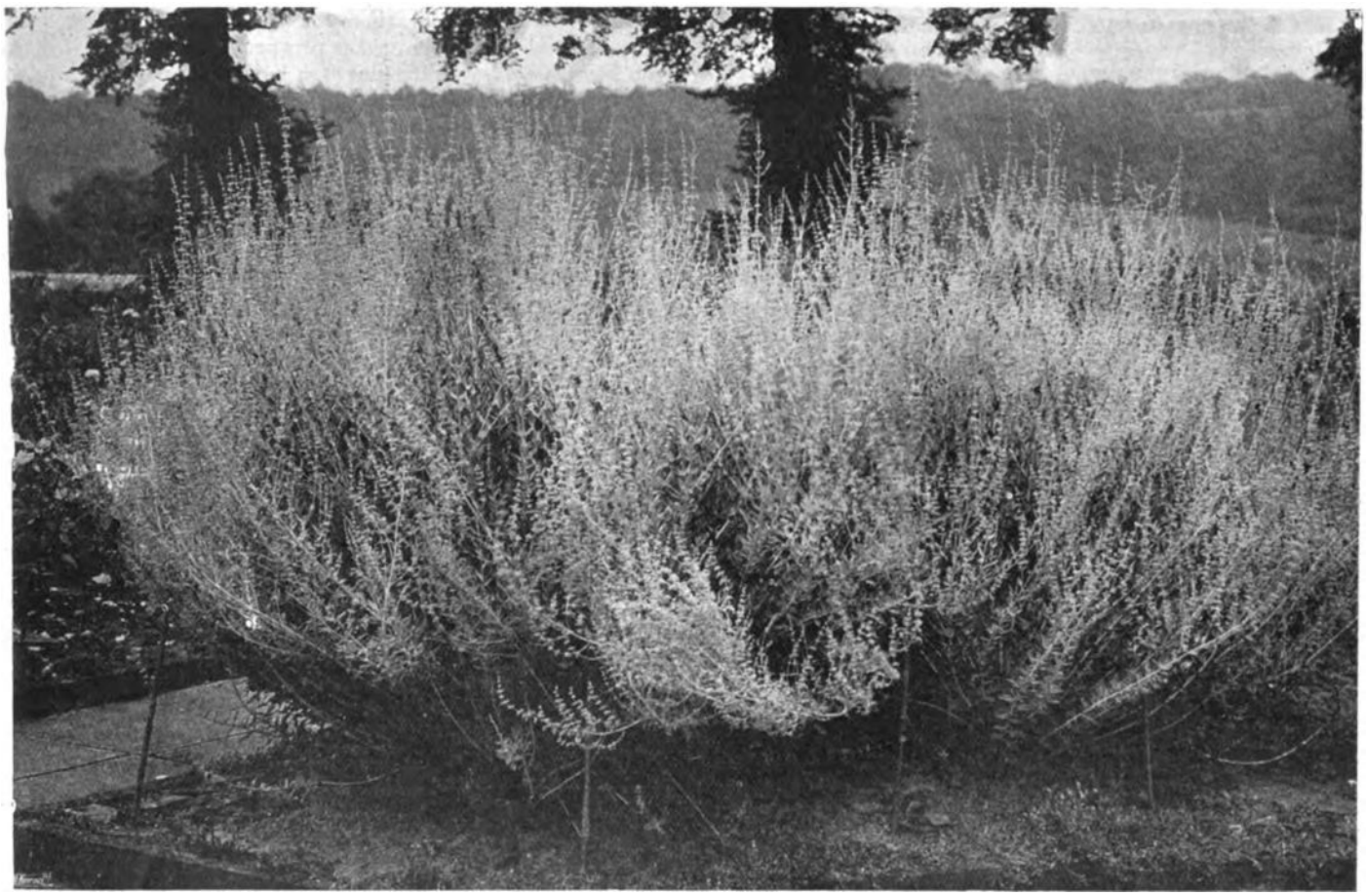
THE GARDEN

VOL. LXXXVIII.—No. 2762. OCTOBER 25, 1924



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THE GARDEN

OCTOBER 25, 1924

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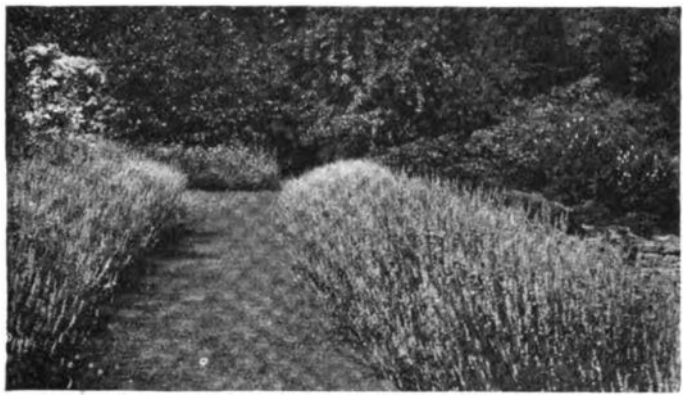

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CATALOGUE DESCRIPTIONS

A CORRESPONDENT who is exceedingly interested in tiny plants (having a small garden) and who searches Europe for them has asked the advice of our Service Department with a view to our describing the habits of some primulas that have been sent to him from the Continent. He complains with some heat and a great deal of justice that catalogue descriptions of rare plants are woefully meagre. He says that what would be useful would be a hint of their requirements in the direction of

(A) Light and shade
(B) Compost and whether calcifuge or not (this, of course, refers to primulas)
(C) Moisture
(D) Need for protection in the winter
(E) Nature of root system
(F) Habit and space required
(G) True colour description.

This last point I have already discussed in THE GARDEN. No two people see colour with the same eye, and our colour vocabulary is inadequate and in a terrible muddle.

The other six points, however, strike at the root of the constant complaint of nurserymen that it is little use growing uncommon plants for the general public because they will not buy them. How often do you hear it stated that such and such a plant is not hardy or that it will not grow in a certain part of the country? I hear it almost daily, and yet I know that in nine cases out of ten those statements are not true, that the plant is perfectly hardy and that it will grow and flourish—under certain conditions. And yet one cannot blame the public, for after all, to them, gardening is only a hobby, whereas it is a nurseryman's duty to know how every plant he sells should be cultivated; only he is unwilling to spend more money on printing cultural notes. This is really a false economy, for there are many plants which would be welcomed to our gardens if only a few hints were given about their cultivation.

One catalogue containing an excellent list of plants states that cultural notes are sent out with every plant, but this is not of much assistance to beginners who wonder which of these hundreds of plants are going to flourish in their gardens.

The nurseryman's point of view is that it costs money to print a catalogue, and if he gives full instructions it would be trebled or quadrupled in size. He also says that this is a job for authors of books on gardening or for the horticultural Press. So it is, but there is a psychology about buying from a catalogue which makes prospective customers impatient of having to go to a file of a gardening paper or to wade through various tomes to find a description of a certain plant and find out what it looks like. If a plant is worth its salt a full description would more than repay the cost of printing.

Let me see if I can explain what I mean by an adequate description of a new and fairly uncommon shrub:

> Viburnum fragrans, a Chinese deciduous shrub of good habit and perfect hardiness. The foliage is handsome and it will make a growth of a foot or more in a favourable year, ultimately becoming a bush of 12 or more feet in height and at least 6ft. in diameter. It flowers from January to March and carries numbers of small tubular flowers either shell pink or white, of a delicious fragrance. It will grow in any loam or in lime, but will suffer if allowed to get too dry. It is one of the best of our early-flowering shrubs, as the flowers will stand 10° of frost and it does not require pruning. One of its disadvantages is that it does not flower freely until it is 4ft. high.

This appears to me to be a fair description as I know the plant, and yet how often do you see a plant so catalogued? I am sure that such a description would sell rare plants of real worth. The advantages are given, also the disadvantages, the size, shape and colour of the flowers, soil it will grow in, hardiness, time of flowering, fragrance.

This may appear to be a case of trying to teach a nurseryman his business; but a salesman does not always see eye to eye with a purchaser. I know that in many other trades the more fully an article is described in a catalogue the more are sold and the easier it is to sell them—and, after all, a plant is an article for sale. I should very much like to get the views of some readers of THE GARDEN on catalogue descriptions.

E. H. M. C.

IN OUR NEXT ISSUE WILL BE FOUND:

APPLES AND PEARS, by Edwin Beckett.

BORDER CARNATIONS FOR AUTUMN PLANTING, by Norman Lambert.

WINTER PRUNING OF SHRUBS, by A. Osborn.

THE WATER GARDEN, by H. A. Day.

THE REPORT OF THE R.H.S. FORTNIGHTLY SHOW.

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A FINE DECORATIVE SHRUB

FUCHSIAS HAVE LONG BEEN POPULAR IN SMALL GARDENS, ALTHOUGH THEY HAVE BEEN SERIOUSLY NEGLECTED OF LATE YEARS BY THE SPECIALIST.

FUCHSIAS in many beautiful varieties are very popular for conservatory and greenhouse decoration, as well as for summer bedding, for which purpose many of them are well adapted. They also make excellent window plants, being great favourites with cottagers. And in this connection it is interesting to note that the first fuchsia is said to have been brought home by a sailor, and was seen growing in his window by Mr. James Lee, nurseryman, Hammersmith, who secured the plant. In any case, it seems certain that the fuchsia was first cultivated and distributed by Lee of Hammersmith.

In addition to the species and many varieties that are used for indoor decorative work, there are quite a few which are more or less hardy, for even if they get cut to the ground during the winter in the colder parts of the country, they usually spring up from the rootstock again, especially if they are protected with some dry ashes.

The sorts that succeed outdoors are usually varieties of F. macrostemma, although another beautiful species, viz., F. fulgens, usually succeeds if planted at the foot of a warm wall; but it is the varieties of F. macrostemma that one usually finds planted outdoors, the variety Riccartoni being the one most commonly seen, and which forms huge bushes and hedges in the south and west, and all up the west coast of Scotland, even in the colder parts of the country, where it has to be cut down every spring. It makes annual growth some 3ft. in height, and flowers freely throughout the summer and autumn. Fuchsia macrostemma var. gracilis can be used in the same way and, with F. Riccartoni, should be more used for planting permanent lawn beds. At Kew they stand in such beds without protection, and, although the shoots get killed to the ground every winter, they never fail to make annual shoots 3ft. or 4ft. in height, and flower profusely all the season. Other good varieties of F. macrostemma are conica and globosa, while the beautiful variety known as F. macrostemma gracilis var. variegata is very largely used in summer bedding arrangements, its light elegant habit making it very useful for planting over dwarfer plants.

F. corallina syn. F. exoniensis in favoured parts in the west of England makes large specimens and is a beautiful plant for training on a warm wall. F. procumbens, a curious trailing species from New Zealand, is more or less hardy in favoured parts, and is excellent for small hanging baskets in the cool greenhouse. Other more or less hardy species which one occasionally meets with in the south and west are F. microphylla and F. thymifolia, both with small flowers and foliage. The following are species that should be regarded as purely greenhouse plants, viz.: F. triphylla, a very beautiful plant, but, I am afraid, not at all common in cultivation at present; it is by no means an easy doer, and its place is generally taken by a stronger-growing variety known either as Mary or as F. triphylla superba. F. corymbiflora and its variety alba are handsome greenhouse shrubs and are seen at their best when planted out in a bed or border in a cool conservatory, as also is the distinct F. arborescens, syn. F. syringæflora. F. simplicicaulis is another beautiful species which is seen to best advantage when planted out and trained to a rafter. This, with F. splendens, possibly includes all the best species at present in cultivation. Beautiful as the species are, it is the numerous garden varieties, both single and double, that are generally cultivated for greenhouse work and summer bedding, as well as by the market gardener. At one time large old specimen fuchsias were common in gardens, but at present smaller plants that can be more generally used for decorative purposes seem to be in greater favour.

Fuchsias are easily propagated by means of cuttings of soft young shoots. Put in during the spring, they root readily in a close case with slight bottom heat. If it is desired to have large specimens quickly, cuttings should be rooted during September. For this purpose some stock plants should be partially cut back during August and placed in a house with moist growing temperature of 50° to 55° Fahr. Such plants will soon give a good supply of cuttings which will root readily in a close case.

The young plants should be kept growing on steadily all winter; generally, they may be wintered in 48-sized pots. The leading shoots should not be pinched, but kept tied up to a neat stake. Early in the New Year the young plants will require to be potted on, and as they are free-rooting plants good shifts may be safely given. They should be shifted on as they require it until they are in 10in. or 12in. pots, using a compost that has been stacked for at least twelve months, one-third of which may consist of old mushroom-bed manure or leaf-soil, with enough sand to keep the whole open and porous, adding a 6in. potful of fine bone meal to every bushel of soil. As indicated, the leading shoot should not be pinched, but to get well furnished plants the laterals may be stopped at every second leaf up to six weeks before they are required to flower, which may be during July or August. By this means specimens 6ft. to 8ft. in height can easily be produced in twelve months. Such plants can, of course, be kept for next year, or if so desired may be kept for years, storing them in a dry, frost-proof building during the winter, pruning them back and starting them into growth early in the year. Such large specimens are well adapted for making a display in the flower garden during the summer, being most effective when underplanted with dwarfer plants.

Where standard plants are desired they should be grown in the same way as indicated for pyramids, inserting the cuttings during September, keeping the leading shoot tied up to a stake: with the exception that all lateral shoots should be suppressed until the main shoot has attained the desired height—3ft. to 5ft.—when

FUCHSIA MACRORSTEMMA RICCARTONI ONE OF THE MOST HARDY OUT-OF-DOOR VARIETIES.

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the growing point should be pinched out and the laterals allowed to develop to form the future head of the plant. Where small bushy plants are required for furnishing stages and for general decorative work, cuttings may be put in

FUCHSIAS ARE USEFUL FOR INDOOR DECORATION.

early in the New Year, the young plants being pinched several times to induce a bushy habit. Fuchsias, especially the stronger-growing varieties, are ideal for draping rafters in the conservatory, as they flower in great profusion right throughout the summer and autumn. For this purpose they are best planted out in beds or borders. When the plants have filled their allotted space, they should, early in the year, be pruned hard back. When growing, the shoots should be trained to cover the given space evenly and allowed to grow as naturally as possible. In this way the flowers are displayed to best advantage.

Baskets.—Many varieties of fuchsias are ideal for filling hanging baskets. For this purpose those with a natural drooping or pendent habit are best, such as Mrs. Rundle; Mrs. Roberts; Caledonia, a macrostemma variety; Wave of Life, with golden foliage and slender drooping shoots—this makes a very beautiful basket plant and flowers freely, keeping in good condition longer than any of the other varieties; H. Henckel, with beautiful dark-coloured foliage and long salmon red flowers: this distinct variety is no doubt a fulgens hybrid—it is also very beautiful for summer bedding.

Some of the double varieties are naturally of a slender drooping habit, and are thus excellent for furnishing baskets. Ballet Girl and Molesworth, two old varieties, are well suited for this purpose. There are, of course, many varieties, and for general cultivation one might mention Sylvia, Phenomenal, also Rose and White Phenomenal, the new Pink Pearl, and Dainty Lady, the first fuchsia for many years to receive an award of merit. There are also numerous single varieties, a few standard sorts being Mrs. Marshall, Amy Lye, Charming, Flocon de Neige, Rose of Castile Improved, Lord Grenfell, Lustre, Display, Princess Mary and Royal Purple. There is also the distinct hybrid set of Continental origin, which includes Thalia, Coralie, H. Henckel and G. Bonstedt, all of which are useful either for greenhouse decoration or summer bedding. Fuchsias are easily raised from seed, and there is always the chance of obtaining improved varieties. Fuchsias usually set seed freely, but the seed vessels must be kept picked off, as seed production is an undue strain on the plants and they quickly go out of flower if allowed to produce seed. When in flower and their pots well filled with roots, they require ample feeding; if this is neglected their flowering period will be greatly curtailed. Fortunately, fuchsias do not suffer greatly from insect pests, although during recent years white fly has proved troublesome; this must be prevented or kept in check by fumigating with hydrocyanic acid gas or some of the other approved remedies that are now on the market. Mealy bug also proves troublesome, especially on old specimens. This pest must be kept in check by syringing and sponging regularly with some approved insecticide. J. COUTTS.

FRIENDS AND FOES OF THE GARDEN—I

BY CLIFFORD W. GREATOREX.

AMONG the furred and feathered inhabitants of the garden are both friends and foes. The owner of even the smallest plot does well to learn how to distinguish between the two. Should he confuse them, serious mistakes may be made, and the creatures that are beneficial may suffer the fate of those that are harmful.

To begin with, there is the mole. "The little gentleman in velvet" renders a certain amount of good service by draining and ventilating the soil and by clearing it of grubs—especially of leather-jackets, wireworms and the larvæ of cockchafers. But molehills are nothing but disfigurements. Even that devoted naturalist, the late W. H. Hudson, was obliged to admit that when moles visit lawns and gardens they are a nuisance. He adds, "if someone could devise a means to inflict sudden death on every underground intruder into such places it would be a great advantage." So intense is the activity of the mole that a single individual can spoil the appearance of a garden or a lawn—or of both!—in a remarkably short period of time. Moles, of course, feed largely on earthworms; but the value of earthworms as fertilisers of the soil is well known, and we need not be grateful to the moles because they destroy vast numbers of these useful creatures.

Then there are the various species of mice and voles. Voles may be known from mice by their stouter build, their relatively smaller ears, usually hidden among the fur, and their small eyes. Both mice and voles are extremely harmful in the garden, and the same remark applies, of course, to the ubiquitous brown rat. Even the water vole, which helps to

A MOLE-HILL IN SECTION SHOWING THE NEST

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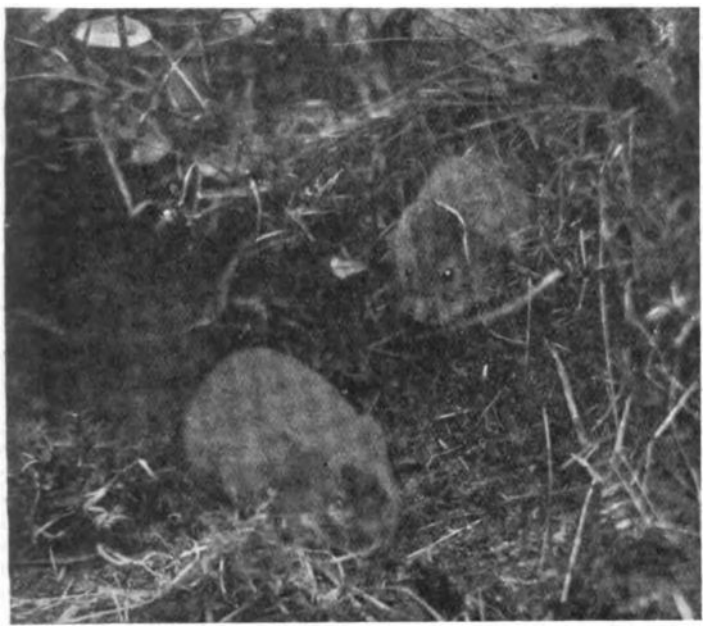

ENGLISH MEADOW VOLES.

prevent the choking of canals by feeding on aquatic and sub-aquatic plants, becomes a nuisance when it enters the garden. For here it injures the potatoes and the vegetable marrows.

The long-tailed field mouse is an attractive looking little creature, with its elegant form, its bright, full eyes, and its remarkable elongated tail; but it works very serious havoc when it gains access to the garden. The slight amount of good it does by devouring certain insects is heavily outweighed by the damage inflicted upon newly sown crops of various kinds. Peas and beans are taken by the pint and stored away in the burrows of this animal.

The short-tailed field mouse or common vole, and the red-backed meadow mouse the name of which is an adequate guide to its identification, are the worst of all the furred enemies of the garden. Like the long-tailed field mouse, these voles carry away great quantities of beans and peas to their burrows; but, in addition to this, their diet comprises practically every sort of vegetable, and they are exceedingly voracious.

Vole-plagues occur from time to time. Were the numbers of these animals kept in check year by year, such disastrous superabundance might not come about. When such a plague occurred in Dean Forest and in the New Forest, many years ago, the most effectual mode of dealing with the devastating swarms was found to be as follows: "A great number of holes were dug in the ground, about two feet long, eighteen inches wide, and eighteen inches deep. This is the measurement at the bottom of the hole; but at the top the hole was only eighteen inches long and nine wide, so that when mice fell into it, they were unable to escape. In these holes upwards of forty thousand mice were taken in less than three months, irrespective of those that were removed from the holes by stoats, weasels, crows, magpies, owls and other creatures."

The dainty little dormouse, which is a fairly frequent visitor to country gardens, may be recognised at once by its squirrel-like form and habits. It may often be seen, sitting up on its haunches and grasping its food with its fore paws, in a manner strongly suggestive of "Shadow-Tail" of the woods. The head of the dormouse is rather large, its eyes are black and very prominent, and its tail somewhat stout and bushy. The gardener need not object to the presence of this charming little creature within his territory, for the dormouse inflicts no injury upon any of his valued plants, feeding on acorns and fruits of hedgerow trees and being very partial to aphides, weevils and various caterpillars. Hence, it is worthy of encouragement rather than of repression.

Should the stoat or the weasel pay a visit to the garden, the owner thereof has reason to be glad; for no rat, mouse or vole, can ever look upon either of these bloodthirsty and agile little beasts and live! Of course, if a corner of the garden be occupied by chickens or pigeons, due precautions must be taken!

In woodlands and on low ground they certainly make a great deal of havoc and are especially harmful to game. The stoat is of more importance in this respect than the weasel, from which it may be readily distinguished by its greater size, and by a blackish tuft on its tail which is retained throughout the winter, when the rest of the body becomes almost white. These creatures, therefore, should not be allowed to multiply enormously in game coverts, but on the other hand, weasels should not be unduly molested as they do considerably more good than harm to the gardens.

Either stoat or weasel will put to rout that troublesome rodent, the rabbit, which is all too fond of paying its attentions to the lettuces and cabbages when evening shadows lengthen, or when morning twilight broadens into day. The hare, too, will not continue to take toll of the garden produce should stoat or weasel appear upon the scene.

A staunch ally of the gardener is the hedgehog. "Prickles" is never happier than when he is feasting on caterpillars, snails, centipedes, earwigs, beetles and similar creatures. He has no liking whatever for vegetable substances; although, previously, there prevailed a general belief that he dug up roots and ate them. His taste is carnal. In the course of his nocturnal wanderings he will seize other animals—mice, rats and voles—and his sharp teeth and claws make short work of them.

Then there are the shrews, wrongly named shrewmice. Though decidedly mouse-like in general build, these little animals may be recognised immediately by their remarkably elongated muzzles. Unlike the mice, the shrews are really valuable to the gardener. They achieve what most insecticides often fail to effect. Their teeth are formed for dealing with insects both large and small. A vegetable diet does not appeal to them at all. The man who allows his cats to amuse themselves by killing the shrews in his garden is acting contrary to his own interests. It would be wiser were he to abolish the cats!

The multitudinous insect hosts, a large proportion of which consists of species injurious to garden plants, are assailed not only from the ground but also from the air. With the coming of night appear the bats: one and all exclusively insectivorous. These nimble creatures continue by night the priceless services that the swallows and martins and swifts perform during the day. The noctule, or great bat, feasts on cockchafers and large moths. The smaller kinds of bats account for vast swarms of lesser insects. Those moths whose caterpillars disfigure leaves by rolling up their edges are disposed of in great numbers by the pipistrellæ and the long-eared bats. Myriad two-winged flies, many of which are pests, are destroyed by these gnome-like creatures that haunt the darkness and the dusk.

A DORMOUSE WITH ITS NEST OF LEAVES. IT IS TO THE GARDENER'S ADVANTAGE TO ENCOURAGE THIS CREATURE.

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THE MORAINE OR SCREE GARDEN

BY CLARENCE ELLIOTT.

IN the beginning, Farrer invented the moraine garden, both the thing itself and the name. He wrote it up and popularised it, and a very valuable invention it was. Others, too, since those early days, have experimented with and elaborated the moraine garden, and their elaborations have chiefly been in the direction of underground watering to reproduce that underground water-flow which occurs naturally in real moraines in the Alps.

The real moraine in its wild state is perhaps the ugliest and most desolate thing in nature—a tract of crushed and broken stone, carried down and pushed out by the slow, irresistible flow of the glacier above, and watered all summer by a constant percolation of glacier water. The material of the moraine consists of stone crushed to the fineness of powder, rocks as coarse as cottages, and rock of every grade intermediate between these two. Although a moraine from a little distance looks about as dreary as the City on a Sunday, it turns out on close inspection to be a glorious home of some of the most beautiful alpine plants. Most of them are frail-rooted things whose habit it is to ramble through the loose shingly ground. In the garden, too, loose shingly soil they must and will have—or perish. Put them in the ordinary full, fat pudding soil of the general rock garden, and they will be stodged out of existence in no time. And so came the moraine garden, a portion of the rock garden, in which, in place of normal loamy soil, one provides a shingly mixture of stone chips and sand.

But besides moraines there are also screes in the Alps. In composition they are practically the same as moraines, though they are formed in a different way. A scree is usually a slope of stone, broken and fallen from a cliff by a process of gradual disintegration, and piled against the base of the cliff from which it was formed. Not being glacier-formed the scree usually lacks the all-summer water flow of melting glacier. Yet screes are just as rich in flowers, often richer, than moraines. In general character scree plants and moraine plants are much alike, and a great many species are common to both formations.

Now, my own experiments with moraine gardening have all been in the direction of simplification rather than elaboration. Elaborators have been out to invent synthetic glaciers to provide the underground waterflow. Taps, valves, pipes, concrete bottoms, overflows, traps and sinkaways have made it a hobby rather for sanitary engineers than for flower lovers. In my own moraine gardens I have entirely left out all such contraptions. I have adapted from the scree rather than from the moraine—in fact, they are scree gardens, and I have now adopted that name and dropped the term "moraine garden," except when reference is made to the other school.

Very good results have certainly been obtained in underground-watered moraines, but my own experience is that equally good results are to be achieved by depending on rain and occasionally the hose or the watering-can.

How, then, to make a scree garden? Let us suppose that you have an existing well-built rock garden. Why not adapt one portion of this, and convert it into a scree? It is the simplest way. Go over the rock garden carefully, and select one definite portion, an open sunny slope, bounded and contained by well sunken rocks. Remove any plants that may already be growing in it, and then take out all the existing soil within its boundaries to a depth of at least 18ins. If it is not very definitely bounded and enclosed by rocks, it will be well to introduce enough rocks to complete an irregular half-sunken boundary, to act as a barrier to keep out plants which might invade your scree from the surrounding soil. Next arrange your drainage. For this all you need do is to cover the floor of your excavation with rough broken stone, brickbats, anything of this nature, to a depth of about 6ins. Lastly, make up a sufficient heap of scree mixture to fill the rest of your excavation. Take broken stone, silver sand and leaf-mould or good loam (the former is best) in the proportion, roughly, of four or five parts stone to one of soil and sand. The proportions are only approximate. It is best to err on the side of too much stone than too much soil. A slight top-dressing of soil can always be added later, and will soon get watered in and worked down among the stone. Do not be nervous about this mixing of the scree mixture. There is no need to approach the matter as though you were making up a prescription with dangerous drugs. Go easy with the soil, as though it were garlic in a salad, and you will not be far wrong; and as to what stone chips to use—use what you can get. A few of the nurserymen who specialise in alpine plants sell both ready mixed scree mixture and ready crushed limestone chips, to which the other ingredients may be added.

If you have stone in your neighbourhood easily available, it is a simple matter to break up with a hammer enough for your requirements—unless they are very ambitious. Then, having got your drainage in position and your scree mixture mixed, all you have to do is to fill up the rest of the cavity with it, and your scree is ready for planting. In other words, a scree garden is nothing but a portion of the rock garden large or small, and small for choice for a start, at any rate, in which a very stony, shingly compost is substituted for ordinary soil.

The kind of rock does not very much matter. Limestone, sandstone, millstone grit, Kentish Rag, or even granite will do. And in size the chips and bits and pieces may vary from the size of filberts to the size of apples, and the crumbs and the dust should go in as well. And then will come the fun of planting. But the odd thing is that most folk set out with the idea that they must have a scree or moraine, and then begin to wonder what they shall grow on it, ending up by growing all sorts of quite ordinary plants which they could grow equally well in any other part of the rock—or kitchen—garden. I have read accounts of wonderful successes with Saxifraga Aizoon in the moraine. And Campanula Miss Willmott!

PLANTS IN THE MORAINE FLOURISHING IN A COMPOST LARGELY CONSISTING OF STONE.

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The scree garden (and the moraine) were evolved for the cultivation of certain plants, some of which grow naturally on screes and moraines in nature, and which succeed better in scree gardens and moraine gardens than in ordinary rock garden and full loam conditions. Here, then, follows a list of a few plants which will thank you for a scree. Lime haters are marked with a star. The others either like lime, or are indifferent: Androsace arachnoidea, *A. glacialis, *Anemone baldensis, Asperula suberosa, Campanula Allionii, C. arvatica, C. kewensis Phyllis Elliott, C. Waldsteiniana, C. Joysii, Dianthus Musalæ, D. neglectus, D. Freynii, Douglasia vitaliana, Draba pyrenaica, Gentiana verna, G. brachyphylla, G. imbricata, *Geum reptans, Linaria alpina, Myosotis rupicola, Omphalodes Luciliæ (limestone scree in shade), Papaver alpinum, Potentilla nitida, Ranunculus Seguieri, Raoulia australis, Saxifraga Burseriana and almost any of the Kabschia species, S. oppositifolia in all its forms, S. retusa, Thlaspi rotundifolium, Viola valderia, V. heterophylla, *V. cenisia, *Campanula cenisia, Dianthus alpinus, *Chrysanthemum alpinum, Wahlenbergia pumilio and W. serpyllifolia. The above is a very select list of plants which really appreciate scree conditions, though some of these even may be grown without full scree.

DECIDUOUS SHRUBS

BY SIR HERBERT MAXWELL.

AMONG the many rare plants exhibited at the Truro Flower Show last May, none attracted more admiration than Staphylea holocarpa, introduced from China by Mr. E. H. Wilson in 1908. It appears that it was stocked by certain nurserymen, but failed to attract purchasers, and now diligent search has failed to find any who can supply it. However, it exists in a few private collections, where it puts forth a mist of delicate pick blossom in spring—a truly lovely plant.

The common privet, Ligustrum vulgare, is so common as to deter some people from taking an interest in the genus. Nevertheless, it contains some very attractive shrubs, among which the deciduous L. sinense is perhaps the best. It grows 20ft. high and flowers rather late in summer. There is a plate showing a fine specimen in Mr. Bean's "Trees and Shrubs," Vol. II, page 28.

One seldom sees Exochorda grandiflora in private collections, but it is well worth a place in the most exclusive. Like the Chinese privet last named, it was introduced from China more than seventy years ago, and would assuredly be more sought after were it better known, for it is an exceedingly beautiful object in May when decked with racemes of large, pure white flowers. It may grow ten or twelve feet high and bears plenty of seed.

THE PEARL BUSH, EXOCHORDA GRANDIFLORA, WHICH IS WORTH A PLACE IN A COLLECTION.

There is a multitude of good shrubs in the genus spiræa, but if I were limited to three species they would be S. arguta for spring flowering, S. bracteata for early summer and S. Veitchii for July. Mr. Wilson has pronounced the last-named species to be the finest of the Chinese spiræas; but I would plead hard to be allowed a fourth species—the noble S. arborea, which tosses its great plumes of ivory-white blossom at any height up to 20ft. S. arguta is content with moderate elbow-room, but the others demand liberal space if they are to be seen at their best.

The noblest hydrangea is H. vestita; it has been in this country for more than a century; yet, except in botanical gardens, I have never seen it except in my own grounds, where it stands 20ft. high. The flowers are white; but those of H. villosa, introduced by Mr. Forrest, display many delicate tints of violet, rose and pale blue. It is desirable both for these and for its softly hairy foliage; but I am not aware that it has found its way into commerce.

Deutzia longifolia, one of Mr. Wilson's choicest introductions from China, is among the handsomest of its family, especially the variety named Veitchii. The flowers are produced in panicles, varying in colour from deep rose to white.

Among the witch hazels there is none that can compare with Hamamelis mollis, which begins in midwinter to wreath its bare branches with fragrant golden flowers that stand untarnished even through severe frost.

There are so many districts in which the lovely Abutilon vitifolium will flourish in the open (I have seen it covered with lavender bloom far inland in Sussex), and so many others in which it only requires to be planted against a wall, that it is surprising that it is so seldom seen except in maritime places. It is true that it is not long-lived, but often survives up to the age of fifteen or thereabouts. It ripens plenty of seed, from which a fresh stock may easily be raised. It is well to observe some care in taking the seeds out of the capsules, for they lie embedded in a mass of hairy packing, which the lightest draught of air raises in a cloud, most irritating if inhaled.

Xanthoceras sorbifolia is a Chinese relation of the horse-chestnut, and resembles it in the large capsules that contain the seed. But in other respects it is very different from its stately cousin, growing only 20ft. high, with long, pinnate leaves which give the little tree a pretty, feathery outline. The flowers are produced in May in long erect panicles, with white petals blotched at the base with reddish chocolate. It does not flower freely except where it gets plenty of sun; but it is a beautiful thing at its best.

On the other hand, Lonicera tragophylla becomes covered with aphis if exposed to strong sunshine. It is splendid when trained on a north wall, for its rich yellow flowers, though scentless, are the largest of any climbing honeysuckle and are very freely produced.

The list of desirable, out-of-the-common shrubs might run to inconvenient length; wherefore, writing as I do in October, I will bring it to a close with Cercidiphyllum japonicum, which, although the largest deciduous forest tree in Japan, is more likely to behave as a shrub in this country. The flowers are inconspicuous, but the glory of the plant consists in the wonderful colour of the foliage in autumn, varying from bright yellow and carmine to deep purple maroon. It is of special value for house or table decoration, inasmuch as the cut sprays retain the leaves a long time, whereas those of the equally brilliant Parrotia persica drop off almost immediately.

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A BORDER OF SOUTH AFRICAN BULBS

IT IS PLEASANT TO SEE THAT SOUTH AFRICAN PLANTS ARE AGAIN BECOMING POPULAR. ALTHOUGH THEY ARE USUALLY SEMI-HARDY, THEY FLOURISH IN SHELTERED PLACES.

THIS, surely, would prove the solution of many of the small difficulties that beset the cultivation of the various beautiful bulbs and bulbous-rooted plants which come to us from South Africa. Think, for example, of the Ixia (African corn lily), the wonderful Gladiolus primulinus (maid of the mist), the babiana (baboon root) and a host of others, and imagine these *permanently* established out of doors in a special border made up and planned to meet their requirements. Most of these are just on the borderline of perfect hardiness, and yet one is never quite safe, so that annual lifting, drying and replanting has to be done. Over a large part of the country, however, all this *could* be avoided, but only by the method of allotting them a special position and making up a special border.

The position we may dismiss in a few sentences. Firstly, it should be warm and well protected, and must be in the very sunniest position that your garden can supply. This probably means facing due south and at the foot of a brick wall, for one gains much by the absorption and radiation of heat from this. Only one improvement could possibly be suggested, and that is on the south side of a heated greenhouse, for here the soil practically never freezes and so conditions are almost ideal.

GALTONIA CANDICANS, THE IMPOSING CAPE HYACINTH IN ASSOCIATION WITH GRACEFUL SPIKES OF GLADIOLI.

Having selected the site, the next point is to prepare the border. This, once again, must be raised above the level of the surrounding ground, so as to provide very free drainage. It is easy to provide sufficient water in dry times, but impossible to keep the soil dry enough in winter without raising the bed and draining the ground. The border need not be a very wide one. The natural earth should be removed to a depth of 2ft., and at the bottom 9ins. of clinker, brick ends, etc., should be placed. Over this should come 15ins. of fibrous yellow loam that has been mixed with one-third of its bulk of coarse sharp silver sand. Turn this again and again, so as to make sure that the soil and sand are thoroughly mixed together, and plan your border so that it is 6ins. or 9ins. above the level of the surrounding ground.

In most cases this—with the shelter of the wall—will prove sufficient; but, if the garden is a cold one, a winter covering of 6ins. of strawy litter may be used in addition. This, however, should not be regarded as a permanent covering, but rather used in very frosty times and removed when the weather is milder. This remark applies especially to that half of the winter which comes after Christmas, for if the covering is retained all the time it is certain to encourage premature growth that, when the covering must be removed in spring, is liable to suffer by exposure to cold winds. The bulbs should be planted at different times in the year: some in autumn, others not until the spring, but in every case a small pile of sand should surround them, so as finally to settle the question of efficient drainage.

Having disposed of the question of position and having described the making of the border for the reception of the various bulbs, corms and tubers, let us glance at some of our material. South Africa is especially rich in these beautiful flowers, and the choice is no mean one, but their range could, of course, be infinitely extended by wanderings to other parts of the earth, for we might include the glorious Peruvian lilies (that are not lilies at all, but only look like them), the fine tiger flower of Mexico, etc. All of these would flourish under identical conditions, and all would appreciate the free supplies of water in summer that are so essential to support the vigorous growth that is usually being made at that time. Let us, however, confine our searches to-day mainly to South Africa.

For convenience, too, it will be well to separate our bulbs into two classes—those that are planted in autumn and those that are put in during spring. At the head of the autumn list come the Ixias, delightfully graceful plants with exquisite loose racemes of flowers, remarkable for their diverse and brilliant colouring. Culture in our outdoor border begins in November, although the planting of the bulbs may be deferred until early in the New Year so as to make sure that they do not appear above the surface too soon. The bulbs for permanent planting should be put in 4ins. to 6ins. deep and 3ins. or 4ins. apart, as they increase fairly rapidly and soon become overcrowded. There are many named kinds of striking beauty, enhanced in every case by the dark "eye," but a mixture, if obtained from a suitable source, will give an immense variety of colours. One would do well, however, to invest in a dozen or so of the unique green variety, in which the flowers are an intense sea green enhanced by a dense black centre. Do not mix these with your other Ixias, but give them a special place by themselves, so as to make them one of the features of the border in May and June. Do not overlook the point of keeping these uncovered by straw whenever possible, for no bulb is more liable to early starting and, if one is careless in this respect, it is not uncommon to discover that a couple of inches of top growth have been made far too early in the year.

Babianas and sparaxis both respond to identical culture, but are not nearly such popular flowers, despite their wonderful colourings and veinings and extreme brilliance. All species of sparaxis are South African, and the majority are about 1ft. in height. The flowers are tubular and strikingly blotched at the base of the petals. Colours range from deep violet through yellow and white to orange red, and flowering takes place in May and June. A very different form is Sparaxis pulcherrima, which flowers in September and October and attains a stature of from 3ft. to 6ft. This has sword-like foliage and slender flower-stems which bear many funnel-like drooping flowers deep blood red in colour. This is not always listed under sparaxis, but may be found under Dierama pulcherrima.

The babianas, again, are all South African and rarely exceed 1ft. in height, while the colours are startlingly brilliant.

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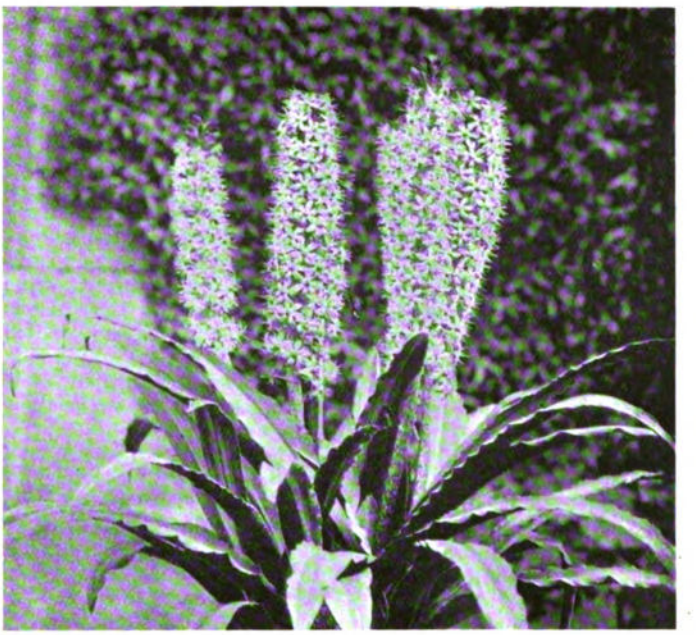
The variety stricta presents the unusual picture of having the three outer petals white, while the three inner ones are violet-blue. Two other varieties may be singled out for special mention: disticha, violet-blue, with the fragrance of the hyacinth; and plicata, violet and smelling like the clove carnation.

Coming to spring planting, Schizostylis coccinea is especially valuable for its late flowering—November—with its vivid scarlet gladiolus-like flowers, each of which is 2ins. across. The foliage is sword-like, the lower leaves being the longest and the upper ones forming bracts. This increases rapidly and the leek-like tufts can be pulled apart and replanted. Owing to its late flowering it is best to give slight protection when the buds form, and especially to shade the spikes in the early morning after a frosty night.

A charming effect can be created at the edge of our border by using Anomatheca cruenta, the foliage of which resembles montbretia, while the flower resembles the freesia—that is, in all save height and colour. The growth does not exceed 6ins., and the small crimson scarlet flowers continue to expand throughout July and August. One need have no doubts as to its hardiness, although it certainly prefers a very sunny position. Seed ripens freely and sows itself, the young flowering plants reaching maturity within a year or two. A lovely new form with glistening white flowers should also be noted; but, as this is rather expensive, while the old cruenta is very cheap, the white form should be used for forming small clumps, while the brilliant crimson scarlet variety is reserved for edgings.

Those who are responsible for house decoration will welcome Gladiolus primulinus in no half-hearted manner. The hooded yellow flowers are exquisite, and the habit so slender and graceful that it leaves nothing to be desired, either from the garden point of view or when arranged in water. The new race of primulinus hybrids are no less

WITH ITS VIVID SCARLET FLOWERS SCHIZOSTYLIS COCCINEA IS ESPECIALLY VALUABLE FOR LATE FLOWERING.



FOR BEAUTY AND FRAGRANCE EUCOMIS PUNCTATA IS USEFUL IN THE BORDER.

beautiful than the type, and the mixing of their blood with varied garden hybrids has resulted in a series of shades of cream, flesh, salmon, etc. Tritonia crocata, Prince of Orange, is perfectly hardy and very valuable for summer flowering in masses, for its sprays of orange scarlet flowers not only give a fine effect in the borders, but are extremely decorative for cutting purposes. Less hardy than the above, but quite amenable to culture in our special border, is Tritonia rosea, which reaches a height of 1½ft. and bears most lovely rose-hued flowers of similar form. In planting these it is better to keep the two varieties separated some distance from each other, because the vivid orange is apt to kill the rose pink and *vice versa*.

Contributing beauty, fragrance and a very striking and unusual appearance, Eucomis punctata is not a bulb to miss. The broad strap-like green foliage is decorative all through the summer and has the advantage of not losing its freshness before the flowers expand. In our outdoor border it flowers in August and September, and advertises the fact far and wide by its powerful but pleasant perfume. The starry flowers are closely arranged on a long spike, greenish in colour and purple brown in the centre. At the top of the flower-spike is a series of conspicuous purple-edged leafy bracts, while the whole of the thick stem that carries the flower-spike is heavily spotted with purple brown. The large bulbs should be planted not less than 6ins. deep, and ripening is greatly assisted by covering with a frame light in winter.

Watsonias, of which the best known variety is Ardernei, are valuable for their height (2½ft.) and the massive flower-spikes which, if promptly cut out, are soon followed by secondary ones that thus give a very lengthy display. It is wisest to be content with Ardernei for the open ground and leave the coloured species for pots in the cool greenhouse, although humilis, deep rose and flowering in July and August, might be tried in a mild and favoured place. Albuca Nelsoni is yet another bulbous plant from Natal that is not difficult to grow, although it benefits by the addition of a little peat to the soil already recommended. The leaves are of large size, 4ft. to 5ft. in length.

The imposing Cape hyacinth, Galtonia candicans, will thrive splendidly in any soil that is not too heavy, and it is well to introduce it as it lends height and dignity to the border. Towering upwards to a height of 6ft., the stout stems carry a spike of from twenty to fifty large bell-shaped flowers of pure white. One need have no fears on the score of hardiness with this, especially when spring planted and put in at a depth of 6ins. to 9ins., for it reappears year after year with absolute certainty. Planting may be carried out in November, but in this case the bulbs should be covered during the first year by a thick covering of straw or bracken.

H. W. CANNING-WRIGHT.

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SHOWS AND SCHEDULES

BY EDWIN BECKETT.

IN the majority of cases this year there undoubtedly has been a considerable increase in the number of entries at provincial and local shows, and probably there have been many anxious competitors studying schedules, endeavouring to make out just exactly what the regulations mean, and these points have no doubt been reflected from time to time in the minds of the judges, when adjudicating on the various classes. Probably the perfect schedule has yet to arrive, and season by season those responsible for their compilation must go through some anxious hours in their attempt to settle the many points that crop up in their endeavour to make their various shows attractive to the exhibitor.

Perhaps a few notes may be of assistance to them, and especially to those who, having just started a horticultural society may be making up their schedules. For the first item let us take the actual phrasing of regulations, in our, at times, rather difficult English language. The primary endeavour should be to write down the rules in the very plainest language possible so that they may be "Understanded of the people." Not an altogether easy task, but one that should be managed with a little careful thought. To illustrate what is meant by this, it is well to quote a regulation that appeared in the schedule of a small society this year, which read:

In the event of there being only one entry in any class, it shall be in the discretion of the judges to decide whether that entry is worthy of any prize, and in the event of there being insufficient entries, in any class for two prizes to be given, it shall be left to the judges in their discretion to say whether in their opinion the exhibits are of sufficient merit to warrant two prizes being given.

That phrasing started well, but what a falling from grace when the term "insufficient entries" was reached, for the society did not define the limit of numbers to accomplish a sufficiency! Result, judges left guessing and calling for the secretary to explain the point, and the secretary unhappy because he also did not quite know the position to adopt. Contrast that wording with the following explicit statement, extracted from another society's schedule:

First, second and third prizes will be awarded where the entries are six and over. Two prizes will be allowed if four exhibits. One prize if only two or three exhibits—first, second or third, at discretion of judges, who shall have power to withhold any prize where the exhibits are considered of insufficient merit.

This was plain and concise, so that the judges knew exactly how to act without reference to the harassed secretary.

This brings us to another thought, which is the lax using of such words as "genus," "species," "kind," "variety," "sort," etc., the mixing up of these often leading to confusion in the minds of exhibitors. The best basis on which to work is to employ only the two terms, namely, "kind" and "variety," so that the first covers kinds of fruit, pears, plums, apples, etc., and the term "variety" varieties of apples, Cox's Orange Pippin, Lane's Prince Albert, Benoni, etc. By doing this, confusion is avoided generally, though it is sometimes desirable further to define the term "kind," for on one occasion this season an exhibitor was observed to employ both French beans and scarlet runners in a collection of nine kinds, curiously enough to form "one kind," an idea that while hardly incorrect, was yet a possible action that might have led the exhibitor on to entirely wrong lines, inasmuch as he might have considered, what after all are only two "varieties" of beans from the exhibition point of view, as two "kinds." Confusion could easily happen in this direction with the cabbage tribe, where such items as cauliflowers, broccoli, cabbage, red cabbage, Brussels sprouts and kales, must each be considered as distinct kinds, and as such should be limited or defined in a schedule.

Another point that schedule makers will have seriously to consider is the definition of terms, where various classes of growers are catered for, such as cottagers, gardeners, undergardeners, amateurs, etc., and the definition of these at times is difficult. I heard of an instance where an exhibitor, who last season ranked as a cottager, this year was placed in the amateur section because, having changed his abode, it was discovered that he paid 2s. a week more rent than previously! A curious happening, but instructive as to the rough and ready methods employed to define a class of grower. Probably in this matter local custom will prove the basis of determination, though it would be far better to base the classification on the very carefully considered suggestions of the Royal Horticultural Society in their most useful handbook "Rules for Judging," and thus standardise the whole business. This handbook should be in the possession of every local horticultural society in the country, for it is a work of sterling merit, and would prove a great help to the schedule makers.

One other point that should always be borne in mind for schedules, especially with regard to local affairs, is not to make too many classes. Consider the abilities of the local growers and put up the classes for them that are likely to receive proper support. It is a pity to make say sixty classes if only about thirty are likely to receive support, for it certainly detracts from the appearance of a show to see half the classes with only one or a couple of competitors exhibiting in them. Better by far to have really keen competition among a large number, for the competition is everything in the endeavour of the societies to encourage and benefit local growing.

Naming of the exhibits should also be aimed at, and it would perhaps be of benefit to all were societies to make this a condition of entry, rather than for them to express the pious opinion that correct naming will be taken into consideration if necessary in keen contests. After all, there are but few growers who raise items of which they do not know the name, and it certainly gives others guidance as to what vegetables, etc., are likely to prove "good doers" in their particular neighbourhood.

The foregoing will give some idea of the main points that will require tussling with; there are, of course, others of minor importance that will crop up, but careful thought will generally clear these away, and it only remains therefore again to urge the importance of clear language and definition.

(To be continued.)

A CURIOUS AND EASILY GROWN CUCURBIT

ALTHOUGH usually called on the Continent the "Siamese" or "Malabar" gourd, and very common in the countries thus mentioned, the subject of these notes, Cucurbita ficifolia, sometimes also known under the name of C. melanosperma, is in reality a native of Mexico, where the first Europeans who went there found it growing wild and utilised by the natives. It is one of the most striking gourds.

There are two points which merit our attention: first, the fine appearance of the fruits, which renders them exceedingly useful for decorative purposes; and, secondly, the possible culinary uses.

For no apparent reason the plant has always been a rare one in gardens. It was introduced to Europe a century or so ago and it is only at intervals that one hears of it in gardening literature. In 1854, for instance, attention was again focussed on it on the occasion of a shipment of a herd of Chinese jacks from Peking to the Paris Museum. The animals were fed on the ship during the voyage with these gourds, and a few which remained untouched on arrival aroused the greatest curiosity. The "Siamese" gourd is a perennial in warm countries, but an annual in northern climates and is a remarkably strong grower. On some occasions, in very hot weather, it has been observed to grow at the rate of as much as 8ins. to 10ins. a day, which means, of course, that by the end of the season it will have reached a fair height. The foliage is faintly splashed dull white in the early stages. The fruits are numerous, oblong and reach an average of 1ft. in length by 9ins. in width and 6lb. to 8lb. in weight. They

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are, as the illustration shows, very ornamental, the skins being beautifully spotted with white. After ripening, this skin becomes of a very tough consistency, almost woody, and acts as a protection to the internal tissues, which can thus keep for a very long period. In numerous instances, it has been reported that fruits have kept for two, three or even four or five years without alteration. The writer himself knows of a few harvested in 1921 which are still in perfect condition. The only change that takes place is a loss of weight corresponding to an unavoidable loss of water, one-twelfth or one-fifteenth of the total weight, roughly, every year. Needless to say the fruits keep best under very dry conditions. In a humid atmosphere they soon decay. The inside is practically solid, of a somewhat spongy nature and, unlike all other gourds, of a most beautiful white. The black seeds are scattered unevenly in the pulp, which, when properly treated, can very well be used for culinary purposes. In Spain, and in former Spanish colonies, a jam is made with it called "Cabellos de Angel" (Angels' Hair), this name being due to the fact that the cooking does not get rid completely of some of the hard filaments, which when it is eaten produce a most peculiar sensation in the mouth. Another method of cooking the "Siamese" gourd is to make with it a kind of "saurkraut." This dish is very popular in Central Europe. The gourd can also be used for soups, fritters, and so on.

But, leaving the culinary possibilities aside, the decorative value alone of the "Siamese" gourd makes it well worth cultivating. The fruits, with their beautiful white spotting, are excellent for adorning windows, sitting-rooms, and all kinds of odd corners in the house; either alone, or in association with other ornamental gourds, miniature and otherwise, showy fruits, cones of conifers, etc., a method of decoration much in vogue in several countries nowadays. The keeping qualities of these fruits also make them items of peculiar interest. From that point of view, the "Siamese" gourd is certainly very striking.

The cultivation of the plant is very easy and can be compared to that of most cucurbits. The seeds, which one can probably easily obtain in England, or if not, on the Continent (at Messrs. Vilmorin's, in Paris, for instance), are sown at the end of April or the beginning of May, in a house or in a frame, with mild bottom heat, singly or two at a time in small pots. When frost is no longer to be feared they should be planted in the open in their permanent quarters in very rich ground, 6ft. to 8ft. apart. An old hot-bed is an ideal place to establish them and there they generally produce enormous crops. Typical of the majority was one case of a return of 250lb. in the form of thirty-five fruits from three plants, obtained in 1923.

It is also possible to use the "Siamese" gourd plant for decorating exposed banks of large size, where the sun is particularly hot, or to climb up large trellises, pergolas, walls, etc. In the last case it is necessary to assist the climbing stems, as the plant has no natural means of attaching itself to its supports. C. L., *Paris.*

CUCURBITA FICIFOLIA THE "SIAMESE" OR "MALABAR" GOURD.

SOME WILD FRUIT DISHES

IN the lowlands blackberries, on the moors bilberries or wortleberries, are almost the only wild fruits that are in common use for preserves or as a mealtime sweet; the bilberries stewed, and the blackberries in combination with apple, either stewed or in puddings or tarts, or, of course, as jams or jelly. One very rarely hears of any use being made of the other common wild fruits which adorn our hedges at this time of year, for elderberry wine and sloe gin can hardly be called dishes. But I hope to show that there are possibilities in these and variations on the apple and blackberry theme which are worth trying. Moreover, the dishes I shall mention will only be such as I have tried and approved myself and which I can vouch for as being worth the time and trouble.

One of the best variations from stewed blackberries and apples is elderberry and apple, using the two fruits in the same proportion as in the case of blackberries. Being a mere male I am not very expert in cookery, but I believe the apples are best stewed first and about the same amount of sugar is needed. The mixture is greatly improved if the elderberries are rubbed through a sieve.

Another excellent mixture is made by substituting bullaces for apples with blackberries. In some parts of the country bullaces seem almost unknown, though they are for cooking and preserving purposes one of the very best plums, and the white variety makes a very beautiful and delicious sub-acid jelly. Both the white and black bullaces grow wild in this district (Suffolk), the white being the rarer, but more common in cultivation. Being a sour fruit, they greatly improve blackberries, if mixed with them, whether as a mealtime sweet or in jam, and for this purpose the black bullace is best, as the stewed fruit is a much prettier colour when these are used. Some years ago we had very few plums and quantities of pears, and stewed pears became a drug in the market. Then a brainwave suggested mixing them to make the plums go farther. The result was that the pears lost their insipidity and took on the flavour of the plums. After the plums were over damsons and bullaces were tried and found better still. Then came a year when there was a big crop of sloes, and we tried them with the pears. I gathered a basket of sloes and some of these were tied up in muslin to keep them separate and stewed with the pears. When they came to table you could not tell, either by look or taste, that the pears had not been stewed with a liberal addition of good port wine. Sloes will keep, gathered, till the New Year and be none the worse for keeping.

Blackberries and rhubarb make a very good mixture both for tarts and for jam and I should say that elderberries and rhubarb would be equally good.

A particularly good preserve is wild crab apple jelly, especially if you can get the round red crabs which are not common in Suffolk. Cores and skins should be boiled with the fruit as the skins give it a pleasing colour and the pips improve the flavour, and the juice should be strained off through a jelly bag and 1lb. sugar added to one pint of juice.

Another good mixture is stewed apples and mulberries. This is an excellent way of using up any surplus mulberries which will not keep. T. H. DIP

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NOTES FROM CONTRIBUTORS

AUTUMN FLOWERS.

THOUGH autumn-tinted foliage and berries are rapidly replacing the more brilliant colours of our garden flowers, there are a great number of beautiful plants whose flowering season is the present, and again a number grace the garden with their second crop of bloom during these autumnal days. The weather here has been vile throughout September, except for a few days in the first week and again in the last week of the month. Happily, these were open and sunny, the results being everywhere apparent. Among the roses here the varieties Betty Uprichard, Emma Wright, Independence Day, K. of K., Lady Pirrie, Mrs. H. Morse, Ophelia, Padre, Isobel and Mrs. Oakley Fisher have proved to be excellent growers and fine autumn-flowering kinds, but this year perfect blooms have been the exception rather than the rule. Planted through a border of Japanese iris, Gladioli Halley, Prince of Wales and others are forming groups of colour. Several of the primulinus hybrids have also given variety in colour, the best being Atalanta, Delicate, Orange Brilliant and Vanessa. Down in a deep gorge, but on the higher ground above the giant Gunnera manicata and its handsome neighbour Rodgersia tabularis—which are, during a season like the present, enveloped with a mist-like spray from the adjoining falls—Senecio clivorum with its thick leaves and huge corymbs of deep golden yellow flowers stands erect in spite of the many blasts. Along a partially shaded walk leading to the rock garden the large blue and white flowers of Geranium Wallichianum Buxton's Variety are particularly fine just now. Below the overhanging branches of a tall Tsuga Mertensiana a colony of Cyclamen europæum still in flower serves to remind one of still larger colonies of C. neapolitanum about to throw up their beautiful flowers in varying shades from pink to white, while the thick leathery leaves of C. Coum are pushing up through the thick carpet of needles shed by the towering hemlock. On a low bed near a drift of the tiny Astilbe simplicifolia Gentiana Farreri grows luxuriantly in the richest soil of the rock garden and produces hundreds of fresh trumpets daily during sunny periods. Though this particular bed was only planted with small plants from pots last spring, many to-day (October 4th) have as many as two dozen fully developed flowers and many yet to come. Large plantings of Erica vulgaris Alporti are very dense and rich and a complete contrast to the group of E. vagans St. Keverne. This variety has very choice clear pink flowers and is assuredly one of the best heaths ever introduced. In a border of asters—Michaelmas daisies—Cloudy Blue, Wonder of Colwall, King of the Belgians (lavender), Ethel Ballard and Snowball are outstanding of the Novi-Belgii section, while Aster Thompsonii, an Indian species, forms clumps in the foreground. Montbretia Nimbus, Queen Alexandra, Queen Adelaide, Queen Mary and Pageant are at their best in a warm border, with Lilium Henryi and L. tigrinum Fortunei giganticum as neighbouring plants. Growing among rhododendrons, Lilium auratum platyphyllum reaches about 7ft. in height with immense heads of huge flowers. This lily scents the whole surroundings. One other plant worthy of mention is Kniphofia W. Hucken. I do not know the origin of this "poker," but it belongs to the gracilis section and has long, tapering orange spikes. I first saw it in Ben Reid's nursery, Aberdeen, and the manager there spoke highly about its free-flowering character.—J. T. H., *Perth.*

GIANT MECONOPSIS WALLICHII.

I AM sending you a photograph of some Meconopsis Wallichii which were grown in these gardens. No doubt many readers will be interested to know of this lovely plant, which is quite easy to cultivate in a moist shaded position, being a woodland plant. The best way to grow it is to sow the seeds in March, in seed pans or in 6in. flower pots, the latter half filled with crocks, then fill up with a fine compost of leaf-mould, loam and sand, put into a frame or greenhouse; when the plants are large enough prick off into boxes in a good coarse compost, still keeping them in a frame; when they are about 1in. to 1½ins. high, pot into sixties and put them into a shaded frame. When 3ins. or 4ins. high, plant out in their permanent quarters; loosen the bottom roots a little before planting out. Plants will get away better if treated thus, and will not suffer from a dry ball. It is important that the plants

A FINE WOODLAND PLANT. MECONOPSIS WALLICHII.

should be kept growing and not allowed to get stunted in flower pots.

The bed should be dug to a depth of 18in., putting in some good loam and plenty of leaf-mould; plant firmly. As Meconopsis Wallichii is only a biennial, one must raise new plants each year to keep up the annual stock of flowering plants.

The plants in the illustration commenced to flower on July 4th and continued till September 16th; the plant on my left had 240 flowers, was 7ft. high; that on my right had 480 flowers, was 6ft. high and 3ft. across the lower part of the plant.—T. D. SARSONS, *Sussex.*

ROSE LA REINE TULIP.

THIS very taking little double tulip came to me as a present from my friend, Mr. Bull of Ramsgate, and in the covering letter he said he thought I would like it. That was three years ago. I liked it when first it bloomed, but I appreciate it more than ever now the original half-dozen bulbs have grown into a little mass. As a rule I do not care for double tulips, partly because they are unable to stand bad weather. Rose la Reine may be described as a "petit" or fairy double. Its wiry little stems bear the small flowers, without flinching, through any ordinary spring. They are such delightful flowers, but how can I say what colour they are when every visitor whom I religiously ask to name it says something different. It's a case of "Elizabeth, Elspeth, Betsy and Bess" who all took an egg from the bird's nest with five in it and there still remained four! Rose la Reine is a soft-toned indefinable red, quite unlike any other that I have come across. To me it appears to be a sort of rose, but it has been described as carmine and vermilion! The only way to settle the question is to get a few bulbs and see for oneself what it really is. Unfortunately, it is but little known and I cannot find it in the usual lists. Possibly Mr. Bull, Rathlin, Ramsgate, might be able to supply a few. It is a good increaser, so it is quite likely he has a little stock.—JOSEPH JACOB.

BRODIÆA IXIOIDES.

OF the numerous brodiæas in commerce the majority are not too long-lived in many gardens, and a good number of us have found to our cost that a large proportion of these fine bulbous plants do not live for many years under the conditions of our gardens. Of course, with many this is not the case, and they are to be envied who can cultivate these handsome plants satisfactorily and permanently. To see them at their best, by the way, they should spear through other herbage, as with many of them the stem is too lengthy for the size of the flowers, unless its apparent height is shortened by a fair-sized carpeting plant. One of the hardiest and best the writer has grown is that named B. ixioides, and the variety called splendens deserves special reference, as it is bolder and has larger flowers. I find, too, that the colour—yellow—of B. ixioides is appreciated, as it is not too common in bulbous plants flowering in early summer, as B. ixioides does. It is variable in height, and in poor, dry, hard soil I have had it only 6ins. or so in stature; but in richer and more open soil it has been as much as a foot high. Personally, I prefer to have it about 6ins. rather than 12ins., as then, I think, the handsome umbel of yellow flowers which crowns the slender yet stiff stem looks finer than when the plant is taller. As a hardy border or rockwork brodiæa I should recommend B. ixioides, and preferably its variety splendens. I have never tried it in grass, where it would, I consider, be highly attractive.—S. ARNOTT, *Dumfries.*

THE SOLDANELLAS OR MOON WORTS.

PROUD and happy is the gardener who can display to his friends a fine clump of the soldanellas with their wonderfully fringed blue flowers. Yet this is not a matter of such great difficulty if one will only begin in the right way and see that the plants never suffer from lack of water in dry times. The latter is a very important point, for the plant is an immense moisture lover and one cannot expect good results where this is lacking. The soil should consist entirely of fine sandy loam, in which the plants must be made very firm and the surface should be partially covered by half-buried stones. Too sunny a position is not desirable, one in which they get the last gleams of the setting sun being ideal. In spite of their love of moisture the soil should be well drained, and this is a particularly happy circumstance, because it enables the plants to be well elevated and thus better to display their wonderful flowers. The leaves are round, green and leathery; the flowers bell-shaped and beautifully fringed, usually one on a stem, but sometimes more.—SANDSTONE.

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WE have bought the whole of the Land, Horticultural Buildings and Stock of the Penn Nurseries, near Wolverhampton, lately in the possession of Mr. A. S. Dunton.

The Stock, including many thousands of excellently grown Bush and Standard Rose Trees, we are now offering at about half current prices, to effect a quick and complete clearance of the land preparatory to development for building purposes.

Finest Grade English-Grown Bush & Standard Roses

The 2 Collections A and B for 20/-

It should be clearly understood that these trees are in every way, first grade. In their quality lies the heart of the bargains. In making offers of collections we reserve to ourselves the right to send varieties of equal value in place of any that run out of stock.

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A 12 NEW BUSH ROSES

Betty Uprichard
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Mrs. H. Morse
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11/6
CARRIAGE PAID

Worth 21/-

B 12 FAVOURITE ROSES

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Christine
Col. O. Fitzgerald
Francis Gaunt
Francklin
Golden Ophelia
Hoosier Beauty
Hawlmark Crimson
Lania
Mme. Abel Chatenay
Ophelia
Sunstar

9/6
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Worth 17/-

C 12 POPULAR ROSES

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Eleganta
K. of K.
Lulu
Lady Pirrie
Mme. Herriot
Padre
Premier
Severine
The Queen Alexandra
Westfield Star
W. F. Dreer

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BUSH ROSES

Buyers' own selection,
8/6 dozen. *Carriage paid.*
Our selection,
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A. R. Goodwin
Betty
British Queen
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Constance
Countess Clanwilliam
Crimson Emblem
Donald McDonald
Dorothy Page Roberts
Duchess of Wellington
Frau Karl Druschki
Gladys Holland
Hugh Dickson
Isobel
Irish Elegance
Irish Fireflame
Lady Alice Stanley
Lady Ashtown
Lieut. Chaure
Louise C. Breslau
Lyon Rose
Madame Melaine Soupert
Mdme. Colette Martinette
Madame Ravary
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Melody
Miss Willmott
Marie Adelaide
Mrs. Aaron Ward
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FRUIT TREES.

Full particulars of varieties will be ready by time this advertisement appears. Please send for details.
3 to 5 year old Bush Apples, Pears, Plums, etc., will be **3/-** each.
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In the meantime here are two excellent offers of small fruits:
Black Currant, Boskoop Giant 3 year old, twice transplanted trees, **6/-** doz. Packing and carriage **2/-** doz. extra.
Raspberries, Lloyd George about 4ft. canes, **6/6** doz. Packing and carriage **1/6** doz. extra.

PRIVET.

Ever Green, Oval Leaf. Fine bushy plants:
1½-2ft. **3/-** doz. **20/-** 100
2-2½ft. **4/-** doz. **30/-** 100
50 plants supplied at the 100 rate.
Packing and carriage on orders value from 5/- to 7/6, **1/6**; from 7/6 to 10/-, **2/6**; from 10/- to 15/-, **3/6**; from 15/- to 20/-, **5/-**. Special carriage paid quotation for larger quantities than 100.

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Packing and carriage paid on orders to value of 15/- and over. Orders to smaller value **2/-** extra for packing and carriage.
1 dozen shrubs in variety from this list at the dozen price per variety.

	Each	Doz.
Spiræa in 3 varieties	1/-	10/6
Snowberry	9d.	8/-
Weigelias mixed	9d.	8/-
Philadelphus (Mock Orange)	1/6	15/-
Veronicas in variety	9d.	8/-
Buddleia variabilis	1/-	10/6
Deutzias	1/6	15/-

STANDARD ROSES

2 splendid collections each of 6 varieties.

Golden Emblem
Mme. Butterfly
Mme. Abel Chatenay
K. of K.
Mrs. H. Morse
Los Angeles
THE SIX FOR 13/-
Carr. paid.

W. F. Dreer
The Queen Alexandra
Columbia
Padre
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THE SIX FOR 13/-
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The two collections 25/-

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Daffodils or Narcissus

		Per doz.	Per 100
LARGE TRUMPETS			
Emperor	Large full yellow	2/0	14/6
Empress	White & yellow	2/0	14/6
Glory of Leiden	Full yellow	2/0	14/6
Golden Spur	Deep rich self yellow	2/0	14/6
Madame de Graaf	Large white	2/0	14/6
Princeps	Sulphur white	1/3	9/0
Victoria	Creamy white	1/9	13/0
MEDIUM TRUMPETS			
Cynosure	Orange red	1/6	10/0
Sir Watkin	Sulphur cup yellow	2/3	16/0
SMALL CUPS			
Barrii Conspicuus	Yellow	1/4	9/6
JONQUILS			
Single Sweet Scented	Rich yellow	10d.	6/0
POETICUS			
Pheasant Eye	Pure White	1/0	7/0
DOUBLE NARCISSUS			
Telemonius Plenus	Double yellow	1/3	9/0
Mixed		10d.	6/0

CASH WITH ORDER IS A STRICT UNALTERABLE CONDITION OF SALE.

SIMPLE GARDENING

VIOLETS.

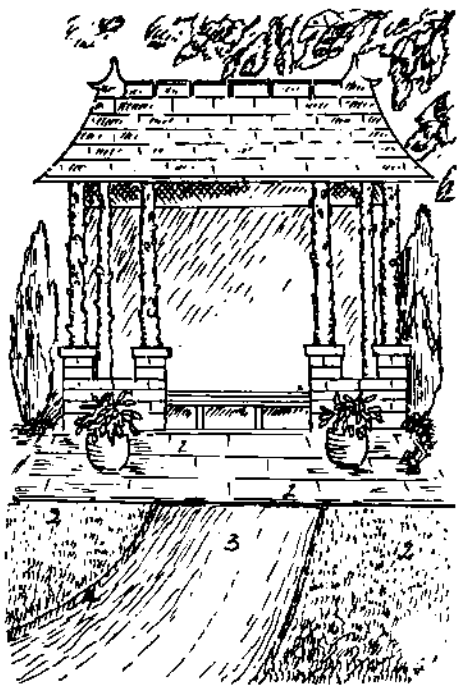
THE expert cultivator of these fragrant flowers will not hesitate to lift and replant clumps or young plants in the cold frame or unheated greenhouse at all times during the late autumn and winter months. The inexperienced cultivator, however, should not do this, but confine his attempts to lifting the plants during September and October. No doubt the majority of the plants are already in the glass structures, and if treated in a judicious way they will soon repay the owner with a wealth of blossom. Where sufficient frames are available, it is a wise plan to plant the single in one and the double-flowered in another, or in a series of frames, respectively, in each case. The plants are impatient of artificial heat or of undue coddling in every way. Too much heat and a too confined atmosphere result in harm; the former favours the spread of red spider and the latter damp. Only clear water should be applied, as the soil used should be rich enough to induce healthy growth throughout the winter. As the first warm days come a weekly spraying of the leaves with clear liquid manure will help the growth and stop the spread of red spider; clear soot water will also do this. Plants do not thrive well if the attendant treads down the soil between them while engaged in clearing away runners, yellow basal leaves or watering. Do not tread upon the soil at all. Ventilate freely, except in frosty or foggy weather.

WINTERING FUCHSIAS.

These plants are arranged and grown with great effect in our flower gardens during the summer months. They are suitable for use as standards, half-standards and for growing in cool quarters, and especially those borders that do not receive much sunshine. As they have served a good purpose and are, probably, great favourites, their safe wintering is a matter for due consideration. In the northern counties I have wintered the plants well in dry cool lofts—those immediately over potting-sheds and tool stores. In the southern I have found it sufficient to place the plants in sheds open at the front. The roots should be the chief care; many fuchsias grown in the open borders all the year round do not suffer from frosts, but those used in our summer-bedding arrangements are often killed by undue exposure to frosts. These specimens are more tender because they have received generous treatment and, probably, been started under glass in spring. The plants grown throughout in pots are the easiest to deal with. The unripe tips of shoots should be cut off and roots found through the hole in the pot or over the rim retained till spring. Place the pots almost close together and pack dry, short litter, fern or tree leaves between and over them so as to bury the rims 6ins. deep. Cover the branches in severe weather only. Do not apply water and remove to the greenhouse early in March.

GARDEN SHELTERS.

Garden shelters should be ornamental as well as useful; furthermore, they should be in character or keeping with the immediate surroundings. Example: a formal garden should contain a shelter after the style of the one shown in the



accompanying sketch, whereas an informal garden should contain a quite rustic shelter. Near the latter, clematises, roses, vines, honeysuckle and similar plants should be established; but close to the formal shelter large pots, tubs, boxes and vases or suitable shrubs would be in keeping. Bulbs, such as hyacinths, tulips and narcissi would look well, and although wallflowers, forget-me-not and similar plants may be grown in close proximity to the formal shelter, they are certainly fit plants for furnishing beds near the rustic one. The front of the formal shelter would look well "flagged" or paved as shown at Nos. 1, 1; Nos. 2, 2, may be grass or flower-beds; No. 3, path, gravel or paved; No. 4, edging in keeping with path and borders.

POTTING GREENHOUSE PLANTS.

Of course, we are all busy potting our bulbs — snowdrops, hyacinths, narcissi, tulips, crocuses—and reasonably expect a fine harvest of blossom in due time. But I wish now to refer to greenhouse plants in the autumn time. With a few exceptions I would advise cultivators who can only command sufficient heat just to exclude frosts to defer the potting of most kinds of plants, however pot-bound they may be, till about the middle of February next. Being well pot-bound will be in favour of a safe passage through the dull days. Calceolarias now in small pots should be shifted to larger ones forthwith. The plants will become stunted if left too long pot-bound. The repotting should be into pots large enough to permit of the fingers being inserted between the sides of the pots and the old balls of soil round the roots. Very firm potting is not required, water very carefully and guard against damp in the cool frame. Zonal pelargoniums should also be potted if necessary rather than run the risk of losing the basal leaves unduly. A high shelf in the greenhouse will be a suitable position and also for mignonette and schizanthus: both kinds of plants—those forward enough—will be benefited by repotting. Cinerarias and primulas will require a shift to larger pots and be placed on a front stage in the greenhouse. The plants will do better there than in cold frames.

STORING MANURES IN THE AUTUMN.

Not only organic manures, such as those from cow-sheds, stables and pig-stys, but artificials of all kinds require very careful storing during the winter months. I am quite sure that many readers will at once admit the fact that they have, in past years, fully exposed their heaps of manures to the weather for long periods. It means that, eventually, they wheel to their borders the husk or shell—the kernel, the best the manure contained, being washed away by the rains. All do not possess cool sheds in which to store such organic manures, but neat heaps can be formed with roofs like buildings and litter or similar material placed on them to form a thatch. Fowl and pigeon manures are obtained in less bulk and can be stored in sheds in heaps or in boxes and barrels. These manures must be kept quite dry; and during bad weather it is a wise plan to spend a little time reducing such manure to a powdery condition. It will then be of more value when applied to crops in spring and summer time. It is a mistake to apply fowl manure to land in the winter. Artificial manures, concentrated fertilisers of all kinds, obtained now and during the early winter, should be stored in very dry, cool sheds, always on boards, not on stones, bricks or earth.

GEORGE GARNER.

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GARDENING OF THE WEEK

FOR SOUTHERN GARDENS.

THE KITCHEN GARDEN.

Horseradish.—When an opportunity occurs, a portion of the bed of this root may be lifted and the roots graded and stored. The largest should be placed in ashes until wanted for the kitchen, and the smaller pieces laid in temporarily until the time arrives for planting. Horseradish well repays good culture, and a new bed is necessary occasionally.

Chicory.—A few plants should be lifted from time to time in accordance with the demand. Trim the leaves, and place the roots in boxes, working in a little soil as the operation proceeds. Hard forcing is detrimental to this useful salad, and a cellar or mushroom house will be quite warm enough. Darkness is essential.

Vacant Plots.—The successful gardener will now begin to make preparations for another season. All vacant plots can be dug deeply or trenched, the latter being preferable if the necessary labour is available. The surface of the ground should be left as rough as possible, then in the spring it will only need raking down to be ready for seeds or plants.

THE FLOWER GARDEN.

Planting Trees and Shrubs—The present is a suitable time for transplanting trees and shrubs, and if such work is carried out during the next month or so they will soon become established, and moreover will be in a better condition to withstand a dry summer. Where new trees and shrubs are required, a wise selection will be a departure from the usual laurel and privet. Flowering trees and shrubs ought to be chosen, especially those that bloom in July and August, also examples with ornamental foliage, while others characterised by their autumn tints should find a place in every garden where trees and shrubs are grown.

Alterations.—As time goes on the necessity arises for a few alterations or improvements in the flower garden and its environs, and where such work is contemplated it should be completed as far as possible by the New Year, unless extra labour is engaged. With the arrival of January the average gardener has plenty of work on hand, without such extra tasks as described above.

THE HARDY FRUIT GARDEN.

Root pruning.—The best time for this operation is during the next few weeks, and fruit trees that are making a lot of coarse, strong wood and failing to produce fruit require root-pruning. Small trees may be lifted and replanted on the same site, but for larger specimens a trench around the tree will suffice. This should be 3ft. or 4ft. from the trunk, and be of sufficient depth to get to the bottom of the rooting system. All strong roots are severed, and where they are of a thong-like nature with no root fibre they can be cut off near the base of the tree. Make a clean cut with a sharp knife, or later on suckers may be troublesome. Large trees may be partly pruned this season, and next year the circle can be completed. When the pruning is done, the soil is returned to the trench and made firm, but the fibrous roots are kept fairly near to the surface. For plums and other stone fruits, a portion of mortar rubble and lime should be added to the soil before returning it to the trench. It will be necessary to make the trees secure against high winds, by affording each one a stout stake, and this ought to be done directly the root-pruning is finished.

T. W. BRISCOE
(Gardener to W. R. Lysaght, Esq.),
Castleford, Chepstow, Gloucestershire.

FOR NORTHERN GARDENS.

THE KITCHEN GARDEN.

Cardoons, when grown in well manured ground, make luxuriant growth and should be further banked up with earth. This will prevent—to a certain extent—the heavy leafage from being damaged and broken when high winds blow.

Chinese Artichokes.—This root vegetable does not appear to be generally grown in Scottish gardens, and certainly one has to search a good many catalogues before such a name can be found among culinary roots offered for sale. The tubers are white or light straw coloured. In size and shape a tuber might be likened to four or five marbles somewhat jammed and joined together and tapering out at each end. The tubers are usually lifted as required, but a quantity may be taken up before severe weather sets in and stored in a deep box or small barrel among sand or fine soil.

Tomatoes.—In the late houses most, if not all, the plants will be rather bare and shabby-looking, so whatever tomatoes are hanging from the stems should be taken off and placed on a shelf in a somewhat warm house to ripen. The plants should then be cut down and thrown away. The structures when empty should be fumigated with heated flowers of sulphur, especially if disease or white fly has been troublesome; then the woodwork should be thoroughly scrubbed and the glass washed. Work such as this can be done in wet weather.

THE FLOWER GARDEN

Hardy Annuals, such as chrysanthemums, lavateras and nigella sown in the month of May on the hardy plant borders have grown and flowered splendidly. All flower-lovers, no matter how fastidious, appreciate the soft and delicate blue of the nigella or love-in-a-mist, but there is also a charm in the colouring of the annual chrysanthemums when such varieties as Evening Star and Morning Star are viewed in the sunshine of a fine October day. So soon as these annuals are past or become untidy they should be pulled up and cleared away. Other plants to be removed when opportunity offers are antirrhinums, larkspurs, nemesia, sweet peas, etc. Wire-netting pea-trainers and poles which have been used as sweet pea supports should be taken down, properly cleaned and placed in their respective storage quarters.

Chrysanthemums, although late in flowering, have made a fine display, and have supplied us with quantities of cut flowers. To make sure that a stock of plants will be available from which cuttings can be procured in the spring a number of roots of each variety should be dug up now and placed in cutting boxes, filling in old potting soil between the roots, especially of those varieties which may not have been lifted with good "balls," *e.g.*, a quantity of border earth about the roots. Sometimes chrysanthemum roots are merely set in the frames, and this method may answer where only a very few varieties are cultivated.

Rhododendrons, like fruit bushes, etc., benefit from generous treatment, and the present is a good time to apply a mulch of farmyard manure or leaf-mould. Any plants, too, which are being moved during the next two or three weeks should, especially if the soil is poor, be well supplied in their new stations with potting soil, old manure or leaf-mould.

DAVID ARMSTRONG
(Gardener to North More Nisbett, Esq.),
The Drum, Gilmerton, Midlothian.

FOR GREENHOUSE AND CONSERVATORY.

Polygonatum multiflorum (Solomon's Seal).—This graceful plant is very charming for decorative work, its pale green foliage being very pleasing and distinct. Some time next month strong clumps should be placed in pots, afterwards plunging them outdoors until they are required for forcing. This plant is very useful during the spring months for conservatory or room decoration and also for furnishing a supply of cut flowers. Where required in quantity for this latter purpose, the roots should be packed closely together in boxes. If so desired the supply of this plant may be entirely home grown.

Astilbes, too, are very useful for conservatory decoration and may be potted up any time next month. Where required for house decoration, it is an advantage to get them into fairly small pots, but 6in. is as small as can be safely used. If intended solely for conservatory decoration, it is an advantage to have them in larger pots. 8in. being a very suitable size for the clumps that are usually purchased. In the larger sized pots much better results are obtained as astilbes are free rooting plants and demand ample supplies of water when they are growing.

Astilbe japonica (syn. Hoteia japonica) and some of its varieties are largely used for forcing purposes, their white flowers being useful for decorative work. A. Thunbergii is also used in the same way. There are now many new coloured hybrids of which some at least should prove useful for pot work. Two pink-flowered varieties, viz., Queen Alexandra and Peach Blossom, have been largely grown during recent years.

Spiræa palmata, with its brilliant coloured flowers is very useful for the same purpose and is treated in the same way as the astilbes. After potting they should be plunged outdoors until such time as they are required for forcing.

Brodiæas are more or less hardy in favoured situations, but being mostly natives of California they are impatient of damp during the winter. They are easily grown in pots, succeeding in any good potting compost, and are worthy of more general cultivation for the small unheated greenhouse. They should be potted up in pots or pans at this time and may be stood in a cold frame until they come into flower, when they should be removed to the greenhouse. Water should of course be carefully afforded until they have made a quantity of roots and have started to grow. Some of the best species for this purpose are BB. capitata, coccinea, grandiflora, Howellii, ixioides and volubilis.

Paper White Narcissus and **Roman Hyacinths,** if potted during August, should now be well rooted, and, according to requirements, a portion of them may be introduced to a warm house. Both these plants respond readily to forcing and come on quickly in a temperature of 60° to 65°, but in common with all plants used for forcing, it is wise to start them gradually in a lower temperature for a week or so before placing them in the forcing house.

Freesias should be given plenty of air on every favourable occasion, for if kept too close the growth will be drawn and weak. Suitable supports should be provided in plenty of time, for if the growth is allowed to fall over it never seems to recover properly. If so desired freesias may be had in flower at Christmas, but it is at the expense of quality and the well-being of the plants, for they are always best when grown under perfectly cool conditions. J. COUTTS.
Royal Botanic Gardens, Kew.

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ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

About Antirrhinums and a Lily (F. W., Hull).—The antirrhinums were attacked by a fungus, commonly called black rot. Clear away all stems and roots and mix with the soil fresh lime at the rate of 6oz. per square yard, digging it in. Do not grow these plants nor annual asters in that border next year. The onions and leeks have split at the base and decayed, or decayed without splitting, owing to the excessive moisture in soil and air this season. The plants are too sappy, not matured in the normal way. Similar trouble may not arise for many years. The lily is, judging from the description, Lilium speciosum gloriosoides and should be treated in the same way as Lilium candidum.

Tropæolum speciosum (W. A., Dumbarton).—It is not common, but we have seen a young shoot growing from a flower-bud of this plant. Cut off and placed in a pot containing sandy soil and covered with a bell-glass, the shoot would probably root, but the probability is that all the flowers would be normal. If you take off several inches of the apple tree growths now, the remaining portion will thicken up and give better wood for winter pruning.

Crinums (T. D. H.).—The best time to lift and replant crinum bulbs is at the end of March, but should the weather be unfavourable at that time, it may be done with safety early in April. The bulbs require to be planted fairly deep in a rich loamy soil, with plenty of good drainage provided. A sheltered south border, preferably at the foot of a wall, is requisite for success with crinums in the open air.

TREES AND SHRUBS.

Berberis Darwinii Hedge (E. F. W.).—Plant 18ins. apart, and nip out the points of the young shoots freely for a couple of years to form a good foundation to the hedge.

Wild Garden (E. F. W.).—Your general scheme appears to be a good one. Laburnums, the Double Pink and Double White Rubus (brambles) and Spartium junceum might be added to the middle group also the wild roses. Hypericum calycinum and the vincas should find a place among the dwarf shrubs and the white birch is valuable in groups or singly.

Climbers for Arch (W. F. N., Birmingham).—The wistaria and Clematis montana are too vigorous in growth to confine to the arch you describe. Honeysuckles would be suitable. Plant Lonicera belgica (early red Dutch) and L. serotina (late red Dutch) one on either side, or if an evergreen is preferred, plant Lonicera flexuosa and L. Halliana. An alternative would be one of the jessamines, Jasminum nudiflorum, yellow flowers in winter, or J. officinale, white flowers in summer.

To Preserve Rowan Berries (Miss J. H.).—To preserve these berries whole, fresh and as natural as possible for Christmas decoration, gather when quite dry and place them in this dry state in glass jars, filling up the latter with dust-dry clean sand. Make the jars air-tight and store in a cool, dry cellar or similar place. An alternative way is to place the berries in the jars as above and, after making them air-tight, bury the jars in dry sand 6ins. deep in a cellar. In the open ground there is too much moisture or variation of it.

Shrubs for West Scotland (A. B. C.).—The following twelve flowering shrubs should prove hardy and satisfactory in a town garden in the middle west of Scotland: 1, Ceanothus Gloire de Versailles; 2, Viburnum fragrans; 3, V. Opulus; 4, Hypericum patulum; 5, Deutzia gracilis; 6, Potentilla fruticosa; 7, Spiræa bella; 8, Garrya elliptica; 9, Buddleia variabilis; 10, Skimmia japonica; 11, Pieris floribunda; 12, Rhododendron Pink Pearl.

Scotch Pine Twigs (A. H. H. M.).—These appear to be attacked by a fungus, possibly Hysterium Pinastri, but the material sent is insufficient for definite determination. In addition to a good spray, include a double handful of newly fallen needles, both from the old and young shoots, collected under the trees.

THE GREENHOUSE.

Iris tingitana (L. S. S.).—Iris tingitana can be flowered in pots in a cool house from which frost is excluded by planting early in October freshly imported bulbs obtained from some reliable firm. The soil should be light but rich, with some old decayed manure and made porous with lime rubble. After planting plunge the pots in ashes out of doors but do not cover them as the bulbs will begin to grow almost at once. When sharp frost threatens, they should be taken under glass. I. chrysographes requires rather moist, cool soil and sun. Holly can be struck from cuttings with a heel under a handlight out of doors though the cuttings root more quickly in mild heat.

ROSE GARDEN.

Rose Rust and Black Spot (M. S.).—The leaves sent indicate that the bushes are badly affected by the rust and spot, respectively. Cleanliness is essential now; all leaves fallen and shaken off should be gathered up and burned, also weeds. Spray both foliage and surface of soil with a solution of sulphide of potassium at the rate of 1 oz. to 2 gallons of water. Treat the plants in the usual way during the winter; prune severely in March and again spray with the sulphide solution just before the flower-buds form.

FRUIT GARDEN.

Treatment of Pears (Chelmsford).—Good late pears of first class flavour are: Duchess de Bordeaux, in season until March. Is a somewhat slow grower, but usually crops well. Nec Plus Meuris, in season until March; the fruits are small, but excellently flavoured. Buerré Rance, a good grower and cropper, the fruits being large and highly flavoured, in season December to March. Olivier de Serres, a good grower and cropper. Not striking in appearance perhaps, as the fruits are mostly flattened and apple-shaped, but the brisk musky flavour is very attractive; keeps till April. All these need to be grown well and generously treated—by mulching, etc.—and in some districts they need a warm wall to finish well. When not well finished, the flavour and quality may be anything but first-rate, and the same with all late pears. If only one late pear is to be grown, and a wall is not available, then perhaps the best kind is Josephine de Malines. The fruits are in season until May and are not difficult to keep in condition. It is a regular cropper and hardy grower, the fruits being smallish, greenish yellow, very juicy and deliciously flavoured. Bergamot d'Esperen and Zephirin Gregoire are both good late kinds too.

KITCHEN GARDEN.

Rust on Celery (G. C.).—Celery plants, generally, have been much infected with rust on the leaves this year. It is a fungus carried through the seeds, and cultivators should obtain a guarantee from the seedsman that the seeds have been duly treated. Sprinkle dust-dry lime on the foliage now after removing and burning the worst ones. Plant in another part of the garden next year, lime the ground in winter, use soot in spring and Bordeaux mixture on the leaves as a preventive in the summer.

Club-Root (F. B.).—A sour condition of the soil, the free growth of charlock on the ground into which it has from time to time been dug and the absence of lime in the soil, also the cultivation of these plants year after year on the same plot will result in club-root. The remedy will be obvious. The spores rest in the soil for several years. One application of lime is not enough. It should be applied yearly at the rate of 6oz. per square yard and soot in early spring at the rate of 1 peck per square rod.

MISCELLANEOUS.

Various Questions (J. M. G.).—Yes, if the narcissi referred to were allowed to mature their foliage, the bulbs should flower again next year. The bulbs may be left in the ground for another year, but if it is necessary to lift the bulbs, this should be done after the foliage has died. Tradescantia virginica and T. cærulea belong to the same section. Both Potentilla atrosanguinea Gibsoni and P. nepalensis Miss Willmott require the same cultural treatment.

Nasturtium Seeds (E. G. C.).—We have never heard of nasturtiums being made into jam. For pickling, the seeds are gathered when quite young and a small proportion of very small flower-buds mixed with them. Dissolve 1½oz. of salt in a quart of pale vinegar and put in the green seeds and tiny flower-buds day by day as they come to the proper state. It is all done cold—no boiling.

Cuckoo-spit (Miss H. C.).—This insect is known also by the names of froth-hopper, frog-hopper and froth insect. It sucks the sap from the plants, and the frothy matter is the excrement. The larva is here referred to. A solution of Sanitas syringed on the plants weekly will act as a preventive, and should be used early enough in the spring. There are directions on each bottle of Sanitas to enable the user to mix the liquid. A suitable strength will kill the larva if any are found on the plants.

Garden Rubbish (Enquirer).—The ashes from leaves, twigs, trimmings of all kinds and weeds are very beneficial for practically all garden crops. The best way to deal with such rubbish is to build a refuse burner in a corner of the garden. The burner is easily made by first forming a hole 1ft. deep and 3ft. across; a single-brick wall is then built round the hole to a height of 2ft.—mortar is not used, and spaces 2ins. wide are left between the bricks. On one side, near the ground level, an opening 1ft. square should be left for convenience in lighting the fire. Place a few old iron bars across the hole in the ground for the rubbish to rest upon. A draught will thus be ensured. The ashes should be kept in a cool dry place till required for use from time to time. Wet ashes lose 50 per cent. or so of the potash. The lily stems should be allowed to dry before being cut down.

Names of Plants.—(Insignis).—1, Euryops virgineus; 2, Sedum sarmentosum variegatum; 3, Lindera glauca; 4, Teucrium Chamædrys; 5, Olearia macrodonta.

CATALOGUES RECEIVED.

Messrs. Gavin Jones and Ingwersen, Letchworth.—Alpine and Hardy Plants.

Messrs. Sheppards, Shawhurst Nursery, Hollywood, near Birmingham.—Hardy Plants.

Mr. Robert Gibson, Sutherland Road, Manaia, Taranaki, New Zealand.—Daffodils.

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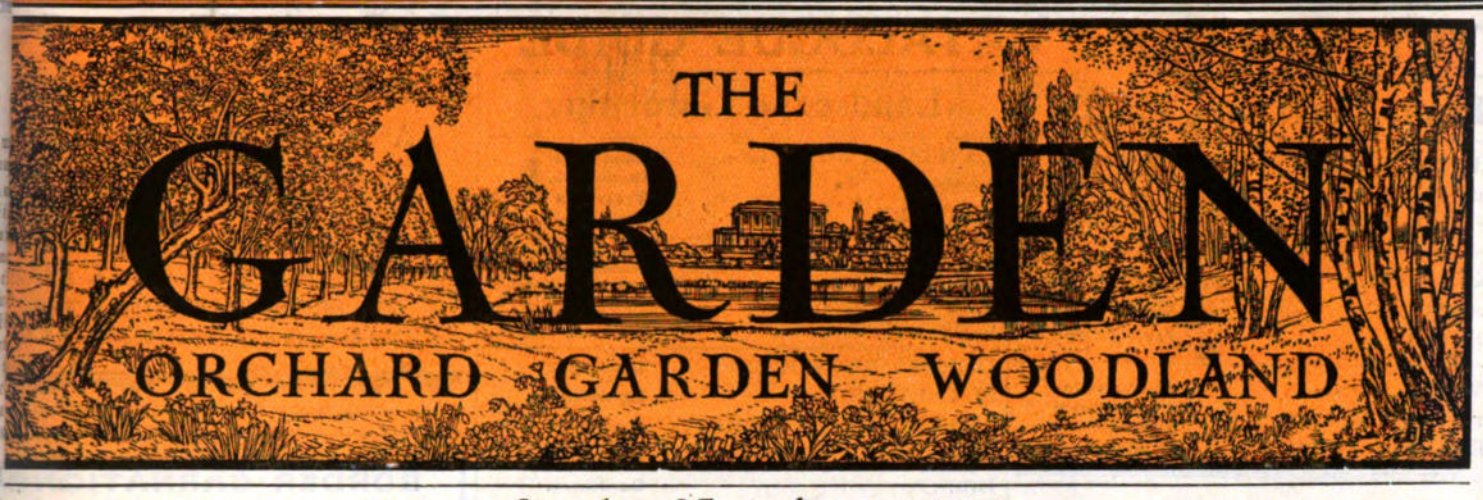

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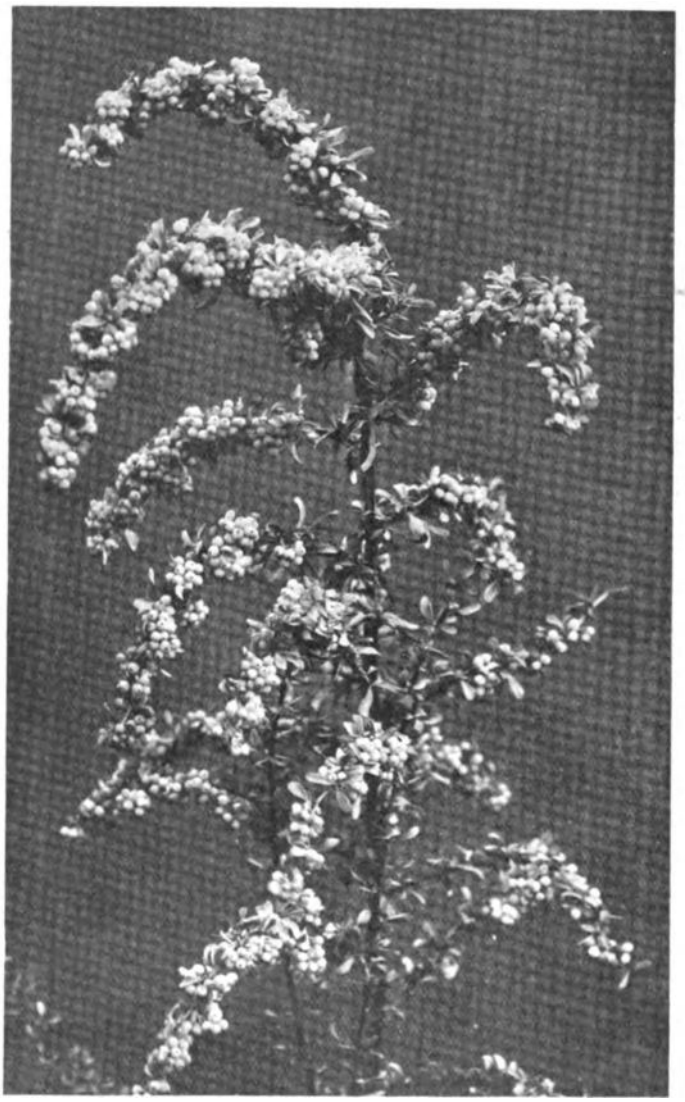

BERBERIS × FIREFLAME, IN HABIT TAKES AFTER B. STENOPHYLLA. THE BRANCHES ARE FAIRLY SLENDER AND AS CAN BE WELL SEEN THEY ARCH AT THE TIPS. IT BEARS DENSE CLUSTERS OF SMALL OVAL BRIGHT RED BERRIES. THE LEAVES ARE OF A BRIGHT GREEN IN COLOUR. IT IS ONE OF MANY FINE NAMED HYBRIDS.

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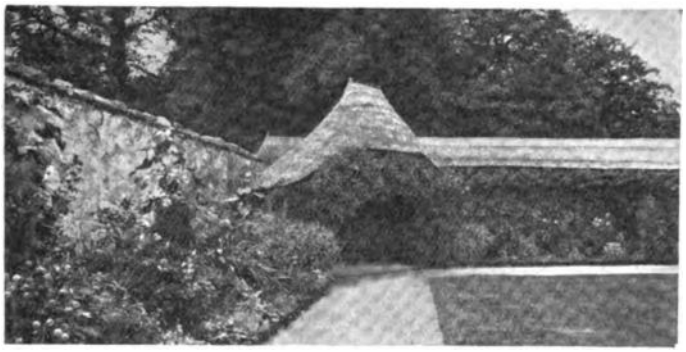

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IMITATING NATURE

MY article the other week on labels has obviously caused a considerable amount of interest from the number of letters which have been received on the subject. Several will be found in the Correspondence pages of the paper, but one I am quoting in this editorial, as the writer has introduced another debatable point which affects the ethics of gardening. He says—

I read your leading article to-day with sorrow. I refrained, with difficulty, from joining in the correspondence of a few months back, but now I must write—or bust.

You say "labelling is a necessity for all who aspire to rise above the beginners' class in gardening." Surely you meant to say "labelling is a necessity for the beginners' class."

To me labels in the garden are *anathema*.

The rock gardener endeavours to persuade himself that he is imitating nature—a presumptuous supposition—and you endeavour to persuade him that he must label his beloved friends.

So we should (and *do*, unfortunately) have to endure the dreadful sight of a "mountain side" or a "moraine" or an "alpine lawn" stuck all over with horrid little bits of stick or zinc, or celluloid; spoiling the natural appearance of the garden, advertising the gardener's lack of memory, or, still worse, indifference.

My rock garden is small, but I am thankful to say I have over two hundred children therein—none is labelled and none is forgotten—and I should think shame of myself if I thus advertised my carelessness and spoilt the natural appearance of their home.—GILBERT WHITE.

Now, apart from the rights and wrongs of labelling—and I should like to state here that our correspondent must have a very remarkable memory, for it is impossible to name many of the saxifrages, sedums, sempervivums and primulas when out of flower without a botanical examination—this letter brings to the fore the very debatable question whether any garden should imitate nature.

First let us take the concrete side of the matter. Where in nature, except in a few particular spots to be counted on the fingers of one hand, can you find twenty different plants, let alone two hundred, growing side by side within an area of a few yards? Plants from their nature are gregarious and there is no room for numbers of species. From my own experience I know only of one case of a solitary plant in an area and that was Viburnum Wardii; I believe that Rhododendron auriculatum was also found in a solitary state, but these are examples which only prove my point, for they are so noticeable as to remain fixed in my memory, and yet in a rock garden, and particularly a small rock garden, large colonies of the same plant are the exception, however desirable they may be.

This, however, is a minor point; what is important is that it is impossible in most gardens to imitate natural conditions under which a plant will flourish. As the main object with most of us is to gain the best results from plants under cultivated conditions, it is obvious that cultivation, and so results is the most important thing in the modern garden. Naturally we try to show off our plants to the best advantage and to show them off in something approaching natural conditions, but to imitate slavishly a mountain side, or an alpine lawn, is to court disaster.

The æsthetic point of view is just as important. Half of the enjoyment in seeing plants in their native element is because they *are* in their native element. We are on holiday when we see them, they have a worthy background, we are exhilarated by the fact that they are not in a garden. Even then some of their natural situations are not perfect. No one could call a moraine beautiful. It is a pebbly place that makes a noise like a stone crusher when you walk on it—but it happens to be the home of some very lovely plants. One does not manufacture a moraine in the middle of the rock garden to look at, but to imitate conditions under which these particular plants will grow.

In the short space of this article it is impossible to write at the length which the subject requires, but surely an ordinary garden is not designed to imitate nature as our correspondent suggests. We do try to make our gardens appear natural, but natural implies a different meaning from "imitating nature."

But, after all, this argument is settled by the simple statement that a garden is no place for the extremist. There is always a happy mean to be found where the cultivation of plants is satisfactory, their setting is satisfactory and the general picture is satisfactory. It is those who do not try the impossible who are most successful, and Nature is an impossible being to copy.

Incidentally, I should like to point out that I disagree absolutely and entirely with our correspondent's view upon labels. Ordinary people are not gifted with his memory, and for most of us plants are the important thing, not the garden. There is nothing so annoying as to forget the name of a plant when one is asked. E. H. M. C.

IN OUR NEXT ISSUE WILL BE FOUND:

SEMPERVIVUMS IN THE CANARY ISLANDS, by Dr. R. Lloyd Praeger.

BORDER CARNATIONS FOR AUTUMN PLANTING, by Norman Lambert.

FRIENDS AND FOES OF THE GARDEN—II, by Clifford W. Greatorex.

SHOWS AND SCHEDULES, by Edwin Beckett.

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APPLES AND PEARS

BY EDWIN BECKETT.

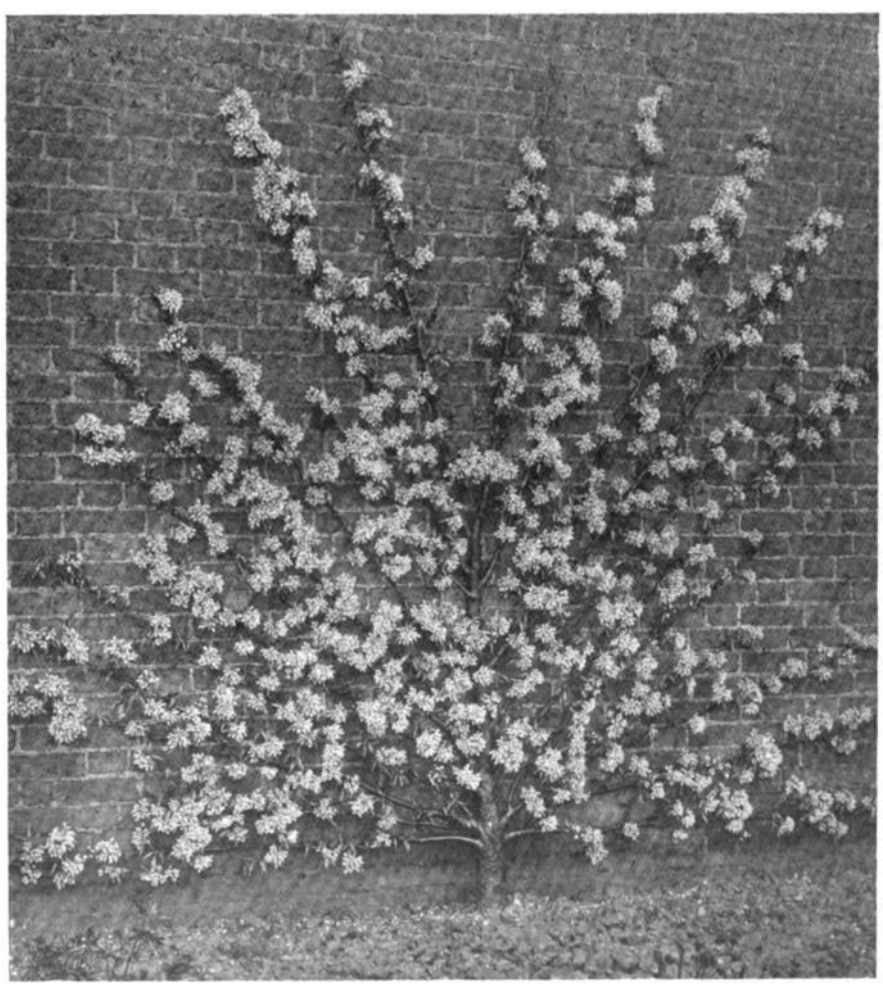
IN THIS ARTICLE MR. BECKETT BRINGS FORWARD SOUND ARGUMENTS FOR THE GROWTH OF MORE HARD FRUITS IN THIS COUNTRY. HE IS STRONGLY IN FAVOUR OF EVERY FARM, GARDEN AND ALLOTMENT PRODUCING ITS QUOTA OF FRUIT.

WHEN considering the many aspects of the fruit-growing industry in this country, one is forced to a definite, though disappointing conclusion in one direction, to wit, that the efforts made in the way of raising hard fruits are not of the magnitude that this important branch of horticulture deserves. True it is that competition from abroad, particularly from the Colonies, is severe, as witness the large annual imports; true also that, probably, economic and climatic conditions are more favourable to our competitors; yet the fact remains that we ought to make greater endeavours than we do, particularly with regard to apples and pears. As this number of THE GARDEN is to be partly devoted to fruit, it will perhaps be as well to consider the problem from one or two directions in which progress could well be made with fair rapidity, and with profit to the enterprising. These may be summarised under the general heading of Home Growing, of which we will briefly consider two or three branches.

It is not so many years since a well furnished orchard was considered an important part of the routine of a well managed farm with an all-round programme; nowadays, alas! this important feature is more frequently missing than in evidence, and the farm orchards that one does see while travelling up and down the country are too often ill attended and lacking in quality. So much for condemnation in one quarter. Surely our British farmers are losing a fine chance of a profitable side line, one that would prove an ideal way of employing some of those minor waste areas close to the majority of farm houses that are generally only used for scratching grounds for domestic fowls, and which could still serve this purpose while carrying a proper burden of apple and pear trees, to say nothing of plums and similar soft fruit allies. If the farmers would only consider more seriously this suggestion, it is certain that they would gain an offset against those otherwise bad seasons so frequently bemoaned by them. During the past few years it has been my pleasure to arrange such orchards at farms in and around this district, and the results that are now being attained are splendid, despite the comparatively short time since the efforts were started, and the promise they hold for the future is magnificent.

The same thoughts can well be digested by the increasing, and, it is hoped, ever increasing, army of smallholders, to whom this should also prove a good source of livelihood.

Now let our remarks be directed to another large group, the workers of allotments, the tenants of cottages with reasonable-sized plots attached thereto, and the possessors of small gardens. These, too, also neglect their opportunities frequently, for it is really surprising how few gardens carry any fruit at all; and again, what a good quantity can be got into a comparatively small space. Methods and forms of planting will be dealt with later, the effort for the moment being the urging of all to consider seriously the call to do more growing of these beneficial fruits. Allotment committees, forward for one moment, please! Are you doing all that you can in this direction? Looking at the various allotment grounds, the answer cannot be in the affirmative, so, where you have a reasonable security of tenure on your areas, see to it that each plot carries its fruit tree for the benefit of the plotholder, and guard, tend and treasure them well, for they will all aid this country in keeping money at home instead of sending it abroad. So far as the small garden owner is concerned, he also can follow the lead. Some do, to a surprising extent, for only this past week I witnessed a remarkable instance where, in a town front garden of only a few feet depth (backyard practically nil!) a standard apple tree stood, carrying a heavy burden of good-looking fruit. What an example it might well prove to the local municipal authorities, who, incidentally, had planted up scores of their roads with the rather uninteresting Cornish elm. On the Continent (particularly, I believe, in Germany), town-governing authorities do not hesitate to line out their roads with fruit trees, which the inhabitants carefully guard from depredation; so why should not our "City Fathers" take a leaf out of the book of those thoughtful householders, and plant fruit trees for a change? Apart from the utility point of view, what could be more beautiful in flower than apple and pear trees in spring? Let us hope that this may act as a hint to town-planning experts!



ANYONE WITH A WALL TO HIS GARDEN CAN HAVE A TREE SUCH AS THIS. IT IS WELL TRAINED AND AT FULL BEARING POWER.

Having now decided that increased growing can and will be of all-round benefit, let us consider some of the prime needs of such effort. The most important point is to settle just what varieties do well in particular neighbourhoods, for this rule of certain

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districts suiting certain varieties apparently holds good throughout the bulk of horticultural subjects, from the potato (a very striking example) to the pear tree. It will be found with fruit trees for instance, that where, say, a Worcester Pearmain apple will do excellently in one locality, fruiting well and of good quality, in another it may prove a miserable failure year after year, both in quality and quantity, and county authorities should seek permanent data on this point for ready reference by the public in their areas, and keep such information up to date. The first advice, therefore, to those who would go in for apple and pear growing is to ascertain the best sorts in their own neighbourhood. This particularly applies in regard to old varieties. It is very pleasant to be able to point to a young tree of a new variety, bearing a few fine fruits in the vigour of its youth, and proudly say, "There's a fine tree of Xmas Pippin, a new sort, only sent out in 1922"; but age, after all, is the supreme test, and though, almost annually, controversies arise on the lines that there are too many varieties, yet, in some of the bad years, the supposed redundant sorts prove their value over and over again by yielding under most adverse conditions, and especially has this been the case this season.

Point No. 2 is the source of supply, and here the advice is principally for the small grower, for whom THE GARDEN has been doing so much recently. Do not buy an apple tree off a street vendor's barrow, merely because it is low priced (not necessarily cheap in the end!), but get your trees from a reliable source—one which you can depend on first-class material, true to name—for, like most other things, there are fruit trees and fruit trees!

We will make the third consideration the sort of tree to select, though perhaps this should have been No. 2 on the list. Limited areas call for smaller-growing forms, and according to space available so can be chosen standards, half-standards, bush or pyramid forms, and lastly, trained trees and cordons. A small garden could, perhaps, carry three or four nice shapely bushes, or pyramids, where one large standard might prove far too spreading; or, again, another area could well support a couple of good trained trees along a path or against a wall or fence, or perchance six to a dozen cordon specimens. At Aldenham, where our soil is cold and heavy, some of our most prolific bearers among pears are trained trees and cordons.

Mention of soil brings us to our fourth detail—planting. Consideration of this is too frequently neglected, for all care should be used over it. Roots, for instance, should be examined for any that are damaged, and such should be removed by a sharp knife-cut made above the damaged portion, cutting from the underside upwards and outwards. The planting position should be well prepared by trenching or digging, a very necessary point in heavy ground, for proper drainage for the escape of surplus water is essential, and thus the hole should be got ready for the reception of the plant, allowing ample room to spread the roots out level and carefully. When this has been done and the tree held in position, cover the roots with the finest of the soil, working it well in round the roots, and then add the rest of the soil, tread firm, and finally place the firm stake to which to tie the tree in order to prevent it swaying in the wind, a happening which would unsettle and loosen the roots, to the harm of the tree. Do not plant too deep, a very necessary caution the heavier the ground. It is an error frequently made but the endeavour should be to keep the roots well up to the surface. Often good trees are badly handicapped and even killed through too deep planting. Should the site be very heavy and inclined to waterlog, the trees would be better planted on the mound system, if possible—that is, roots placed just above surface level and soil banked over them in mound shape, thus greatly assisting drainage in case of inundation.

Pruning, a very necessary part of a good tree's career, is something that must be learned according to the varieties grown. The final point to be urged is, do not forget to give the trees a good drink during a dry spell, for an apple or a pear tree requires this just as much as any other vegetation, especially when carrying its fruit. If neglected at the latter time—well, look out for the fallen fruit round the foot of the tree, for that will be the result of such neglect.

Let us again press the necessity of growing more fruit, particularly hard fruit. It matters little whether you possess a walled garden, a plot, or an allotment, there is always room for a fruit tree or two. It is not so necessary for a farmer to copy his brethren in Ontario—where they rely chiefly upon three things for the family income: hogs, cheese, apples—for such an arrangement is impossible in many parts of this country owing to climatic differences, but it seems to us ridiculous that many a family, who live in the country and have a sufficient area of ground, journey to the nearest town and bring back imported fruit on which to regale themselves, and yet this is a common occurence just now. Perhaps many of us are allowing our palates to be dulled by eating inferior fruit, but there is nothing in the world to equal a good home grown apple or pear.

IT IS NOT SO MANY YEARS AGO THAT A WELL FURNISHED ORCHARD WAS CONSIDERED AN IMPORTANT PART OF EVERY FARM. IT SUPPLIED THE FAMILY WITH FRUIT WHICH IS NOW IMPORTED FROM OVERSEAS.

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PRIMULAS WHICH ARE OUT OF THE ORDINARY

A FEW PRIMULA SPECIES WHICH REQUIRE DIFFERENT METHODS OF CULTIVATION FROM THOSE USUALLY MET WITH IN GARDENS. THEY ARE ALL WORTHY OF BEING GROWN.

FROM the large and beautiful family of primulas, I describe several members below, which for various reasons are uncommon in gardens, principally on account of their being rather opposed to the conditions, climatic and otherwise, they are subject to in this country. Primulas, generally speaking, are of a good temperament, and for a certain amount of care give ample enjoyment and satisfaction as the result. But it is with those species that need coaxing that I intend to deal, because I certainly believe they are worth the extra trouble and patience that is so necessary for their well being.

PRIMULA CHIONANTHA.—Here we have an attractive Chinese native belonging to the "Nivalis" section, a plant of moderately easy culture in a moist rich loam. Its leaves are long and narrow, of a dull green, the underside is heavily coated with golden meal, as is also the handsome flower spike. The flowers are large, starry and white, deliciously fragrant and are produced very freely in whorls, the spike, carrying several tiers at close intervals, runs up to a foot or 18ins. high. Seeds are plentiful and germinate readily. I believe partial shade to be suitable, although this summer (if I may term it such), I was surprised to see a most lovely specimen, with a flower spike in seed, nearly a yard high, growing on a hot sunny slope.

P. FORRESTII is a species that is very uncertain about coming through our winter, although it will and does do if it is afforded the most ideal conditions. Winter wet, which it simply detests, is the only knotty point in its cultivation, so, to avoid this as far as possible, it should have a perfectly drained soil and a hot sunny crevice. It is a limestone plant, coming from the limestone cliffs of western China. In appearance it resembles the polyanthus, with stout crinkled leaves and a sturdy erect flower spike 9ins. high, atop of which its flowers are borne in a dense head of an intense orange colour, and particularly notable for their fragrance. Similar in habit to this, we have a yellow version in P. rufa, of a more hardy constitution and easier of management.

P. NUTANS, FROM A PHOTOGRAPH TAKEN BY GEORGE FORREST IN CHINA.

P. WINTERI.—When practically very few flowers exist in the open, that is in mid-winter, this fine species appears at its best, carrying, for several weeks, quantities of sumptuous, large, golden-eyed lavender blossoms, singly on stems 3ins. high, emerging from a compact mass of handsome pale green leaves in the shape of a rosette. Both leaves and flower stalks are enveloped in fine white meal. The plant requires a moist, shady position, protected in winter from excessive overhead wet in a compost of fibrous loam, peat and sharp silver sand; good drainage is also essential. Summertime is the critical period for this plant, as it falls an easy victim to the red spider, so that a position that is cool, moist and shady in summer is the one to be selected. It makes an ideal alpine house plant where it can remain throughout the winter, turning it out into a cool corner during the summer.

P. REIDII has the reputation of being one of the loveliest of its race, although it is by no means of easy culture, requiring abundant moisture during the growing season and equally as little in the resting season. A gritty mixture of peat, leaf-mould and sand, including chips, should prove beneficial to the plant. It is of a dwarf habit, with oval leaves clad with silky hairs and powdered mealy flower stems not exceeding 6ins., from which dangle its large ivory-white, bell-shaped blossoms. Also a good plant for the alpine house.

P. LOCZII.—This Tibetan species is desirous of moist, spongy compartments of leaf-mould, peat and sand. It succeeds well at the edge of a bog, failing this a half shady aspect would be advisable, but it yields fairly readily to cultivation and where it is happy soon makes a mat. In flower it resembles P. farinosa or P. frondosa, yet it is devoid of farina and makes a small rosette of bright green leaves, from which it throws out numerous runners like a strawberry. These are usually a few inches long, quite prostrate, the tips open out into separate rosettes and take root readily, so that propagation is an easy matter once the plant thrives.

P. LUTEOLA.—Although this species has been in cultivation over half a century it is rarely seen in gardens, for some unknown reason, not that it is hard to grow, nor because it is not beautiful. Its leaves are long and narrow, toothed and free from meal, and the flower stalks are about a foot high, headed with a round mass of most lovely citron-coloured blossoms. A rich compost of fibrous loam is most suitable, in partial shade where coolness at root is catered for; there the plant should easily thrive and form a clump, which, as required, may be divided with advantage. It is a perfectly hardy species from the Caucasus.

P. SECUNDIFLORA is a charming Chinese species, suitable for a cool, well drained position in half shade, with a deep rich mixture of peaty loam. Its flowers are of a deep port-wine shade, with a still darker purplish bloom on the outside. The flowers are large and bell-shaped, as in the better known P. sikkimensis, and are produced in a loose head on a 12in. stem. The leaves are handsome and erect, long, narrow and finely serrated, of a deep glossy green colour. Seed is profusely set and germinates readily.

P. NUTANS.—A most lovely introduction belonging to the grape hyacinth tribe, with long, oval leaves covered with short, fine hairs, and flowers of a deep violet and of a large type. A cool, deep pocket of peat, leaf-mould and sand in semi-shade should suit its requirements. Up to the present it is very little known, but no doubt there is a future before it.

F. BARKER.

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WINTER PRUNING OF SHRUBS

THESE NOTES WILL BE OF GREAT ASSISTANCE TO OUR READERS WHO WISH TO IMPROVE THE APPEARANCE OF THEIR SHRUBS. PRUNING DOES NOT MEAN THAT THE PLANTS LOSE THEIR INDIVIDUALITY.

THE increase in the popularity of the outdoor garden during recent years is nowhere more apparent than among hardy shrubs. What a contrast the shrub beds and borders in some large private gardens and public parks provide to-day when compared with those of twenty-five or thirty years ago. We also find the interest in choice flowering shrubs extending very widely in small gardens. Uninteresting borders of privet, laurel, aucuba and perhaps a lilac or two are giving place to showy deciduous and evergreen flowering shrubs.

Following in the wake of these extensive plantings in a wide variety of shrubs is the necessity for an intimate knowledge of their nature and habit. At no time is this acquaintance more important than when pruning has to be done. The size, habit and season of flowering must each be considered.

Taken in a general sense, the object in pruning flowering evergreen shrubs is different from that of flowering deciduous shrubs. There is no necessity, for example, to prune the evergreen berberis, B. Darwinii or B. stenophylla and the named hybrid rhododendrons to improve the size and quality of the blooms. If they need pruning at all, it is usually to prevent the bushes growing too large for their positions. In such cases it often means extra hard pruning in spring and sacrificing a season's flowering.

In a broad sense the deciduous flowering shrubs may be divided into two main groups: (1) Those that produce their flowers on the wood made the previous year and (2) those which flower on the new shoots of the year. In cleaning and forking through the borders and beds of shrubs during the winter these two types or groups of shrubs will require quite different treatment. The best time to prune most of the shrubs constituting group one—which includes deutzia, philadelphus, kerria, diervilla, Cytisus purpureus, forsythia and cydonia—is immediately after flowering. Assuming this was done, these will be passed over as the winter's work proceeds, unless a shoot here and there needs shortening to maintain symmetry or because they happen to be encroaching on a neighbouring bush.

Among the most important families of hardy shrubs to be pruned during the winter are the late summer and autumn flowering spiræas and ceanothuses, Hydrangeas paniculata and arborescens, colutea, Buddleia variabilis, Tamarix pentandra (Pallasii var. rosea), Spartium junceum, Cytisus nigricans and numerous shrubby clematises.

Just as the pruning of roses is left until the end of March or early April to defer the growth of new shoots which might be damaged by frosts, so we usually leave the pruning of any shrubs at all tender until March; notably the varieties of ceanothuses and hardy fuchsias, the growths of which are generally killed back some distance in most winters.

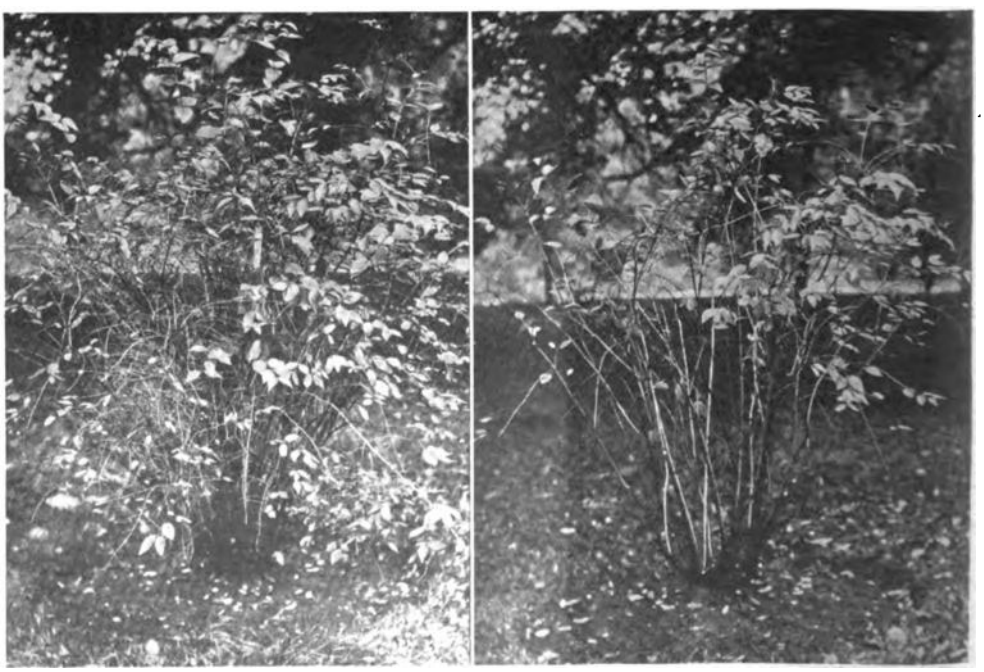
There is also usually a certain amount of what may be called general pruning and thinning to do. The ideal borders and beds of shrubs must not be crowded. Hence without harm to the individuality of a shrub it may be necessary to curtail a little the size of a plant and to regulate the shape with the object of preventing encroachment on a neighbour.

Almost equally impressive as the wonderful collection of shrubs at Aldenham to visitors, must be the very close attention given to their pruning. This part of the work I know the Hon. Vicary Gibbs considers very important.

There is another class of shrubs the pruning of which we are apt to overlook. I refer to the cotoneasters, the viburnums, the rose species and the berberises grown for their fruits. These cannot be pruned after flowering because we leave the branches to mature the attractive fruits. In winter, hard pruning after the fruiting period would mean the removal of the best flowering growths. Pruning with these and similar shrubs consists in the thinning of the bushes by the removal of the oldest growths, shortening also if need be a few of the longest shoots to improve the shape and appearance of the plants. In some gardens stress of other work in summer prevents adequate attention to the removal of old flowering wood at the proper time from the philadelphuses and diervillas, for instance, this also being done during the general clean up in winter.

In reviewing the most important shrubs requiring definite methods of pruning during the winter and early spring, it will facilitate reference to take them in alphabetical order.

The best forms of Buddleia variabilis are among the most showy late summer and autumn flowering shrubs. The largest flower panicles are obtained when the previous year's growth is pruned fairly hard back each winter, giving vigorous new shoots the following summer 5ft. to 6ft. or more in length. In sheltered sunny positions two species of caryopteris are pretty in autumn, C. Mastacanthus, an old favourite from China with violet-blue flowers, and C. tangutica of quite recent introduction with rather darker flowers and a more spreading habit. Considerably shorten the previous summer's shoots with the idea of securing vigorous new growths. Cultivated as bushes, the named hybrid ceanothuses—Gloire de Versailles is the best known—mostly of Continental origin, are particularly showy planted in groups along the fronts of sunny shrubbery borders and lawn beds when not much exposed to winds. With these, again, fairly liberal annual pruning and thinning, removing weak wood, is desirable. Cultivated as wall shrubs when the plants have covered the allotted space pruned specimens give much larger inflorescences. Though only of a semi-shrubby character, the heracleæfolia or tubulosa group of clematis are usually grown in association with shrubs. In addition to typical C. heracleæfolia, C. stans and the beautiful C. Davidiana, a number of hybrids have been raised on the Continent by M. Lemoine of Nancy. The pruning consists in cutting back the growths to firm stems; this in severe winters usually means down to the ground.



A PHILADELPHUS BEFORE AND AFTER PRUNING.
In this case pruning should take place immediately after flowering.

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The bladder senna, Colutea arborescens, is a fairly frequent occupant of the shrubbery, and unless regularly pruned soon becomes tall and unwieldy. Most of the cytisuses (brooms) only require stopping or pruning in a young state to make bushy plants. One notable exception is Cytisus nigricans. This flowers from midsummer onwards. When pruned before new growth commences in spring the bushes develop a wealth of long terminal racemes of yellow flowers. In few hardy shrubs is the value of hard pruning more evident than in the Hydrangeas paniculata, the variety grandiflora and arborescens var. grandiflora. Spurring back the previous year's shoots to within two or three eyes of the old wood induces the production of vigorous new shoots with large flower-heads. All the shrubby hypericums are improved by annual shortening and thinning out the weak shoots in winter.

In sunny positions and well drained soils the varieties of the tree lupin, Lupinus arboreus, are useful shrubs to flower in June and July. The quality of the blossoms is very considerably improved by liberal shortening of the branches before new growth is due to start in spring. The golden elder, Sambucus nigra var. foliis aureis, so much used in shrubberies for the rich golden colour of the leaves, attains its greatest beauty with hard pruning.

The loose straggling habit of Spartium junceum is overcome by a free use of the knife, especially when the plants are young. In no family of hardy shrubs is the value of winter pruning more evident than in the summer-flowering spiræas of the japonica group, which includes Douglasii, Menziesii and salicifolia, also the Sorbaria section to which belongs Aitchisoni, arborea, Lindleyana and sorbifolia. Pruning of the first group consists in shortening the vigorous young growths, the removal of old flowering wood and thin wiry twigs. The Sorbaria section with big woody stems should have the flowering shoots of the previous summer spurred back to within two or three eyes of the old wood. Tamarix pentandra, perhaps more familiar to many readers as T. hispida æstivalis or T. Pallasii rosea, one of our most valued autumn shrubs, should have the stems cut back to 1in. or 2ins. from the old wood each winter.

HOW HYDRANGEAS AND SIMILAR SHRUBS SHOULD BE PRUNED.

The general trend of these remarks points to two main objects in pruning: (1) To improve the quality of the flowers; (2) to maintain shapely bushes. These two lead to a third, and the most important from the spectacular standpoint, the healthy and attractive appearance of the shrubs in the garden borders and pleasure grounds. A. OSBORN.

BORDER CARNATIONS FOR AUTUMN PLANTING

IT is generally agreed that autumn planting of border carnations gives the best results. The plants have a long period in which to settle down and become established, with the result that in the quick-growing period of early spring they are ready to take advantage of favourable weather conditions. The border carnation is hardy, and as most varieties will stand an ordinary winter unprotected, there should be few casualties if certain essential details of soil preparation are carried out.

Some soils are ideal for carnation culture, notably those which might be termed light loams. In my garden I never have the slightest difficulty in rooting carnations in the soil taken from the garden without the addition of any sand, and with the exception of the loss of an occasional plant through a ground pest, such as wireworm, the plants make strong, healthy growth and flower freely. In such a soil it is easy to grow carnations, but even in these favourable conditions I find that a little extra care in the preparation of beds and borders makes the difference between ordinary results and flowers of higher quality.

In stiff, clayey soils it is necessary to incorporate substances that will give the medium a more porous character. Strawy manure in the lower spit and the addition of sand, road grit, mortar rubble or brick rubbish will help to keep such soils from becoming water-logged, which would be fatal to success.

On the other hand, a soil that is of too sandy a nature requires building up, and a liberal supply of well rotted manure, bone-meal and refuse from garden fires, which is always rich in potash if used when dry, will be found to be beneficial.

It cannot be too strongly emphasised that carnations are lime-loving plants! A liberal supply of lime should be worked into the beds when these are being prepared. It may take the form of mortar rubble, spent lime or chalk, but it is essential that there should be a plentiful supply of calcium compounds in the soil if carnations are to thrive. Not only is lime necessary for the well-being of the plant, but it is also useful in keeping the soil from becoming sour, aerating it and setting free the necessary food supplies that are available in the manures incorporated in the soil. Mr. Montagu Allwood tells me that he is assured that the majority of failures that arise in carnation culture would never occur if growers would realise the advantages arising from the correct usage of lime. He is also of the opinion that carnations abhor leaf-mould, and that this should never be used in their culture.

Having chosen a suitable site for the plants, which should be in an open, sunny situation if possible, and as much sheltered from the winds as can be obtained, soil preparation should commence at once, if this has not already been done. The ground should be dug or forked to a depth of from 12ins. to 18ins., as circumstances will allow, keeping the animal manure well worked into the lower spit and retaining the top layer of surface soil by the method known as bastard trenching. To bury the top layer and bring the poorer sub-strata to the surface would do more harm than good. Stiff soils soon become ready for the reception of plants after trenching is completed, but lighter soils will require more time to settle down or they will need to be trodden firmly. Unless there is a firm root-hold for the plants they will not make satisfactory progress, either in the initial stages of growth or later.

If plants have been layered at home, their removal to permanent flowering quarters is a simple matter, and a portion of soil can be taken up with each rooted layer so that there is practically no check in the removal. When layers are obtained by post they are usually packed in damp moss, and at this season of the year will suffer no injury for several days. It is, of course, advisable to unpack and plant out on arrival, if possible. If the site has not been already prepared, they can be potted up and kept in a greenhouse or frame till required, but it is the best plan to transfer them to the open border at once if this can be done. In the case of poorly rooted specimens or of any choicer kinds that one does not feel disposed to leave to the mercy of the wintry weather in an exposed locality, it is a simple matter to protect them by means of frame-lights or temporary glass shades till they become established.

When planting do not leave the base of the plant in a cavity where the rain can collect and rot the stem. It is far

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safer to raise the plant a little above soil level in damp situations. In such a season as this it will not be necessary to water the plants, but in a dry autumn this may be requisite for the first few weeks after planting out. The carnation will withstand drought better than most garden plants.

I now proceed to the all-important question of the choice of varieties, and in this and subsequent articles I will give a few particulars of up-to-date kinds that should appeal to all tastes and accommodate all pockets.

In this article I will confine myself to a very beautiful set of novelties raised by Mr. F. Payne, and which are being introduced by him this autumn. I have seen blooms of all the varieties mentioned, some of them on several occasions during the past flowering period, and I believe that this set is as strong a selection as any raiser has introduced during the past few years.

CRIMSON EMBLEM.—This is the most perfectly formed border carnation I have seen. If the petals had been trimmed with a pair of scissors, they could not be more cleanly cut. It is just sufficiently full to enable it to open without "balling" or splitting its calyx, and it gives blooms of large size. The stems are long and very strong. The colour is a deep velvety crimson and it is sweetly scented.

GLITTER.—The finest white self I have seen. It is a magnificent flower of fine build and huge size with a perfect calyx, and it possesses a strong clove scent. It has a glittering appearance when freshly cut and the name is an appropriate one.

PURPLE EMPEROR.—Like Glitter, this is another "giant," and flowers of 4½ins. and 5ins. in diameter can be obtained from disbudded plants. It is a rich violet-purple self. Mr. Payne tells me that it is a very strong grower.

DELIGHT.—An old rose self without any trace of colouring. It is a well shaped flower with strong calyx. This variety, which usually attains a height of 18ins., is said to be exceptionally free-flowering and of good constitution.

SPEEDWELL.—Old rose with a cerise centre. It is a large flower of fine form and has a good calyx. A strong grower and very tall, making it a good variety for planting at the back of the border.

SHOT SILK.—Salmon-rose, changing to a warm shade of old rose. Quite distinct in colour from Delight, and reminding one of an old rose silk dress. Strong, non-splitting calyx. I understand that this is a very strong grower.

NERISSA.—A very large white ground with a faint tinge of lemon yellow, heavily barred with old rose. This is a new colour break. It is a flower of fine form and has a good calyx, useful either for the border or exhibition.

GRACEFULNESS.—A flower of wonderful colouring, lemon yellow, lightly barred at the edges of the petals with pale purple and pale rose. On the yellow ground these look like flecks of pale bronze. This is a fine variety for growing under glass, when, with the calyx eased and helped occasionally, it can be grown to a very large size. Outside it bursts rather badly, but even then does not fall to pieces. If well grown it could be very beautiful.

FANCY CLOVE.—Pale yellow lightly barred and edged with rose pink. Very strongly clove scented. Fine form and good calyx. This is probably the only carnation in yellow to have any perfume.

ISOBEL.—A very dainty white ground fancy with delicate and clearly defined markings. Sometimes bursts, but not often. Good growth.

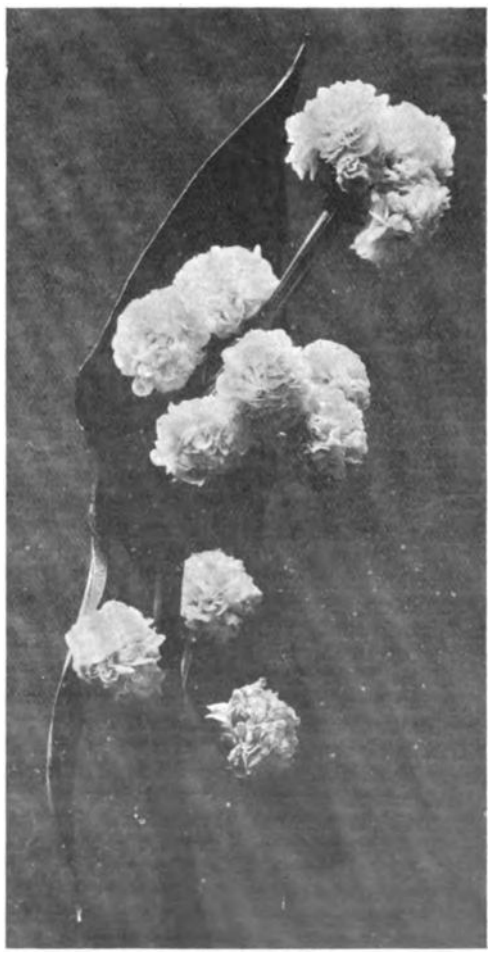
NORMAN LAMBERT.

(To be continued.)

THE WATER GARDEN

THERE are two classes of plants which can justly lay claim to be the most fascinating of all floral and foliage subjects — the mountain plants and water-loving plants. The gorgeous hues and chaste symmetry of the occupants of herbaceous borders make a loud and forcible appeal to the æsthetic senses, and command the admirations of the beholder; but the lovely dwarf mountain plant shares with its more humble, but larger-proportioned, waterside *confrère* the wondering respect and sympathy of all who trouble to take an interest in the garden.

Especially do we find something indefinably interesting in plants that haunt the waterside, or live and have their being in water. Although generally more "weedy" in appearance, the inflorescence of many of these plants is strikingly beautiful. Let the blossoms of the handsome arrowhead (saggitaria), the water lily (nymphæa), and spiræas be noted—and the glory of the water-flower is at once established in the mind. Consider the primula, with its many water-loving species (japonica, luteola, pulverulenta, sikkimensis) the bright-eyed forget-me-not, the little creeping-jenny, the yellow mimulus, the king cups, and our native primrose—and the beauty of the waterside plant asserts itself. Pressed into the service of the garden, these moisture-loving plants form a most valuable decorative asset, together with the many kinds of reeds, rushes, grasses and bamboos, that are now available from all parts of the world.



DOUBLE ARROWHEAD, A NAME DERIVED FROM THE SHAPE OF THE LEAVES.

Foliage plants in abundance can also enter into the water garden scheme, some of them being of huge proportions, as is instanced in the enormous leaves of the well known gunnera.

It is quite an easy matter to inaugurate and establish a water garden in the smallest of spaces, the scheme, of course, being commensurate with the area and convenience at command. One can even make a very attractive little water garden by collecting the native water plants that grow by and in our streams everywhere — wild spiræa (meadowsweet), caltha (king cups), cardamine ("lady's smock"), forget-me-nots, figwort, arrowheads, willow herbs, and numerous grasses and reeds; but the garden replicas of these plants are well worth the money they cost, and give greater satisfaction in the end. For the small water garden a few of the less rampant plants should be chosen, and, with a small pool (into which *one* basket of water lily

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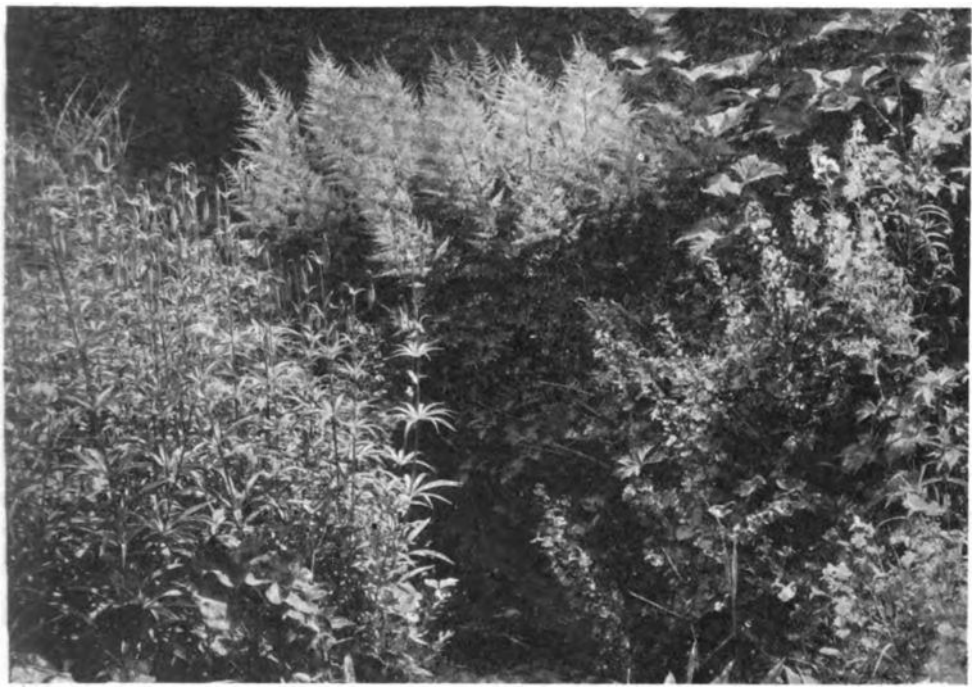


SUITABLE PLANTS FOR A BOG. ASTILBE CERES WITH LILIUM PARDALINUM IN THE FOREGROUND.

roots may be put) with a root of the beautiful arrowhead plant, fed from the household water supply (by arrangement with the water company), a charming water garden can be evolved.

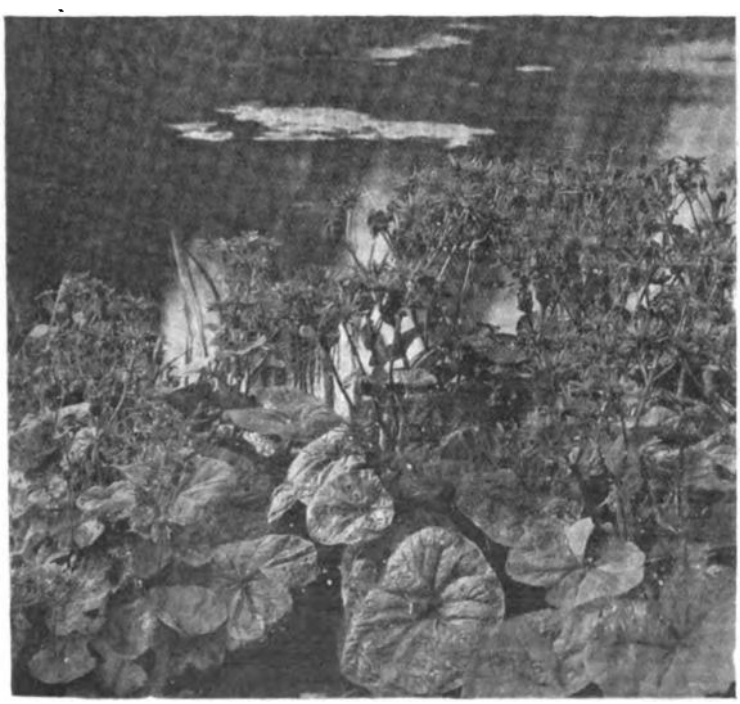
The conduit which leads the water to the water garden can be made in the form of a channel running in any desired way that may be convenient; and its whole course will resolve itself into a charming trail of exquisite beauty, for on its banks can be grown a wide range of blossom and foliage suited to all times of the year.

One advantage of the water garden is the fact that its occupants are always fresh and vigorous in the hottest of weather, when borders and beds show every sign of exhaustion. There is no watering to be done, no anxiety for the safety of the plants in heavy rainfall, no labour in upkeep beyond preventing encroachment and overcrowding.

Larger spaces can accommodate more ambitious schemes. Many of the beautiful scenes shown in the photographs that illustrate this article can be created in the suburban or country garden of the average 50ft. by 200ft. size, the procedure following the line of planting a background of flowering shrubs and trees, with perhaps rockwork and rockery plants, and then constructing the pool and bog garden in the foreground.

It is not necessary to have a pool in the scheme. A conduit can be constructed to lead water to a depression, natural or artificial, in the garden. If this low ground is flooded with water, say, once a week, waterside plants can be grown with success; or a small trickle along the conduit will keep the whole water garden in moist condition. There may be naturally damp sites which could effectively be treated as a water or "bog" garden. In this ground plants which do not need actual contact with water will flourish amazingly. Suitable ones include the Japanese primula, our native primrose, Cardamine pratensis, forget-me-nots, mimulus, spiræas, certain kinds of lilies, bulbous plants, together with reeds, variegated grasses and bamboos. The whole of this garden may be carpeted with the brilliant yellow blossoms and pretty foliage of creeping-jenny.

A water garden is a thing of beauty and worthy of every consideration by all who possess a garden. H. A. DAY.



AN ILLUSTRATION SHOWING THE VALUE OF LARGE LEAVES AGAINST A BACKGROUND OF WATER.

MOISTURE LOVING IRISES (IRIS KÆMPFERI) WHICH PREFER A WARM SUNNY POSITION BY THE WATERSIDE.

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THE STORING OF HARDY FRUITS

THE essential conditions for the successful storing of fruit are not, perhaps, so much the place of storage as the condition of the fruit and the harvesting of the crop at the proper time.

The term "well ripened and finished" more often used to describe the condition of choice fruit such as grapes may well be considered in connection with the hardier kinds, such as apples and pears.

All grape growers know how much easier it is to keep a thoroughly ripened well finished bunch of grapes, to a late date for the variety, than one which lacks that quality.

In a lesser degree, but nevertheless an important one, is the condition of the fruit at the time of gathering, a governing factor in the successful storage of hardy fruit.

When making an analogy between the grapes and hardy fruit one has to remember that in the one the desired end is largely a matter of skilful cultivation under artificial conditions, whereas with the outdoor fruit uncontrolled conditions may, and often do, play a part in defeating that end.

The weather, so much blamed for half the troubles of mankind, certainly plays a big part in the proper development and finish of hardy fruits.

It is a matter discussed among fruit growers just now whether apples and pears will keep well this coming winter following a summer of heavy rainfall, low temperature and lack of sufficient sunshine.

In districts where the rainfall is normally low—averaging 23ins. or so a year—it has been my experience that fruit always keeps better after a wet season.

Though we have had that this year I am not confident of the fruit keeping well, owing to the lack of sunshine, a sufficiency of which is necessary for proper ripening.

Next to the condition of the fruit is the importance of gathering the crop at the proper time.

It is one of the wonders of vegetation that, providing a tree has not been overcropped and the fruit has not suffered any check in its development and finish, gathered at the ri ht time and stored properly, that it can be kept in perfect condition for months.

INTERIOR OF A FRUIT ROOM.

During this time a gradual change from the unripe, hard and often acid flavour is going on, to one of perfection for cooking or eating as dessert.

To attain this perfection of flavour and its maximum period of keeping, it cannot be too strongly emphasised that no fruit-room, however perfect, will counter-balance gathering at the wrong time.

At the time of writing (October 18th), most of the early varieties have been used. These remarks are therefore intended for mid-season and late varieties.

One is often asked by amateurs when are they to gather their apples and pears. The answer is that no definite time can or should be fixed for gathering. Much will depend upon the variety, the season, the soil in which the trees are growing and the position.

The main point is that late varieties of apples should be allowed to hang on the trees as long as possible. Our late varieties, such as Newton Wonder and Annie Elizabeth, will be gathered during the next three weeks.

Some people are tempted to gather too early; especially is this the case when from any cause a few of the fruits drop early. This may be due to damaged fruit, frequently by the caterpillar of the codlin moth, or occasionally by winds. Fruits damaged by this caterpillar will always fall in advance of perfect ones.

A simple test as to the fitness for gathering is to raise the fruit in the hand, when if it is fit for gathering it will part readily from the branch. If it requires a twist to remove it then it is not ready for picking.

Another test is to open a few fruits and examine the pips. If these are dark brown in colour, the fruit may be considered ready for harvesting.

When picking, the fruit should be handled with great care. Nothing in the nature of a damaged fruit, by either bruising, bird pecks, insect injuries or fungus attacked, should be placed with the sound fruit. All such damaged fruits should be used or disposed of as soon as possible after gathering and not stored, or, at any rate, kept entirely apart from the good ones. The receptacles used for gathering should have a little lining in the shape of paper, or wood-wool; this often prevents injury, especially to some of the softer-fleshed varieties.

Where much fruit is marketed it is frequently placed direct into wooden trays holding a bushel, or into bushel or half-bushel baskets, and stored in these until required for final packing for market.

STORAGE CONDITIONS FOR APPLES.

The storage conditions necessary for keeping apples are a cool steady temperature of about 35° to 40° Fahr. during winter, a slightly moist atmosphere, and partial or total darkness.

Various places are frequently assigned for the storage of apples. The illustration shows the interior of a well designed fruit-room, fitted with centre and side stages. It is so constructed that warm air is excluded and frost kept out. A building with a good thatched roof and sides is generally considered to answer these conditions better than any other made above ground.

So as to be able to prevent an ingress of cold or warm air, all fruit-rooms should be fitted with an inside and outside door. The space between the outer and inner doors can be so arranged as to leave room for office work of packing.

Ideal conditions of storing are, however, not always met with. Where apples have to be kept in a dwelling-house, the coolest room should be chosen, though safe, if possible, from frost. One of the worst places is the attic, but the cellar often provides an excellent one.

Apples are very liable to shrivel if kept in a room which is too dry. When such a room is the only one available, and only a moderate quantity of apples have to be dealt with, it will be found better to wrap each fruit in paper and pack them away in boxes.

Boxes holding a bushel may be used and after packing they can be stored

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away in any suitable place. By such a method I have known Worcester Pearmain, a September to October apple, keep till January. For such a system of storing it is obvious that only perfectly sound fruits must be used.

Whatever room or building is used for storing, the fruit will require plenty of air for the first two weeks after being gathered. During this period they throw off a considerable amount of moisture, often termed "sweating." When this period of perspiration has passed much closer conditions will be necessary; in fact, very little air will be desirable at all.

If the fruits are arranged on the stages of a fruit-room—which, by the way, should have been thoroughly cleaned out and made sweet during the summer—it will be a good plan to place a very little clean wheat straw on the batten stages. This will prevent any from being bruised on the edges of the battens and will not prevent the little air necessary to pass through.

It is often advised that fruit should be spread out in single layers. This method certainly provides an easy means of examining the fruit, but it is by no means certain that it is always advisable. I do not object to seeing sound apples stored as many as four deep, and in a room inclined to be dry it is unquestionably better for the keeping of the fruit than the single layer system.

NAMING.

Although one may be personally familiar with the varieties, it is a good plan to label them as is shown in the illustration. It will be interesting to visitors if the season of use be added to the name. We also add to the label whether the variety is known to be self-sterile or self-fertile; also its origin if known.

The labelling, too, will be a reminder of the natural order of ripening of the variety and should be used in this way as far as possible, not only for prolonging the supply, but so that perfection of flavour is reached.

PEARS.

Pears require more care in storing and ripening than apples. The atmosphere should be dry and the temperature higher—from 40° to 45° Fahr.

The summer and autumn varieties should be gathered as ready and allowed to finish in the fruit-room.

Late pears should, generally speaking, be allowed to hang on the trees in the same way as apples and picked when the stalk will part readily from the branch.

Unless gathered, stored and ripened properly, the fruits are apt to become dry or decay in the centre, instead of becoming juicy and melting.

Most winter dessert pears will improve in flavour if brought into a warmer temperature for about two weeks to ripen. If allowed to ripen in too low a temperature they are often tough and poor in quality, instead of melting and buttery when ripened in a temperature of about 60° Fahr. During this final process of ripening the fruits should be placed in boxes and kept covered. If some sweet hay is used as a covering the colour is often improved.

ARTHUR J. COBB.

ORCHIDS AT VINCENT SQUARE

ON the occasion of the Fortnightly Show of the Royal Horticultural Society on October 21st nearly one-half of the Society's hall was occupied with orchids. Notwithstanding the past sunless summer, exceptionally fine results were in many cases achieved by the various exhibitors. Groups of outstanding merit were shown by Lieutenant-Colonel Sir George Holford, K.C.V.O., who won the Orchid Challenge Cup offered by Baron Bruno Schröder, as well as a silver-gilt Lindley Medal for the general excellence of cultivation. Gold medals were awarded to Messrs. Sanders, St. Albans, and to Messrs. J. and A. McBean. The Challenge Cup offered by members of the orchid trade was awarded to J. J. Joicey, Esq., Witley, Surrey.

LÆLIO-CATTLEYA QUEEN MARY VAR. COLOSSAL (C. Peetersii × L.-C. Lustre).—This plant carried two immense flowers of rich purple colour, the expansive and roundly formed labellum crimson-purple and prettily crisped at the margin. First-class certificate. Shown by Lieutenant-Colonel Sir George Holford, K.C.V.O.

LÆLIO-CATTLEYA QUEEN MARY WESTONBIRT VAR. (C. Peetersii × L.-C. Lustre).—This attractive hybrid bore a spike of three flowers of rich rosy mauve colour, with the large labellum of deeper tint. First-class certificate. Shown by Lieutenant-Colonel Sir George Holford, K.C.V.O.

AWARDS OF MERIT.

LÆLIO-CATTLEYA QUEEN MARY VAR. GLORIOSA (C. Peetersii × L.-C. Lustre).—A grand form with a spike of three flowers, in colour rich rosy mauve, the expansive labellum dark purple, tinged with crimson, and with a yellowish disc on each of the side lobes. From Lieutenant-Colonel Sir George Holford, K.C.V.O.

LÆLIO-CATTLEYA GOLDEN LIGHT, WESTONBIRT VAR. (L.-C. Golden Fleece × L.-C. luminosa aurea).—A vigorous plant with an erect spike of four large flowers, the segments rather narrow, but rendered attractive by their bright golden yellow colour, the labellum tinged with crimson on the side lobes. From Lieutenant-Colonel Sir George Holford, K.C.V.O.

LÆLIO-CATTLEYA LINDA SUPERBA (C. Dowiana aurea × L.-C. Arachne).—Flowers of large size and of an uncommon bronze purple colour, due to the influence of L. tenebrosa derived through the latter parent. From J. J. Joicey, Esq., Witley, Surrey.

CATTLEYA CLIVE VAR. ARDENTISSIMA (Adula × Iris).—Although but one flower was carried by this plant, the colour was particularly good, the broad sepals and petals of mahogany red colour, the widely expanded labellum deep purple. From Messrs. Sanders, St. Albans.

ODONTONIA STELPÆ (Miltonia Bleuana × Odontoglossum Harwoodii).—An interesting hybrid bearing large flowers, the rather narrow segments of yellow colour spotted with red-brown. From H. T. Pitt, Esq., Stamford Hill, N.

BRASSO-LÆLIO-CATTLEYA ALFRED MOLLET VAR. VIVID (B.-L.-C. Morna × C. Hardyana).—A showy hybrid with rich purplish sepals and petals and deep purple labellum. From H. T. Pitt, Esq., Stamford Hill, N.

CATTLEYA PYRAMUS VAR. CALOSSUS (L.-C. St. Gothard × C. Thurgoodiana).—A pleasing combination of the well known characters of both parents, the flower being well formed and of attractive coloration.

LÆLIO-CATTLEYA NANON VAR. ZEBRA (L.-C. Ivanhoe × C. aurea).—A remarkable form in which the spike of three large flowers had the petals almost covered with a bright purplish suffusion, thus resembling the labellum in this respect, but with a rose-tinted area around the margin. This singular

THE RICH BLOOMS OF LÆLIO CATTLEYA QUEEN MARY VAR. GLORIOSA.

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character is believed to be constant in the above plant. From J. J. Bolton, Esq., Claygate, Surrey.

ODONTOGLOSSUM MAJESTICUM VAR. ADMIRATION (eximium × percultum).—Considering the unseasonable period of the year, this plant bore finely developed flowers of thick texture, the segments heavily blotched with crimson-purple, and with distinct lighter area in the centre of each petal. From Messrs. J. and A. McBean.

Evergreen foliage and the bright-coloured berries undoubtedly brighten one's outlook on life, especially if the day be murky and wet outside. The Aldenham House exhibit of evergreen and berried shrubs most certainly did cheer the visitor on his entry to the hall, and our congratulations are offered to the Hon. Vicary Gibbs and his head-gardener, Mr. Edwin Beckett, on their excellent collection of shrubs. The collection was truly an admirable one, there being representatives from almost all over the world, notably from China. The results and fruits of the labour of the various collectors in that part of the world are seen to advantage. The family of berberis was particularly well to the fore, and we should think that Aldenham has probably the finest private collection of species in this genus in the country.

A few of the more outstanding species exhibited were B. aggregata Prattii, B. dictophylla albicans, B. paniculata, B. orthrobotrys, B. Staphiana, B. Wilsonæ, B. bracypoda Gibbsii, B. intermedia with yellow berries.

In pleasing association with berberis were numerous species and varieties of cotoneaster from the cool temperate regions of the "Roof of the World." For beauty of fruit, grace of habit, robust constitution and easy cultivation, there is no group of shrubs which surpasses this genus. Notable species and varieties on view were C. frigida Vicarii, C. amœna, C. salicifolia rugosa, C. divarica, C. horizontalis perpusilla, C. Dielsiana, C. Semosii. Their close allies, the thorns (cratægus) were also in attendance, one of note being C. Crus-galli splendens with its masses of large, brilliantly coloured fruits. Pyrus, were also well represented, a splendid species being P. firma, literally covered with berries, and P. Malus baccata (variety). No collection of shrubs would be complete without the viburnums, the pyracanthas, phytolaccas and acanthopanax, with their fruits in reds, purples and blacks respectively. These were all included and lent a distinction, tone and effect to the whole stand, relieving the reds of the berberises and cotoneasters. Altogether it was one of the most magnificent collections we have ever seen.

The name of Messrs. George Bunyard and Co., Maidstone, is already so well known throughout the whole of the horticultural world in connection with fruit and fruit trees that it is scarcely necessary for us to draw the attention of our readers to their excellent exhibit on Tuesday last. This firm has contributed a great deal in the raising of this particular branch of horticulture to the high pinnacle which it has now attained, both from a scientific and also from a strictly utilitarian point of view. Fruit growing during the last twenty years and more has undoubtedly become, from the commercial aspect, a highly skilled science, and it is well known how successful Messrs. Bunyard have been in that line.

It is, indeed, a true saying that "Old friends are best," and Messrs. Bunyard, judging by their exhibit, evidently think along these lines. In the apples, such varieties as Newton Wonder, Emperor Alexander, Cellini Pippin, Sanspareil, Gascoyne's Scarlet, Magnum Bonum, Cutler Grieve, Charles Ross, were to the fore.

As is the case with the apples, the same holds good when one talks of pears. Such old varieties as Pitmaston Duchess, raised about 1865, and Doyenne du Comice, raised about 1858, are still well to the fore and can scarcely be surpassed for exhibition and dessert purposes.

CHRYSANTHEMUM MISS DOROTHY WILSON, OF PERFECT FORM AND GOOD COLOUR.

It is, indeed, a good sign that fruit growers such as Messrs. Bunyard recognise that these old varieties still deserve a place on the show table, and both the public and the grower will no doubt benefit in the end by their continued exhibition.

We congratulate Messrs. Bunyard on their well arranged table of fruits which were all in excellent condition and shown to advantage. It is earnestly to be hoped that with the new slogan of "Eat more fruit" and the old adage of "An apple a day keeps the doctor away," the public will realise the excellent work which our British fruit firms are doing towards assisting the human race to a healthier, happier life.

An excellent exhibit of vegetables of great variety was splendidly staged by Messrs. Sutton and Sons. It was considered by one of their own representatives to be the best exhibit they had ever shown. Everything on the stand was grown at Messrs. Sutton's trial ground near Reading, and most interesting because the varieties selected were all suitable for utility purposes. The quality was of a very high standard, but particularly noticeable were the fine size and variety of onions and capsicums, the leek Acquisition, and the various yellow tomatoes. The popularity of the latter is increasing rapidly, one of the best varieties being Sutton's Sunbeam, having an attractive oval fruit of delicious flavour. This firm in the past has staged such excellent exhibits that one would imagine that improvement was impossible, yet on this occasion, they have exceeded even their own previous best.

Messrs. Barr and Sons exhibited a most pleasing display of nerines of every shade, ranging from dark red, vivid crimson, scarlet, salmon, pink, and blush to white. Most striking of all was the variety Herda, a brilliant rose-pink with a deeper rose stripe down the centre of the petals. It was almost twice the size of an average nerine, attaining a height of 3½ft. and blooming well every year. Barcarolle, a beautiful rosy pink with a silver sheen; and Elwes' Seedling, a brilliant orange scarlet, were two out of the large number of excellent specimens. This display of nerines should help to popularise this flower, which is so useful during the autumn and winter months. They are easy of cultivation and Messrs. Barr's attractive varieties show their use as indoor decorative plants.

Messrs. Keith Luxford had an excellent stand of Chrysanthemums; although there were few novelties, yet the standard was exceedingly high. If any criticism could be made it was that a few were verging on the artificial in appearance, but that is a matter of personal taste. The size and form of their single chrysanthemums were exceptionally good. Estelle, a clear bright yellow, being most noticeable. Among the doubles a very effective variety for decorative purposes was Banquet Rose. Armorel, a coppery bronze, and Blanche du Poition, a pure white, should be included in all collections.

The following firms also exhibited:

Carnations. — Allwood Brothers; C. Englemann; and Stuart Low and Co.

Chrysanthemums.—W. Yandell.

Dahlias.—J. Cheal and Sons, Limited; James B. Riding; and J. T. West.

Fruit.—J. C. Allgrove; and G. Trinder.

Hardy Plants.—Bakers, Limited; S. Bide; Chalk Hill Nurseries; J. Cheal and Sons, Limited; William Cutbush; R. and G. Cuthbert; I. House and Son; B. Ladhams, Limited; Maytham Gardens; Reamsbottom and Co.; G. Reuthe; Rich and Co.; L. R. Russell; W. Wells, jun.; and Fred G. Wood.

Landscape.—K. and E. Hopkins.

Roses.—S. Bide; Elisha J. Hicks; J. H. Pemberton; and George Prince.

Topiary.—John Klinkert.

Violets.—J. Kettle.

NEW AND RARE PLANTS.

BERBERIS PRUINOSA.—This was shown in the form of two or three fruiting sprays, which had probably come from a shrub of about 6ft. high. It had the usual characters of the family, with the long oval leaves three to five together in tufts. The leaves are smooth

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and leathery. Fruits are blue-black, which shows up an abundant plum-coloured or greyish bloom. It is an old species, having been introduced from Yunnan to France by Abbé Delavay in 1894 and this country three years later. It is a shrub which amply repays careful cultivation. Award of merit. Shown by Director, R.H.S. Gardens, Wisley.

PYRUS ALNIFOLIA.—Beautiful fruiting sprays of this hardy tree were much admired. It is a deciduous tree which in its native haunts of Japan and China reaches a height of 40ft. or 50ft. It is a very neat member of the Micromeles group. The plant bears fine crops of fruits which become brightly coloured and hang on the tree for a long period. They are one third to half an inch in length. It was introduced into cultivation about 1892. Award of merit. Shown by the Director, Royal Botanic Gardens, Kew.

P. ZAHLBRUCKNERI.—Another representative of this group from China, with beautiful fruits. Like its predecessor it is a deciduous tree. It is of comparatively recent introduction to these shores. The fruits are of a bright red in colour and oval in shape, about ½in. broad. Award of merit. Shown by the Director, Royal Botanic Gardens, Kew.

NERINE MRS. ARTHUR ELWES.—Flowers of this variety are of a fair size and of good substance—a satiny pink in shade. They are borne in large, bold umbels on tall stems about 1ft. to 1½ft. high, arising from the basal foliage. Award of merit. Shown by Colonel Elwes, Colesborne.

NERINE MISS E. CATOR.—Flowers of a good size and of fine form. In colour they are of a shade of rose carmine with a darker stripe on the petals. These are borne in large umbels on stems of about 1ft. to 1½ft. long. Award of merit. Shown by Colonel Elwes.

CARNATION WINSOME WHARTON.—Finely-scented flowers with a pinkish ground speckled with rose, borne on stiff, wiry stems and showed a good habit. Award of merit. Shown by T. R. Bentley, Skelton Castle Gardens, Yorks.

C. VISCOUNTESS HAMBLEDON.—The colour of this variety was somewhat unusual, not to our minds very attractive. The ground was a shade of apricot red. It was, however, lacking in fragrance. It was of good habit, the flower being carried well on stiff stems. Award of merit. Shown by Viscount Hambledon, Greenland, Henley-on-Thames.

ROSE PHYLLIS BIDE.—A beautiful, delicate, climbing, perpetual flowering polyantha variety of a pleasing pink colour on a yellow ground. Of its merit there can be no doubt owing to the many previous awards it has already received. Award of merit. Shown by Messrs. Bide and Son, Limited, Farnham.

CHRYSANTHEMUM THE WIZARD.—Large flowers of a shade of dark reddish brown—almost indefinable. The florets are stiff, standing out from the centre of the flower, which is of good shape. Award of merit. Shown by Messrs. Cragg, Harrison and Cragg, Heston.

C. GLORIOSA.—A large-flowered Japanese variety of a bronze to yellow in colour. Award of merit. Shown by H. Shoesmith, Guildford.

C. ENID ELDER.—The blooms of this variety were rather outstanding, being deep golden yellow in colour. It is a fine decorative. Award of merit. Shown by Messrs. Cragg, Harrison and Cragg, Heston.

SINGLE C. WHITE MODEL.—Well formed and fairly large blooms of almost a milk-white colour. The eye is a yellow colour. It is rather an improvement on Mensa. Award of merit. Shown by Mr. G. Carpenter, Byfleet.

SINGLE C. LADDIE.—Large blooms made up of six broad florets of a pleasant shade of soft yellow. The blooms were of good shape and the plants showed a fine habit. Award of merit. Shown by Mr. G. Carpenter, Byfleet.

C. MISS DOROTHY WILSON.—Fine large blooms of medium size in fine flower, made up of numerous overlapping and incurved florets. The blooms are of a good rich glowing yellow in colour and measure 4ins. across. It should prove a useful variety for all decorative purposes. Award of merit. Shown by Mr. W. Roots, Cranford.

C. JEAN PATTISON.—A splendid decorative variety which should prove popular owing to the attractive shade of coppery bronze. Award of merit. Shown by Messrs. Cragg, Harrison and Cragg, Heston.

JAPANESE C. SULPHUR QUEEN.—Very large flowers made up of long incurved soft yellow florets. The blooms were of great depth, probably about 9ins., and about 5ins. in diameter. They were borne on shiny, erect stems. Award of merit. Shown by Messrs. Keith Luxford, Harlow.

NEW CHRYSANTHEMUMS.

THE subjoined awards were made to new varieties by the Floral Committee of the National Chrysanthemum Society on October 20th:

C. FOX WILSON.—This is a medium-sized single chrysanthemum made up of substantial florets of orange-amber colouring. First-class certificate. Shown by Mr. G. Carpenter.

JULIA.—A very lovely exhibition Japanese variety of large size. The broad flattish florets droop elegantly, making a more graceful bloom than is often the case with the varieties which have broad florets. The delightful colouring is very elusive and difficult to describe. We believe the committee has registered it as rosy-bronze, but our colour impression is golden amethyst, for the ground colour is pale gold and this is freely stippled with purplish amethyst. The amethyst shading is not developed on the central florets, which are coloured pale golden yellow. First-class certificate. Shown by Messrs. Keith Luxford and Co.

LADY SAUNDERS.—Although this single chrysanthemum did not find favour with the Committee, we thought it to be very desirable. It is quite a large flower, but of perfect shape and made up of plenty of long narrow stiff florets of rich yellow colour. The disc is small and the flowers appear to have long-lasting qualities. Shown by Messrs. Keith Luxford and Co.

MISS DOROTHY WILSON.—This is a perfectly formed incurved variety of medium size which would be very valuable for decorative purposes. The colour is a rich, glowing yellow. First-class certificate. Shown by Mr. W. Roots.

WHITE MODEL.—Briefly this single chrysanthemum might be described as being an improved and earlier Mensa. It is a well formed and larger bloom than Mensa, relatively smaller in the "eye," and of milk-white colour. First-class certificate. Shown by Mr. G. Carpenter.

CORRESPONDENCE

ORCHIS HIRCINA ON WYE DOWNS.

SIR,—I am enclosing a life-size photograph of Orchis hircina, which I thought perhaps your readers might like to see, as there have been one or two articles in THE GARDEN recently with photographs which did not give a very clear idea of the flower.

The plant in question I found on Wye Downs, near Canterbury—a famous hunting ground for orchids—this summer. It is a very rare plant in the neighbourhood, and I believe it has not been found for several years, and then never more than a single specimen at a time. Other orchids found at the same time were: Orchis ustulata, O. Morio, Ophrys myodes, O. apifera, O. aranifera, Aceras anthropophora, Cephalanthera ensifolia, Orchis pyramidalis, O. maculata Listera ovata, Epipactis latifolia, Orchis fusca and O. f. alba, and Habenaria bifolia, the sweet-scented "butterfly orchis."—H. STEWART WACHER, *Canterbury*.

THE LIZARD ORCHIS.

THE PURPOSE OF WISLEY.

SIR,—To Mr. Laurence Cook I reply, "*Touché, mon vieux!*" To you, Sir, I offer my sincere thanks and congratulations for and on your able leader which deals quite effectively with our bone of contention. I neither withdraw nor apologise for my statement about catalogues, but let me say that my sympathies are entirely on the side of the nurseryman, among whom I am proud to count many friends and, I hope, no enemies. I quite understand and fully appreciate their difficulties, and my lance is couched, not at them, but at the two great societies, the R.H.S. and the N.R.S., whom I blame for laying the nurserymen open to the possibility of having inaccuracies in their catalogues.

Now, dealing with roses, as the leader has made quite clear, in Part B, Sections 3, 4 and 5, but particularly in Section 4, the indiscriminate hybridising and naming of hybrids (and of sports) and, may I add, the introduction of these to catalogues and the public, carried on by nurserymen and amateurs, have also given rise to new varieties, so-called, which are in many cases nothing more than variety differences, often not fixed, which revert to the type of the parent or one of them, but, having been tied to a new name, bear that name for ever and ever, because they have been christened so, and their owners, nurserymen or amateurs cannot bear to part with the new treasure. I am really sorry for Mr. Cook that he so sadly missed the point of my letter, and that he thinks I blame the nurseryman. I do not.

The N.R.S. in its "Catalogue of Ros[es]" has a list of roses too much alike which n[ot] not be shown in the same box as sepa[rate]

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varieties. I assert that this list requires thorough overhauling, and some two or three hundred roses which have been shown in recent years should be carefully examined with a view to exclusion from or addition to this list. Moreover, I consider that a new list of decorative roses should also be prepared of the same nature and with the same proviso as to exhibition on the same stand. In both cases a yearly revision of these lists should also be undertaken. I am convinced that measures of this nature would do much to prevent incidents like the following examples :

In a local show I saw in a class for twelve blooms distinct varieties, two excellent blooms of Lord Charlemont in the same box, one correctly labelled, the other labelled "Victory."

Another case was that of an amateur who was showing in a class for six blooms of one variety. His variety of selection was Frau Karl Druschki, of which he had three blooms out of the six, two were examples of Louise Crette, and the sixth was a magnificent bloom of Candeur Lyonnaise. It was silver-medalled, and the box was awarded first prize in the class.

These examples afford illustrations of the truth of the recent leader, and of the urgent need for remedies at the hand of the N.R.S. The R.H.S., on the other hand, could with justice sweep the Augean stables of less intricate families, such as the primulas, campanulas, saxifrages, sedums. And, indeed, such a work would be well within its province. Is it not laid down within the objects of the Society ?

I hope Mr. Cook will tuck in his ruffled shirt within a tightened belt, and become in future one of the friends whom I have made among his brethren.—P. ARTHUR HENDLEY.

LILIUM AURATUM.

SIR,—The enclosed photograph is of Lilium auratum, or golden-rayed lily of Japan, as grown by me out of doors here, and represents what I think is a record. The plant

A WELL-FLOWERED SPECIMEN OF LILIUM AURATUM.

stood 6ft. 6ins. high and had twenty-seven flowers on one stem, all out at the same time. The bulbs were sent me by friends in Japan. I have grown these lilies for many years but have never seen one with anywhere near this number of blooms on one stem before. I am sure that this will prove of interest to the many readers of THE GARDEN.—G. DELL CLARKE, *Bournemouth*.

LABELS AND LABELLING.

SIR,—The reminder on the value of labels on page 692 is very opportune, as it comes at a time of the year when one may make amends, and so have the chance of avoiding disaster when there is little else to indicate the whereabouts of certain plants in the garden. I wonder how many, in the absence of a label of any sort, have thrust fork or spade into a border, only to realise, when too late, that some choice clump of lilies, or equally valued herbaceous plants like peonies, had been disturbed, if not ruined ? Autumn is a good season for renewing labels, while things are in one's memory and so avoid disaster. I care not what sort of a label it is, so long as it is visible and plainly indicates the plant. Herbaceous plants above everything else, ought to be clearly located as it is the easiest thing in the world, in a moment of forgetfulness to injure them when "straightening up at the back end." But there is another aspect of labelling although it may not be on a par with the tallying of plants, I refer to the naming of exhibits at shows. Towards the end of August I attended a provincial show at which some very creditable stuff was staged but, in my judgment, the exhibition from an educational point of view was shorn of its value as more than one half of the exhibits were unnamed. On referring to the schedule I found that the naming of exhibits was not stipulated. Surely a great omission, as I heard several visitors expressing disappointment at this, and were "guessing" at the sorts of potatoes shown. There were many plates of these staged, yet not one bore anything to indicate the variety.

Roses, too, and gladioli and apples left people in a bewildered state, as to "what was what." In framing schedules I would make it a condition that everything staged must be named. It is unfair to judges, and is disappointing to those who attend exhibitions to gain information.—W. LINDERS LEA.

SIR,—I am interested in your article on labels and labelling, as I use celluloid labels and have found them superior to any other kind. I usually number the labels and keep an index of numbers and names. In the case of plants given to me I have had your help for names and then labelled the plant, but usually I label the plants when I buy them. I find it quite impossible to remember all the names, and agree entirely with your article that labelling is necessary.—BURTON-ON-TRENT.

CAMPANULA CÆSPITOSA.

SIR,—I can well understand the difficulty that L. J. Rogers (page 688) has in procuring Campanula cæspitosa by name in catalogues. It was originally named C. cæspitosa by the botanist Scopoli. When first introduced to this country or about that time, it was figured by Curtis in the *Botanical Magazine* under the name of C. pumila. During the eighties of the last century it was the most popular small campanula in Britain, north and south, and was accompanied by C. pumila alba. Both of these were easy to recognise in the form of a patch on the rockery, for they formed a dense covering of a light green colour hiding the soil, the heart-shaped leaves rising on the stems to about half their height, which was 4ins. to 6ins. Now C. pusilla and its varieties are the most popular small campanulas in the country, and usually correctly named ; but occasionally labelled C. pumila, the synonym of C. cæspitosa. This bellflower creeps more widely than C. cæspitosa and its leaves do not cover the ground, but leave open spaces between the stems that arise from the creeping underground ones. C. cæspitosa is not extinct, for I see it occasionally under a wrong name, or no name at all. In old gardens it may be more common than it is generally supposed to be. I note that C. cæspitosa is catalogued by Messrs. Tucker and Sons, Oxford, and L. J. Rogers might find the right plant there. —J. F.

TRITOMA TUCKII.

SIR,—I enclose a photograph of Tritoma Tuckii, which may interest readers of THE GARDEN. I have not noticed three flowers on a stalk before, and I am sure many of the readers will find it a novelty. I am indebted to THE GARDEN for the help it has given me.—T. A. D., *Burton-on-Trent*.

A PECULIAR TRITOMA.

RHODODENDRON NOBLEANUM TYPE.

SIR,—I have often tried to cross this plant without success and have never seen a seed-pod on it, hand-fertilised or otherwise, so I considered it sterile. This year I see one plant here has set seed naturally. I shall be very interested to hear the experience of others as to whether they have noticed it seeding naturally or to any special pollen.—P. D. W., *Cornwall*.

DELPHINIUMS.

SIR,—I suppose that every named variety of delphinium has made a strong appeal to someone at some time or other, or it would never have been named. It is not given to any one person to know them all—certainly not all growing in different soils and situations—and even if it were there would still enter the factor of individual taste. Even so, too much can be made of individual taste, for there are many varieties of outstanding merit which appeal to the majority of delphinium enthusiasts. One has to live with plants really to know them, and, as one who has lived with delphiniums, I should like to supplement the list of varieties given at the end of the excellent article on page 643. It is a good list, better than one usually gets, but there are several important varieties left out. One of them is Blue Bird, second only, perhaps, to Millicent Blackmore in popularity. It is an intense deep blue of good form and medium size, and it is one of the earliest to bloom. Another very popular variety is Nora Ferguson, surely one of the best light delphiniums we have. This is closely followed by another gem among the lighter shades—Lovely—which personally I think even prettier than the last. In a small collection, however, both need not be included, as they are somewhat similar in character. Other excellent varieties not included in the list in question are Elsa, Ladye Fayre, Star of Langport, Lorenzo di Medici, Splendour and Corry—this last is excellent for so inexpensive a sort. The outstanding omission from the list in the Belladonna section is Persimmon, thought by many to be the best of its type. I should certainly have omitted Robert Cox from the list on page 644 ; it is somewhat mildew-resistant, but Pannonia is more so and is a much prettier variety.—THOMAS BONES, Jun., *Herts*.

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SIMPLE GARDENING

CLEANING THE LEAVES OF PLANTS.

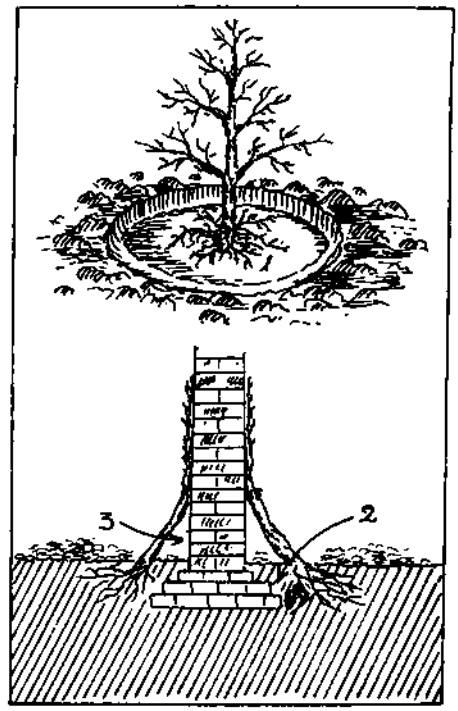
I AM now referring to the leaves of plants grown chiefly in windows, greenhouses and conservatories. Those plants that are infested with scale, mealy bug and white fly should be treated with insecticides sold by firms advertising in THE GARDEN, as home-made emulsions are not very effective applied against these pests. But red spider, black and green aphides can be dealt with in a very simple way. Furthermore, there are fine-leaved plants that become soiled through being subjected to the excreta from the aphides, and these leaves must be cleaned. Much foliage has matured now and will bear sponging and application of insecticides without injury—if the latter is carefully used—and better than during the growing period when the leaves are young. Place 2 oz. of soft soap in a quart of water and gently boil for ten minutes, then add a tablespoonful of sulphur and boil for ten minutes longer. Keep the mixture corked in a jar or bottle and use a wineglassful to a quart of rain-water for general sponging purposes. Always draw the sponge upwards on each leaf away from the stem and syringe with clean water after the sponging. Care should be taken to avoid injury to young buds, especially flower buds, to keep the liquid from them and confine the sponging to the leaves. If the sun is shining, shade the plants till the leaves are dry again, and prevent the emulsion reaching the soil in the pots.

THE TREATMENT OF HEAVY SOILS.

One of the most important of the items now claiming attention is that of digging or trenching heavy or retentive soils. If such ground is in a fit state, not waterlogged, the work of digging or trenching, if possible, should be carried on quickly, consistent with the doing of the work thoroughly. Later, when, perhaps, we have sleet or snow showers and more heavy rains, such digging or trenching will do more harm than good. If the newly dug soil is beaten down with rains, snow or sleet storms it becomes pasty and unkindly. The cultivator will find such soil, disturbed in the depth of winter, almost impossible to reduce to a powdery condition suitable for seeds in the spring. Only the top few inches will yield to the tools the lower soil being quite wet and mortar-like. This condition is bad for both seeds and young plants, and the trouble will remain throughout the summer months, newly turned lumps being too hard to break satisfactorily. So it is wiser to defer the digging of such soils till early in the spring if the work cannot be done, approximately, by the end of November. The subsoil should be well broken up but left below, and the top portion left in a lumpy state so that water will soak away quickly, air and frost follow and pulverise the whole to a considerable depth.

PLANTING FRUIT TREES.

This is very interesting work, because we see, in our mind's eye, the crops of handsome fruits that we expect to be available in due course and finer than any we have grown before. The soil should be well prepared before the trees are planted: it is directly to their benefit and to ours—especially in our own case—if the soil is freed of weeds. Allow ample



space for the trees to grow in; better be content with three if five would cause overcrowding. Bushes and pyramids of apples and pears on Paradise and quince stocks respectively should be planted 6ft. apart; plums and cherries 12ft. apart; currants, 5ft.; raspberries, in rows, 1ft.; loganberries, 10ft. These few examples will serve as a guide. Plant the same depth as when the trees were in the nursery; use fine soil round the roots, and do not unduly firm the covering soil at first, especially if it be rather moist. Drive in the stakes first, tie securely but in a way to permit of the tree settling down, and surface mulch. No. 1 shows the roots spread out; No. 2 shows how to plant near a wall to keep the roots clear of the foundation; and No. 3 shows the importance of leaving space between the stem and wall for the former to swell in in due time.

WATERING GREENHOUSE PLANTS.

Although there is more heat from hot-water pipes in the winter the soil in the flower-pots does not dry up as quickly as in the summer-time. In summer there is more evaporation and root-action is greater; more new leaves and stems grow, too. As there is less evaporation, less growth, both of root and branch in the winter, less water is required to maintain the plants in good health. If too much water is applied the plants become sickly, the leaves turn yellow and fall off. In the summer the spilling of water in the greenhouse or conservatory will not do harm—mostly it is beneficial; but not so in the depth of winter; then it chills the atmosphere, causing damping of the leaves and flowers, especially those of the zonal pelargoniums. Of course, in general, liquid manure and artificials should not be applied to plants during the winter months. Then there is the right time to water to be considered. I have found it best to use the watering-can between nine and ten o'clock in the forenoon.

RE POTTING ROSES.

Some varieties of roses grow and flower satisfactorily planted out in borders under glass. But there is not convenience for this in every structure, and the lover of early rose blooms resorts to pot culture. The planted out specimens do not require as much attention as those grown in pots. The latter should be re-potted or top-dressed every year, and the present is a suitable time for carrying out this work. Roses thrive best in a good stiff loam, but it must be mellowed by sufficient storing so that all grass roots in it are dead, otherwise trouble will follow the potting. The loam should be reduced to small lumps, preferably by hand, spread out on the floor or potting-bench, and to each bushel add a single handful of bone-meal and double the quantity of wood-ashes; mix the ingredients thoroughly. The larger pots should be clean and dry, also the crocks. When the plants are turned out of the pots carefully remove all loose soil found, without damaging the roots. Make sure that the drainage is good, then re-pot so that the old ball of soil is evenly surrounded by new compost. Make the latter firm with the potting stick and see that the top roots are nicely covered.

GEORGE GARNER.

MÈDOC and GUIENNE SÉCATEURS

AN ERROR CORRECTED

Mr. Jardine, in his Descriptive and Illustrated Price Lists, which have been distributed all over the world, upon the guarantee of his manufacturer's late deceased Agent, has continuously stated that the steel used in the blade and serpette of these sécateurs is the FINEST SHEFFIELD SHEAR STEEL. Upon test instigated by himself, it has been found that etching has shown no signs of shearing in the steel, and, therefore, this proves the incorrectness of these statements which Mr. Jardine most sincerely regrets. The steel in question is a fine quality Sheffield steel, but not shear steel, and with the French method of pickling is still the best steel put into sécateurs, as numbers of users all over the United Kingdom testify.

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See issue of October 18 for illustration.

Mr. C. A. JARDINE, F.R.H.S.
Horticultural Expert and Consultant,
61, GAYVILLE ROAD,
WANDSWORTH COMMON, LONDON, S.W.11

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A VISIT TO CRAWLEY

A VERY pleasant afternoon was spent at the nursery of Messrs. J. Cheal and Sons, Limited, Crawley, a few days ago, despite the adverse weather conditions which attended the visit. This nursery has long been in the forefront of the horticultural trade with a high and well established reputation behind it. Under the present *régime* it has made marked progress, continuous extensions having been made until it has assumed large dimensions, to cope with increased trade. Not a square inch of the whole area is wasted, all available space being employed to the best advantage. What strikes one most is the exceedingly fine soil conditions which exist in that area. The fine results of these conditions are outwardly expressed by the remarkable growth and healthy appearance of all the many plants in the nursery. Everything seems to thrive, from conifers to dahlias. This fact reflects great credit on all who are responsible for the care and attention devoted to the plants. On entering the nursery the visitor is confronted with a veritable sea of all conceivable shades and tints of colour. Herein lies the fame of Messrs. Cheals. It is the trial ground for their dahlias. Singles, stars and collarettes are gathered together in one field, while another houses the large cactus-flowered varieties, along with the peony-flowered and decorative kinds, down to the miniature pompons. A collarette variety by the name of Amy Barillet probably has a great future in front of it. It is of a fine dark maroon colour with a dark eye. A very good contrast is obtained between the foliage and the flowers. The star dahlias, which are rapidly becoming popular since their introduction by Messrs. Cheals, were in the best condition, being wonderfully free flowering with the blooms borne well above the foliage on erect stems.

The varieties in the other classes are too numerous to mention by name, but all showed the results of careful cultivation and selection. It was noticeable that in the cactus-flowered section that the stems were becoming more stiff, holding and displaying the flowers well above the foliage. One had perforce to leave the dahlias behind and proceed to a very fine collection of trees, shrubs and fruit trees. Many good trees and shrubs, such as Prunus Pissardii nigra, were to be seen, all showing to the full the results of the very wet season we have experienced.

There was an excellent display of topiary work which generally holds a certain amount of interest for the visitor. The conifers were doing as well there as in their native habitat and one almost imagined when walking through that part that they were in a properly established forest nursery. The conditions and the general health of all the plants in the nursery deserve words of commendation, for without great trouble and labour these fine results are not readily attained.

HARDY BULBS FOR AMATEURS

A HAPPY inspiration surely prompted the compilation of this handy little volume ("Bulbs for Amateurs," by the Rev. Joseph Jacob. "Country Life," Ltd., 5s. net.); it fills a much felt want. So many of us desire to know something about the ordinary bulbs of the garden and how to grow them: which is the best blue hyacinth, what purple irises to grow, how deep to plant bulbs, when to take them up and the numerous questions that arise when one is beginning to grow bulbs in garden or woodland.

It is a compact little book, convenient in size, that one will need to have at one's elbow to turn to when points arise concerning the choice of bulbs and their proper treatment, what to grow and in what soil and situation to grow them.

It deals with the usual bulbs of the garden, giving cultural directions and offering advice in the selection of varieties, and instructions as to their growth and proper management.

It is written with the sympathetic knowledge of one who loves his bulbs and would help others to a fuller enjoyment than is usually experienced in the haphazard methods so frequently practised. Its intention is to attract the curious, awaken interest and stimulate the aspirations of all who would know more about the cultivation of their favourite flowers.

It is as a sign-post pointing the way the enthusiast should tread if he or she desires to enter the portals of floriculture and seek initiation into the esoteric cult of the hybridisers of iris, tulip or crocus or other of the numerous families of bulbs.

The author enumerates many hardy bulbs which he happily describes as being at "the gate" waiting to be beckoned into the garden; he tells of the hospitality they should receive and the quarters wherein they should be lodged.

If after having one's interest awakened in a flower one learns its habits and properties and seeks further knowledge and wishes to enjoy the serener pleasure of flower culture in raising seedlings of one's own and thus experiencing the joys of the unexpected, it is the purport of this book to deepen such interest and increase such desire. As an encouragement Mr. Jacob tells us some of the best varieties have been raised by beginners.

The road the florist wanders along is a pleasant path strewn with flowers all the way. "Hardy Bulbs for Amateurs" is a very readable book and well illustrated by photographs of groups of flowers in suitable situations; the frontispiece, "Daffodils in Grass," is a delight. C. W. N.

SHRUBS FOR AMATEURS

IN writing this little book ("Shrubs for Amateurs." "Country Life," Ltd., 5s. net.) Mr. Bean, Curator of the Royal Botanic Gardens, Kew, deserves the thanks of all those interested in shrubs, and epecially those who require advice in a concise form, in a volume of handy size on the selection and cultivation of shrubs.

The popularity of shrubs in our gardens has increased enormously during the last twenty years, and this is hardly a matter of surprise, when we consider their beauty of form and the floriferous character of many of the genera and species, both of the older as well as those of more recent introduction. The numbers of introductions during the last few years by collectors in the East as well as other parts of the globe have been so many that the task of selecting is sometimes a rather bewildering one to the maker of a garden. In "Shrubs for Amateurs," the author has endeavoured to put his life-long experience and unequalled knowledge at the service of the cultivator of shrubs in a concrete form to assist him in selecting and growing the plants he desires to the best advantage. The book is written in a clear and lucid style in language that may be easily followed by all, without the use of many botanical terms that to many might be confusing. Much information is given in the opening chapter on the cultivation of shrubs, with the best methods to adopt in improving a poor soil as well as the measures necessary to keep a suitable soil in a fertile state of cultivation. Lists of plants are given which not only contain the best of the older favourites but also many of those more recently brought under cultivation.

By a reference to these lists the intending planter can at a glance find those shrubs best qualified to suit the positions it is intended to plant, whether these positions have a sunny aspect, or a northern exposure. Lists will also be found for poor soils, and dry, sunny places. If the reader should wish to plant for coloured foliage effects, either by variegation, or autumn tints, good selections will be found suitable for this purpose. There is also a large list of shrubs of diminutive proportions suitable for the rock garden, both evergreen and deciduous. By a reference to other lists the time of flowering can be readily ascertained, and by a judicious selection the interest in the garden will be continuous for almost all the months of the year. In the chapter on propagation many useful hints are given on this interesting subject, and the experience of many years is concisely stated to enable the grower to perform this work of increasing his stock from seeds, cuttings, layers, or division, which the writer points out may be done in many instances without any very elaborate appliances. Good advice is also given in the chapter devoted to pruning, as well as arrangement, grouping and transplanting, which are all worth perusal and are instructive in these important branches of horticulture. Nearly one hundred pages are devoted to descriptions of shrubs. These are arranged in alphabetical order according to their genera. In this manner most of the plants of merit in our gardens are mentioned, and may easily be found under the heading of each genus, with their requirements regarding soil and situation, as well as the colours of their flowers and foliage and the sizes to which they may eventually be expected to attain.

Mr. Bean is to be congratulated in producing such a useful little book, which, though ostensibly written for the amateur, should be of considerable use to the professional gardener; indeed, it might well be in the hands of all who possess a garden, whether of the smallest villa type, to that of far more pretentious size and expectations. It is well illustrated with fifteen full page photographs of specimens isolated and in groups.—R. L. H.

OBITUARY.

MR. WILLIAM CHARLES BLAXILL.

WE regret to announce that Mr. William Charles Blaxill, for over fifty years in the service of Messrs. Sutton and Sons and for the past eleven years head of the firm's exhibition department, passed away at his residence in Tilehurst Road, Reading, on October 17th, aged sixty-seven.

Mr. Blaxhill joined the staff of the Royal Seed establishment in January, 1874. For the first few years he was in the invoice and ledger offices, but it was always manifest that his *forte* was in the direction of the outside rather than the inside work of the great seed business, and some few years ago he was appointed by Messrs. Sutton head of their exhibition department, where his skill and taste in the effective arrangements of the many wonderful exhibits he staged for the Reading firm were well known to visitors to the horticultural shows up and down the country.

EDITOR S TABLE.

MESSRS. BARR AND SONS have sent us a fine bunch of their excellent pink Michaelmas Daisy Barr's Pink, which received an award of merit in 1922. The colour is rose with the slightest touch of purple in it, but in no case could it be called a magenta. The shape of the flower is good and the habit graceful.

WE much regret that through an error Rose Vanity was mentioned in our issue of October 18, as having been raised by Messrs. A. J. and C. Allen. This fine rose actually originated in the nurseries of Mr. J. H. Pemberton —[ED.]

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THE GARDEN

ORCHARD GARDEN WOODLAND

Vol. LXXXVIII.—No 2764 Saturday, November 8th, 1924 Price THREEPENCE

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HOWEVER beautiful the new varieties a firm may send out (see article in this issue), there will be no satisfaction to the buyer unless the service be equally good. The following is an excerpt from a letter received on 17th October and is typical of the appreciations coming to us by every post at present :—

"The Carnations arrived safely and I am very pleased with them. I have bought from other growers this season, but your plants are the strongest, best rooted, best packed, best labelled, and what is more, the soil did not fall away from the roots when they were unpacked. I enclose a further order, and cheque to cover cost."

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THE GARDEN

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APPLES & STILL MORE APPLES

THE GARDEN has always advocated the growth of more home fruit. So far it has been rather difficult to obtain definite statistics of the amount of fruit consumed in this country and grown outside of it. Here is some information which might interest our readers:

Messrs. Burnside and Co., a firm of Australian merchants, have been responsible for the display and sale of apples in the Australian pavilion at Wembley. Since the exhibition opened they have served over 1,000,000 customers by means of a staff of 120. Over 1,500 tons of apples have been sold. They have now ordered another 50,000 cases from Australia in order to cope with orders from visitors to the exhibition. These numbers are staggering. If we have to buy apples abroad, by all means let us buy them from the colonies; but why the necessity to buy fruit from overseas. Enough could be grown in the British Isles to satisfy home cousumption. There appears to be some hoodoo on English apples, and yet our readers might be interested to know that a well known fruit grower in Kent has built up a lucrative business in exporting English-grown apples to the Argentine, where they are in good demand.

They call this the greatest fruit country in the world, but the question of supply and demand presents some curious anomalies. Of course, the reason is fairly obvious: the commercial growers in the past have not troubled to grade apples and pears for the home market, nor have they bothered to pack them properly and so make them attractive. They are gradually waking up to the fact that proper grading and attractive packing help to sell fruit, but the buying public still has a great deal to learn, particularly that our fruit is the best in the world.

CERCIDIPHYLLUM JAPONICUM

WHILE visiting one of the great private arboretums noted for its autumn colouring I was lucky enough to see this plant at its best. Many readers of THE GARDEN will also remember the fine vases of it shown by Mr. Mark Fenwick at Vincent Square a week or two ago. In Japan it is often found over 100ft. in height, but the tallest tree in this country is about 40ft. The foliage is particularly neat in appearance, the leaves being heart-shaped, about 2ins. long and usually opposite. The value of the tree has been rather neglected by writers on trees and shrubs, for besides being graceful in habit at all times of the year, it colours fairly early in the year when most colours in the garden are dingy. There appear to be two distinct forms: one, which includes the earliest importations, turns almost a butter yellow, while the other, which may just be a sport, turns to a rich russet. I cannot express my opinion of this fine plant strongly enough, which is certainly one of the most valuable small trees that is in cultivation. It is obtainable from several nurserymen. Talking about different forms of a plant, there is a fine form of Rhus Cotinus, called atropurpurea, which has a purple tint to its foliage throughout the year. This is valuable, as Rhus Cotinus does not make a fine show of flower every year and in the north is rather a shy flowerer. This purplish form is an added attraction, and is obtainable in commerce.

SEA BUCKTHORN

THE orange berries of this seaside shrub have rarely been so plentiful as they are this year. Like the pernettya, it has male and female forms, and at least one male has to be planted to every six females in order to make it berry well. This lack of male plants is perhaps why the numerous bushes along the shore at North Berwick are such poor fruit bearers This plant is too well known to require description, but it is interesting to examine the small brownish star-like scales which cover the stems and branches. The fruit is so acrid that no bird will touch it until it is over-ripe and then only on occasion. In very cold weather magpies are known to frequent the bushes in search of food, but I know of no other bird with a digestion capable of assimilating such a bitter morsel. Although commonly known as a seaside plant, it will succeed equally well away from the sea, but it is perhaps a faddy subject with unknown likes and dislikes, it is, however, a most attractive plant and should be tried more often. Mr. Bean is particularly partial to this handsome shrub. He says of it: "Perhaps no other fruiting shrub is so attractive as this for so long a time." This is a fair judgment of its beauties, for the orange berries hang a long time and make a most pleasant contrast with the grey-green foliage. Where it finds itself at home, it sends up a plentiful supply of suckers. E. H. M. C.

IN OUR NEXT ISSUE WILL BE FOUND:

THE NEW BOTANICAL GARDENS AT GOTHENBURG, by Georg Brochner.

SOME INTERESTING TULIPS, by Joseph Jacob.

FRIENDS AND FOES OF THE GARDEN.—III, by Clifford W. Greatorex.

RHODODENDRON NOTES, by E. H. M. Cox.

REPORT OF THE NATIONAL CHRYSANTHEMUM SOCIETY'S SHOW.

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SOME UNCOMMON SHRUBS

We are sometimes asked to give the names of shrubs which are not generally seen in the ordinary garden. This is a good sign, for change is often a good thing and a break away from ordinary shrubs makes the garden not only more interesting but also more attractive. In this article will be found short notes of several shrubs which are not well enough known and are worthy of being planted in every garden.

OF all the plants which Reginald Farrer introduced from China, Buddleia alternifolia has probably the greatest future before it. In fact, it is impossible to praise this invaluable plant too highly. It is a widely branched and extremely vigorous shrub, carrying masses of rich lilac blossom during June. This blossom is born on the previous year's growth, which makes it important to grow the plant in a sufficient area to allow it to expand. It is unlike most other buddleias in appearance, but its long arching branches, small foliage and delicately shaped flowers make it worthy of being grown in all gardens. It is perfectly hardy, will grow in any soil, and is exceedingly easily propagated from cuttings. It should not be grown in shade. With these obvious advantages B. alternifolia is a plant which will soon be seen in every garden.

Vaccinium parvifolium is another deciduous shrub which should be more often grown. It is the common red huckleberry of Western America. It grows to a height of 5ft. or 6ft., is slender of growth, with small foliage, which turns to a fine crimson in the autumn. The flowers are solitary in the leaf axils and are not particularly striking, but the fruit is scarlet, rather acid in flavour and excellent for jams or pies, being treated in the same way as cranberries. Although known for many years, for some reason or another this plant has not received sufficient attention in this country. It is quite hardy, can be grown either in the open or in moderate shade, but will not stand lime. A fairly moist situation with plenty of humus in the soil suits it best.

THE DEEP PINK BELLS OF ARCTOSTAPHYLOS MANZANITA, AN ATTRACTIVE EVERGREEN SHRUB FROM CALIFORNIA.

Arctostaphylos manzanita is an attractive evergreen shrub from California, where it becomes a small tree, although in this country it rarely exceeds 8ft. The leaves are heart-shaped and leathery. It flowers in April and the flowers have the advantage of lasting a long time. They are deep pink in colour and are borne in short terminal panicles. It does not fruit in this country. It is quite hardy as long as it is sheltered from the wind and will grow either as a wall plant or as a bush. It will strike easily from cuttings, but they must be taken off short and they are the better for a little bottom heat. Its stiff appearance and red branches are most attractive at all seasons of the year. It will not grow in lime, but any good loam satisfies it. There are two other members of this genus which are found wild in this country, A. alpina, the black bearberry found in the North of Scotland, and A. Uva-ursi, the red bearberry, which is fairly often seen in the wild state high up in the North of England and in Scotland.

Styrax Wilsoni.—Although this beautiful and distinct deciduous shrub is of comparatively recent introduction, having been brought by Wilson in 1908 to these shores from western China, it is one which has already made a wide appeal to all lovers of garden shrubs by reason of its striking beauty. Like the group to which it belongs, of which three or four species are in general cultivation in this country, it is a shrub which may assume a tree-like form, attaining from 6ft. to 10ft. in height. It is generally much branched and the young shoots are noticeable, being covered with a characteristic down. The green oval leaves are also covered with down when young. Its chief beauty, however, lies in the masses of pure white flowers which are produced during June. These are fairly large and along with the nodding habit on long stalks at the end of the lateral twigs they give an excellent effect. The shrub is remarkable for its early flowering as when it is only a few inches high and about three years old it produces many of these beautiful shining white flowers set off to advantage by the yellow staminal columns. Like the other species in the group it requires careful attention during its youth. It generally does best in a sheltered spot in the garden, being given a good sandy loam, to which has been added a small proportion of peat and leaf-mould. Once they become established they generally do well. This species is best raised from seed, although in the case of other species cuttings prove successful.

Osmanthus Delavayi is another shrub which has only been in cultivation in this country a comparatively short time, long enough, however, for its value to be recognised as a distinct acquisition to our already long list of flowering shrubs. It is a member of the same family as the lilac of our gardens and is also closely allied to the olive, having the same characteristic opposite stiff dark green leathery leaves. It is also an evergreen, which adds considerably to its value. In this country it reaches 5ft. to 6ft. in height with spreading and somewhat pendulous branches. The flowers are pure white and fragrant and are borne in axillary or terminal clusters. In that way it differs from other species in the genus. Like so many others of our newer shrubs it is an introduction from Yunnan and appears to be hardy in this country. It is slow-growing and seems to prefer a light loamy soil and, like styrax, a slightly sheltered position. With these requisites it thrives successfully and well repays the care and attention which should be devoted to it when young. It can be readily propagated by means of cuttings in July if these are put into a case with slight bottom heat. It is a handsome shrub with an almost holly appearance and is one which will certainly add an undoubted charm to the garden.

One of the commonest deciduous shrubs of the middle and south of the United States, which flourishes in the lowlands and on the hills, is the much admired flowering dog-wood, Cornus florida. In its native country it is of vigorous habit and grows from 10ft. to 20ft. in height. For many months in the year C. florida presents a most pleasing appearance, from springtime when it is covered with a profusion of white or rose coloured flowers, until the red tinged leaves and

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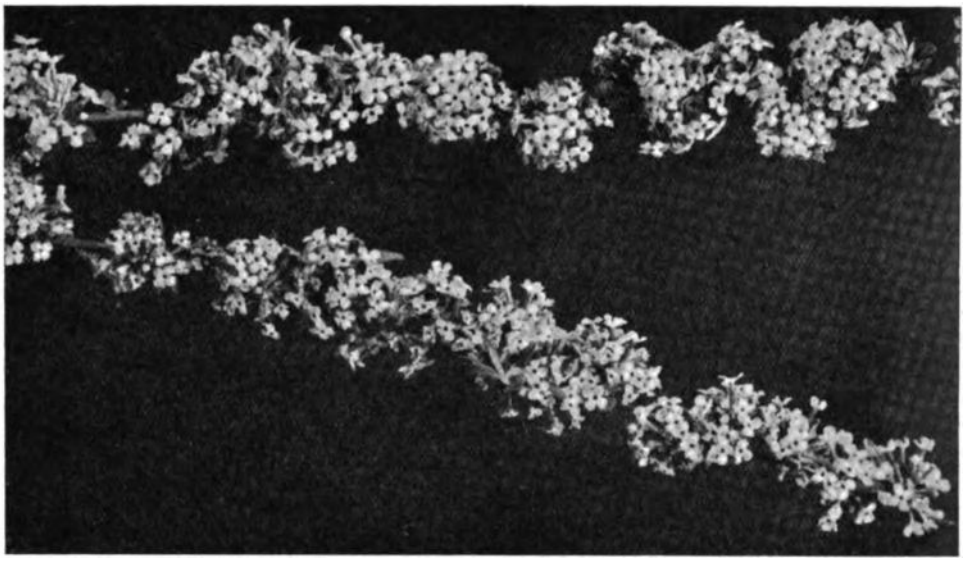
quantities of red berries deck its branches in late autumn.

This mass of showy white blossom is really an involucre surrounding the small and insignificant flowers which are tightly packed together in a greenish yellow head, measuring ½in. across. The bracts are four in number, 2ins. long, white and somewhat heart-shaped, having a broad indented apex. They are formed in autumn, enclose the flower during winter, and expand gradually in spring. The dark green leaves are opposite, 3ins. to 6ins. long and 1½ins. to 3ins. wide, the underside of which is pale, glaucous and downy. The bracts of C. florida rubra are bright rosy red instead of white. C. florida is unharmed by the dry cold of America, but suffers considerably from the dampness of an English winter and the late spring frosts. In the warmer parts of England, planted in a situation where as far as possible it escapes these late frosts, the shrub thrives well, but rarely reaches a height greater than 10ft.



THE BEAUTIFUL LILAC AND ORANGE SPRAYS OF BUDDLEIA ALTERNIFOLIA.

Although it is nearly 200 years since C. florida was first introduced into Britain, it has never become generally cultivated. Such a beautiful shrub should not be overlooked.

Among the fifty species of viburnum which have been recorded from China is V. utile, a shrub of graceful habit and 4ft. to 5ft. in height. It was discovered near Ichang in 1880 and introduced into Britain by Wilson in 1901. It has proved to be quite hardy and to prefer limestone.

The long thin branches are covered with pale stellate down. The leaves are 1in. to 3ins. long, ½in. to 1in. wide, oblong in shape, leathery and glossy in texture above, white and prominently veined underneath. In May the minute white flowers are produced in a densely packed umbel about 3ins. across. Towards autumn attractive black berries which are dry and oblong, ornament the shrubs.

The feature of this viburnum is that the flowers are fertile, whereas in several species there are two distinct types of flowers, sterile and fertile, the sterile ones being larger and more showy, used to attract insects to the inflorescence.

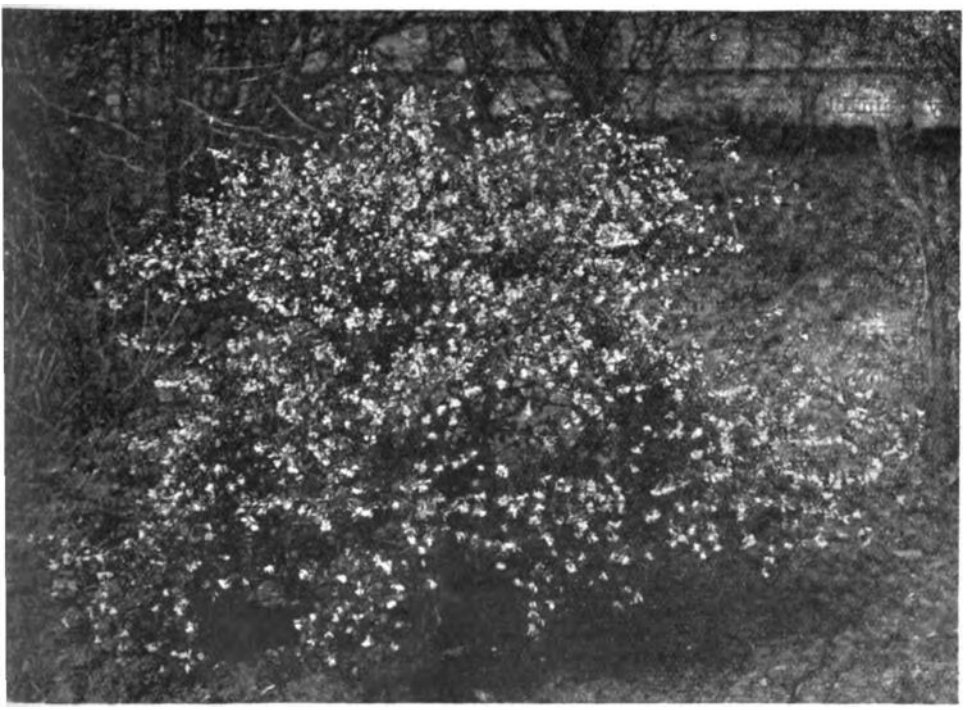
Planted in a border or at the edge of a shrubbery, V. utile is most valuable, being quite hardy, compact, and growing freely in any good loam. When it fruits in profusion it is one of the best of the viburnums in an autumn garden, but, unfortunately, it does not fruit freely every year.

Although Genista cinerea is one of the finest of its race and long known to a few gardens, it is still very uncommon. It seems to be equally rare in nurseries, for any efforts to obtain plants last season generally resulted in obtaining only poor specimens, evidently grown indoors, which would scarcely survive through the winter. Why G. cinerea should be out of favour one cannot guess. Lack of hardiness can scarcely be the explanation, since the Madeiran G. virgata, which is closely allied to it is absolutely reliable almost anywhere, and the former has done well at Kew for many years.

Of the many lowlier brooms suitable for the rock garden, the margins of heath slopes and the like, there are few early summer kinds to equal Genista tinctoria fl. pl. This is a quite dwarf, practically prostrate shrub which makes a large and dense leafy mat of bright green, just above which rise the short racemes of blossoms. These latter are a good, full yellow, richer than that of the type, and they are produced so abundantly that a well grown plant will be a blaze of gold. This accommodating little shrub will prosper in the driest and poorest soil, but it demands the fullest sun. In certain areas G. tinctoria fl. pl. comes into bloom just as that other valuable species, Cytisus decumbens, is going off.

Cytisus purpureus, with its varieties alba, incarnatus and others, is one of the most distinct of brooms when well grown, but too seldom does one get the pleasure of indulging in a vision of a really happy-looking specimen. It seems odd that this hardy European species should jib at life under conditions which are admirably suited to brooms generally. Mildew is frequently found to be one of its afflictions, and also slugs and snails. But these are secondary factors, since a really healthy shrub will rarely be attacked by such pests.

A distinct dwarf form of the yellow-flowered shrubby cinquefoil, Potentilla fruticosa, is well worth growing. This form was introduced by Farrer, and has distinctive value in its freedom of flowering from early summer to late autumn. This shrub produces especially charming effects in the rock garden if it is allowed to scramble over the stones.



OSMANTHUS DELAVAYI CLOTHED IN FRAGRANT WHITE BLOSSOM.

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PROTECTING TENDER PLANTS DURING WINTER

MANY choice plants cultivated in various parts of the country are more or less half-hardy, and some timely and suitable protection makes all the difference to their coming safely through spells of frosty weather. Before dealing with protective methods and the material used, it will be well to consider a side of the question which is too often overlooked, but which in some ways is really more important—and that is the position and aspect in which tender plants are placed. Many cultivators with insufficient knowledge of this particular branch of horticulture imagine that tender plants should be placed in very sunny situations where they can get all the sunshine possible. This is, of course, a natural thing to do. But in practice it has proved to be wrong; for such plants, when frozen, if exposed too quickly to bright sunshine, which often follows a frosty night, usually suffer severely even if they are not killed outright. The damage is caused by their not being allowed time to thaw out gradually. The same plants if planted in a west, south-west or north exposure will probably be unharmed because they have time to thaw out gradually. Protection from the sun may be afforded by a wall, fences, belts of shrubs, or even individual trees and shrubs. This question of aspect is very important where woody plants are concerned. In dealing with tender bulbs or plants of a herbaceous character it is not so important, for they require all the possible sunshine in order to ripen them properly, and as they generally die down during the winter it is an easy matter to protect them with some dry material, such as a covering of ashes, evergreen branches or even glass lights. In using protecting material for tender plants we should regard it as a more or less necessary evil, and as far as possible no protecting material should be used until it is really necessary, and it should if possible be of such a character that it can be easily removed between spells of frosty weather. There is quite a wide choice of materials, but whatever is used should be as light as possible. It should also keep dry for the longest possible period and be of such a character that it allows a free circulation of air, as all material which lies close and wet and excludes air possibly does more harm than good. In some parts of the country it is necessary to protect roses, and it is an all too common practice to give them a heavy mulch of cold wet manure, which excludes air and in every way is unsuitable for the purpose. Dry strawy litter should be used; but possibly the best way is to draw several inches of soil up round the stem of the plant, or a handful of dry bracken may be twisted round the stem. In cold, exposed situations drying winds combined with frost often do much damage. In such positions sheltering hedges, fences or walls are of prime importance. Where such shelters do not exist much can be done by using wattled hurdles or hurdles thatched with various materials. They are very valuable for this purpose and make effective wind breaks, and may be used to enclose a piece of ground or shelter individual plants. They can also be placed over plants growing on low walls, leaning them up against the wall at a suitable angle; they can easily be secured against being blown down. Light frames covered with mats or canvas are very suitable for the same purpose. They can also be used to cover plants growing on walls that are exposed to bright sunshine early in the morning. By thus shading them they are allowed to thaw out more gradually. Loose mats and canvas sheets may also be used for placing over plants growing on walls, as well as on frame-works erected over tender plants in the open. Woody plants with bare, exposed stems are often susceptible to injury from frost. Such stems may be permanently protected for the winter by wrapping them round with haybands.

Shrubs with short, bare stems may be protected by placing a piece of wire netting round the plant and filling it in with dry leaves, bracken or some such material. Here a word of warning may be necessary, as field voles often find comfortable quarters here and gnaw the bark, frequently girdling the plants for a few inches above the ground line; thus, where this method of protection is used, it is well to examine the plants frequently. Heather and gorse are very efficient when used for protecting shrubs with short exposed stems. Both are light and dry and do not lie closely, thus allowing a free circulation of air. In addition to this, shrubs of a reasonable size in the open may be covered with a light framework which will support mats or canvas coverings when necessary, or evergreen branches may be used for the same purpose; the latter have the advantage of admitting light and air, and may be safely left on for longer periods than closer coverings. The reed mats so largely used on the Continent for protecting purposes are also very useful, as with some supporting framework they can be quickly placed round moderate-sized plants. One large mat will often cover a small shrub, wrapping it round in the shape of a cone.

In the West I have seen tender bamboos drawn together and matted up for the winter without them taking any injury. Tree ferns, which are grown in some parts of Cornwall, should have some dry material placed on the crowns and then thatched to prevent water lodging in the crowns. Tender palms may have their leaves drawn up and carefully tied together, afterwards covering them with mats or a thatch of reeds or straw.

Plants behave differently in their resistance to frost. Some that are tender while young seem to stand more frost as they get older. On the other hand, young plants often come through a spell of frost that destroys older plants. In woody plants the damage often occurs in the older woody stems, while the younger shoots are unharmed. The injury is nearly always fatal, as the bark is ruptured, and thus all woody portions require protection.

J. COUTTS.

BORDER CARNATIONS FOR AUTUMN PLANTING

IN my last notes on these popular flowers I gave the cultural details essential to success and also mentioned a few noteworthy novelties. In the following article I give some impressions of varieties, both new and old, which I have grown during the past season.

The following are a splendid half-dozen from Crawley Down:

MARY MURRAY.—This is the best yellow self I have grown. It is a vigorous grower and the flower stems are rigid and strong. The flowers are large, of fine form, and the colour is very rich.

MAISIE LOWE.—A beautiful white ground fancy, with large blooms of good form carried on strong stems. The white ground is lightly pencilled with old rose. It is an improved Mrs. P. W. Owen.

ENID LOWE.—This variety gave some exceptionally fine blooms of dainty colouring, midway between Kelso and Pasquin. The apricot ground is daintily barred with a distinct shade of rosy lavender. It has a fine texture and smooth petal.

IVAN LOWE.—A new colour break, this apricot ground fancy, which is rather heavily marked with old rose, is very striking. It is a strong grower with long, rigid flower stems, and the blooms are of perfect form.

KATHIE MOORE.—Though not as large as some of the foregoing varieties, this is a very dainty and prettily coloured fancy. It is a good grower and has a fine border habit. The colour is rose pink on a yellow ground.

LADY SHACKLETON.—This variety gave the finest individual blooms of any of the fancies that I grew. It is almost identical with Lieutenant Shackleton—yellowish rose ground, daintily spotted with pink—but, in spite of its size, it has a perfect calyx, and unlike Lieutenant Shackleton rarely bursts. I was able to gather good blooms of this variety in very wet periods. It is a strong grower and an easy doer. I recommend it for exhibition purposes.

I grew many of Mr. James Douglas' newer introductions, and the following are all worthy of a place in any collection:

MARGARET KEEP.—A very delicate blush-pink clove, which is very fine in dry, sunny weather. It is a strong grower, free flowering, and the flowers are always of perfect form with good calyces. In thundery weather I have noticed that this variety, like all the delicately tinted kinds, is the rendezvous of tiny black flies, which sometimes completely cover the blooms.

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SCARLET CLOVE.—A heavily scented and brilliantly coloured self that rarely gives a faulty bloom. It is a fine grower, with long, stout flower stems, and it is free flowering.

KING OF CLOVES.—This is a huge flower of deep wine-crimson colouring. It is a very strong grower and the large, perfectly shaped blooms are carried on long, rigid stems. It is very strongly clove-scented.

CORALLINA.—I like the lovely colouring of this variety—glowing coral-pink—and it is very beautiful in artificial light. It is a good grower and the flowers are of fine form with non-splitting calyces.

PURPLE CLOVE.—A very fine purple self of strongest clove scent. It is a good grower, free flowering, and the well formed blooms are borne on long, stout stems.

STEERFORTH.—If I were confined to one dark fancy I should grow this. The white ground is beautifully and regularly marked with rich crimson-maroon and the flowers are large and of perfect symmetry. It has a good border habit and can be grown large enough for exhibition purposes.

ROSALIND.—Soft canary yellow with delicate pencillings of salmon pink make up the charming colour tints of Rosalind, and the flowers are well shaped, while the habit of the plant leaves nothing to be desired.

WHITE CLOVE.—Possibly the most fragrant of all the cloves, this variety makes a huge plant if left undisturbed for two seasons. It has a dwarf habit and is of very strong constitution.

SALMON CLOVE.—The lovely colouring of this beautiful salmon-pink variety and its fine form reminds one of the old favourite, Lady Hermione, but Salmon Clove is of larger proportions. It makes a fine specimen plant and I find it very free flowering. One of the loveliest of the self colours.

In a mental picture of my carnation border at its best I recall the following as being of outstanding merit :

As a dazzling scarlet self I know of no finer variety than GRENADIER. It retains its brilliance in all kinds of weather, but in a dry period it is positively brilliant. It has large, well shaped flowers and these are held erect on good stems.

GLOWWORM is a dwarfer grower, but possesses ideal qualities for border work. It has stiff stems and is very free flowering. This variety winters well in the north.

LOYALTY is a lovely orange-apricot of strong habit, bearing well shaped blooms on stout stems. This variety also winters well and makes a good second year plant.

SALMONEA is still one of the best salmon pinks. When at its best it is a beautiful colour and this variety is nearly always singled out by visitors as being a prime favourite. It is a good grower and very free flowering.

BOOKHAM SALMON is also a very fine salmon pink. It gives large flowers of perfect form and the calyx rarely splits. It has a strong constitution.

There are many very fine crimsons and maroons. The best that I grew this year was FRAGRANCE, a rich crimson-maroon, which is powerfully clove scented.

E. K. WAKEFORD is also a good variety of somewhat similar colouring. The flowers are always of good form and the calyx sound.

CENTURION is a great favourite of mine, a lovely yellow ground fancy, brightly marked with scarlet. Its flowers are always of good shape and size and the calyx is perfect. It has a strong habit and winters well.

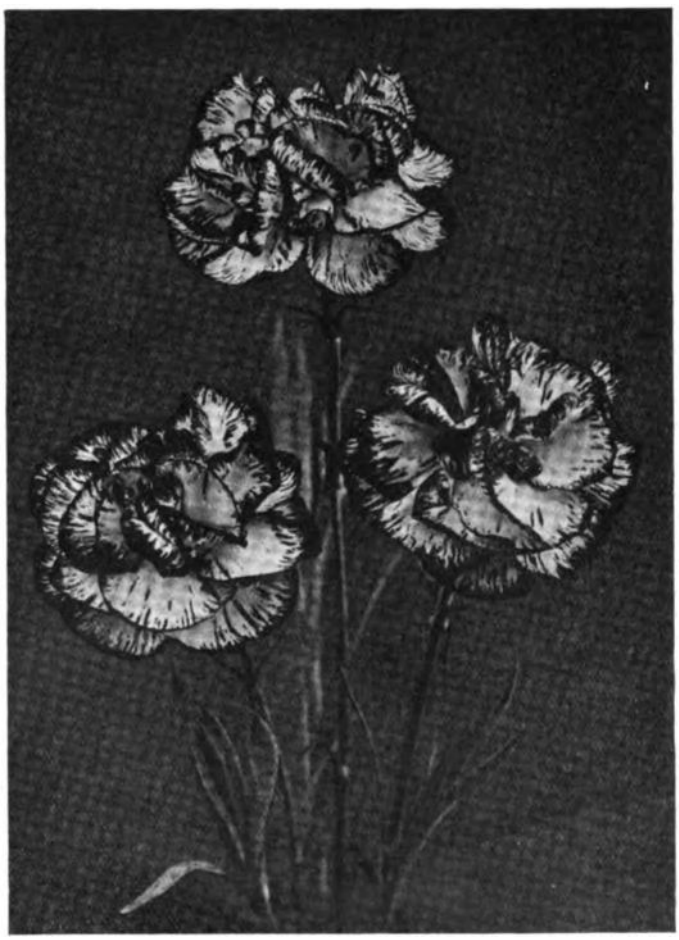
THE GREY DOUGLAS is a colour that does not appeal to all, but its lavender is often very silvery looking, and if a few spikes of this variety are mixed with one of the apricot selfs the effect is more pleasing.

APOLLO is a daintily coloured fancy—white ground with clear, light markings of bright red and a picotee edge of the same colour.

Other varieties of merit are : Blush Clove, Bookham Clove (similar in colour to the old-fashioned clove, but of better constitution and form), Maroon Clove, Elaine and Prairie Belle (both good white selfs), Mrs. Hawksbee (white, lightly barred with bright rose), and Bookham Rose, a very bright rose-pink of distinct colouring.

NORMAN LAMBERT.

KING OF CLOVES, OF A DEEP WINE CRIMSON COLOUR.



STEERFORTH, A HANDSOME DARK FANCY VARIETY

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A NEW RHODODENDRON

IN describing under the name Rhododendron Cooperi two specimens of an epiphytic Rhododendron gathered in Bhutan by Mr. R. E. Cooper in 1915 (Cooper Nos. 3959 and 4083), Sir I. B. Balfour writes: "Cooper obtained a third plant of this alliance in fruit only, the field ticket of which runs 'Parshong Timpu. Alt. 10,500ft. . . . No. 3506.' It has a strong resemblance to R. Cooperi, but there are slight differences in foliage that make me hesitate over identifying it with that species. It may be only R. camelliæflorum. We have seedlings raised from seed taken from Cooper's specimens and when they flower a decision of the point will be possible. If the plant is R. Cooperi the description of fruit which I have given will attach to the diagnosis of R. Cooperi." (Balfour, in "Notes of the Royal Botanic Garden, Edinburgh," Vol. X (1917), page 92.

A young plant of this Cooper number (3506) flowered in the Royal Botanic Garden, Edinburgh, for the first time in the beginning of June this year, and there is no doubt it is the same as Cooper's 3959. Two other plants growing under Cooper numbers have this year flowered for the first time also, and are so like the Cooper 3506 plant that in spite of minor differences of foliage and of time of flowering, I am forced to regard them as the same species. Both are growing under wrong numbers, *i.e.*, they do not match the herbarium specimens of the same numbers.

Growth this year has been vigorous, and has resulted in shoots 4ins. to 9ins. long, the lower parts of which carry small arrested scale-like leaves which give place abruptly to normal lanceolate or oblong-oblanceolate leaves 3ins. to 5ins. long and 1in. to 2ins. broad, fairly evenly spaced on the upper parts of the shoots. The small arrested leaves persist through the summer, and are then deciduous, but the normal leaves may persist four or five years. A feature of the young leaves is a conspicuous dusting of the upper surface with comparatively large yellow or white scales. These disappear as the leaves get older, and the upper surface of the leaves one year old is deep green, almost glossy and minutely rugulose with impressed reticulations. On the under side the leaves are densely scaly, at first grey-white or green-grey, later rust-coloured with a punctate appearance due to larger scattered scales of darker tint.

The flowers are not conspicuous and do not readily catch the eye from a distance. Apart from the fact that the flower colour is not a bright one, the flowers are few in a truss, often three, rarely as many as five, very shortly stalked, and congested in umbels that at first are surrounded by the more or less persistent bud-scales and bracts. Moreover, new shoots spring from just below the umbels and are usually well developed at the time the flowers open. On close examination the flowers are rather attractive. The corolla is a deep magenta red, rather less openly cup-like than R. camelliæflorum and is copiously dusted outside with large yellow or whitish scales which are much more conspicuous than the scales on the corolla of R. camelliæflorum. The corolla tube is wide and open and the five rounded lobes form an almost rotate corolla limb about 1in. to 1¼ins. across. The stamens, usually ten, exceed slightly in length the corolla tube, and their thick purple filaments have dense tufts of hairs which, in conjunction with the hairiness of the throat of the corolla, give a circular "eye" of white soft hairiness within the flower cup. This makes a pleasing contrast to the deep colour of the corolla lobes. Then, again, the anthers are large and of bright orange-brown. The short, thick style of a deep purple colour protrudes through the hairs and is curved as in R. camelliæflorum, so that the discoid stigma lies close to the corolla or is thrust between its lobes.

RHODODENDRON COOPERI, BALF. F.
(About two-thirds natural size.)

Two of the plants had the young leaves tinted a rich purple bronze, on the third they were light green. The bronze plants flowered earlier and had slightly smaller flowers than the other, which is a larger and altogether sturdier-looking plant with stouter branches and broader leaves less curved at the margins. The plants showed differences also in the time of making new growth and in the relationship of this to the time of flowering. The first plant to flower, a form with bronzed foliage (Cooper 3506) had young shoots as much as 6ins. long when the first flowers opened. The largest plant of the flowers of which I give a photograph, was three weeks later in flowering and the blooms were already open when the buds of the new growth were beginning to expand. These features may not be permanently characteristic of the individuals, but they suggest that we may be dealing with forms culturally somewhat different from one another.

R. Cooperi is certainly interesting botanically, but I do not think it will prove very attractive horticulturally, nor is it to be expected that it will be quite hardy. The Edinburgh plants flowered in open frames, but they were protected through the winter.

H. F. TAGG.

FRIENDS AND FOES OF THE GARDEN—II

BY CLIFFORD W. GREATOREX.

IT is a true saying that—

He who kills robin or wren
Is good for neither God nor men.

Assuredly, such a wanton one is doing injury to the gardener's interests, for Jenny Wren and Robin Redbreast are two of the most useful of all the birds that help to keep down the insects hosts. With Robin we shall be concerned presently.

The wren seems to be untiring in its quest for hidden prey. Its zeal is unflagging. Into the deep recesses of ivy, and the intricacies of hedgerows, and the labyrinths of undergrowth will Jenny go, intent only upon one object—the discovery of insects. She seeks insects in all their stages of development—as eggs, as larvæ, as pupæ and as imagines. The insect's egg that escapes her penetrating little eyes must be minute indeed! During most of the year, Jenny feeds on only small insects and kindred creatures, but, when these are scarce, as they are in the heart of winter, quite large chrysalids are devoured. I have seen her disposing eagerly of the chrysalids of white butterflies. The gardener has sound reason to be profoundly thankful to any bird that helps rid his domain of the cabbage butterflies. Jenny's winter-time activities save him many hours of wearisome caterpillar-hunting at a later date.

No less familiar is the robin, whose song is one of the sweetest of all the accompaniments of autumn. Robin is as useful as he is charming. He is by no means dependent upon our offerings of crumbs and scraps, but throughout the greater

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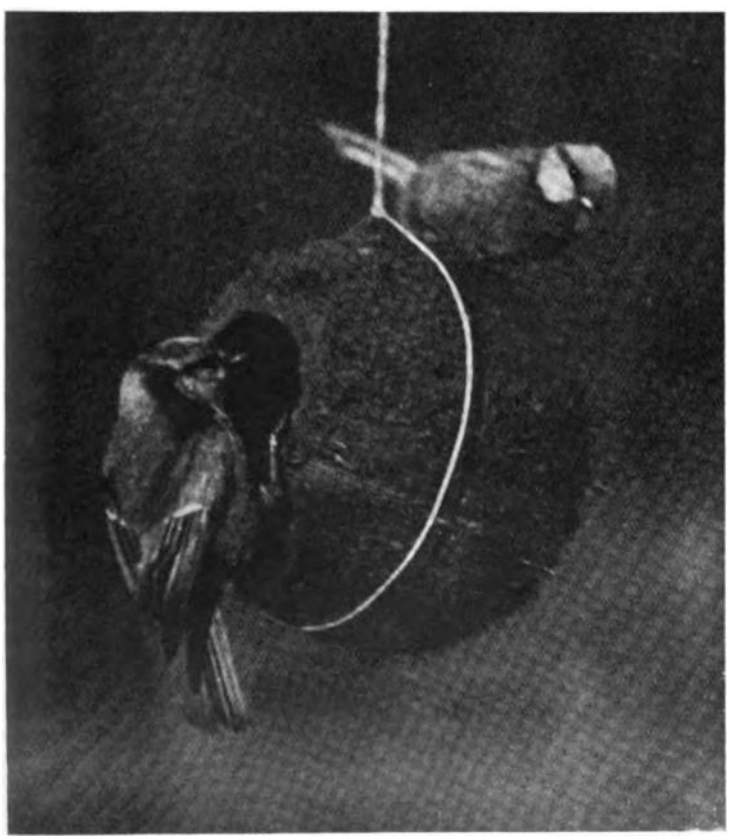
part of the year this active bird wages continual warfare against harmful insects. Often he will catch flies on the wing. Plump caterpillars are his especial delight, and I have heard him "clicking" away excitedly upon discovering a row of bushes infested with the larvæ of the gooseberry sawfly. During the time when there are young to be fed, robin's activities increase very considerably, and his services as a pest-destroyer become greater accordingly. In the chilly months of the year Robin does good work by capturing the winter moths, against whose ravages even the stickiest bands of bird lime are not always effectual. Sometimes he will hunt the fluttering males of this species until the darkness renders the pursuit impossible. There is no need to dilate more fully upon the extent of Robin's utility. He is well established not only in the favour of the gardener, but in the esteem and goodwill of mankind in general.

All the titmice are beneficial and they are as attractive in appearance as they are useful. Best known among them are the great tit and the blue tit. The great tit, by the way, is a pugnacious bird that, given the opportunity, will not hesitate to pick out the brains of a captive or injured member of its own kind.

Admittedly titmice are very fond of young buds, but as a rule the buds destroyed are already infected by insects. Charles Waterton would never allow the tits in his orchard to be interfered with, and the birds abounded there. Yet his fruit crops were always good, even when those of his neighbours, who would not tolerate the tits, were poor. Concerning the great utility of the blue tit, that distinguished authority, Dr. Coward, remarks: "No species destroys more coccids and aphids, the worst foes of many plants." These birds have been known to consume American blight. Great numbers of the caterpillars of leaf-miners are devoured, and even the sudden descent by silken threads cannot save them, for the titmice poise on vibrant wings and adroitly seize the hapless grubs. And, were the latter to remain in their shelters, they would be pulled out relentlessly by the keen-eyed little birds. I have seen both great tits and blue tits picking the larvæ of currant moths from the bushes with great assiduity.

The song thrush, the mistle thrush and the blackbird are species that render very great service by destroying slugs, snails, caterpillars, many kinds of beetles and various other



ALTHOUGH SOMETIMES MISCHIEVOUS, BLUE TITS ARE USEFUL IN THE GARDEN.

THE BLACKBIRD'S COIGN OF VANTAGE

insects, although they are partial to ripe fruit during a necessarily limited portion of the year.

Everyone has seen snail-stones; those stones on which the thrushes (both song thrush and mistle thrush) smash the shells of their molluscan victims. Judged by the abundant litter often surrounding these stones, the number of snails disposed of must be very great indeed. The berries most in favour among these handsome birds are those of ivy, yew, hawthorn and mistletoe.

As to the destruction of garden fruits, careful observations have proved that, in this respect, the blackbird is a greater offender than is either the mistle thrush or the song thrush. Pears, apples and raspberries are irresistible to the "golden-bill," but, before imposing sudden death upon him it is advisable to settle in one's own mind whether or not the good he does by destroying slugs and snails and so-forth is not greater than the injury he inflicts upon one's cherished fruit. A bird that is highly beneficial throughout, say, ten months of the year, but lapses into what seems to the gardener to be sheer thievery during the remaining two months, is hardly bad enough to be shot down as though he were a freebooter from the first day of the year to the last! It is better to take every possible measure for the protection of one's fruit without causing the blackbirds to pay the death penalty.

The starling is another bird that alternates long periods of good service to the gardener and the farmer with short intervals of mischievousness. Multitudinous are the insects devoured by this engaging and lively bird, and included among them are pests such as weevils, wireworms, many kinds of harmful flies, while slugs and caterpillars are consumed with noisy eagerness. I have seen a couple of starlings seize a huge black slug, hack it into pieces, striving meanwhile who could swallow the greater portion of the very frothy tit-bit!

When the pears are ripe, the starlings show their appreciation of these succulent fruits all too freely. But, the gardener is not always obliged to resort to the use of his gun. A stuffed hawk, placed in an exposed position, has been known to keep the starlings away from even the most tempting of heavily laden pear trees. Or, better still, a live hawk, borrowed from a falconer, or trained from the nest, and secured where the clamorous birds could not fail to see it, is a warning that not even the boldest of starlings would fail to heed!

Of late years, starlings have been rapidly on the increase, largely owing to the amount of protection which they enjoy, and also to the fact that they can move rapidly from place to place according to whether food is scarce or plentiful in a certain area. In winter, when the nights become colder, these birds congregate in large flocks which frequent marshy districts, and then in the day-time, they spread over the fields in search of their insect food.

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HUNTING SEMPERVIVUMS in the CANARY ISLANDS

BY DR. R. LLOYD PRAEGER.

DR. PRAEGER VISITED THE CANARY ISLANDS TO ASSIST IN CLEARING UP THE CONFUSION WHICH REIGNS IN THIS GENUS.

THE distribution of the genus sempervivum (using the term in its wider sense) is peculiar and interesting. One half of the group (sempervivum proper) is spread across Europe from the Pyrenees to the Caucasus, reaching its maximum on the Alps, with one outlying species (S. atlanticum) on the Atlas mountains in Morocco. The other half, some sixty species, is centred in the Canary Islands and Madeira. These latter plants differ much from the European section and from each other, ranging from soft annual herbs to massive sub-shrubs forming bushes several feet high, and the tendency among modern botanists is to group them in four separate genera—Æonium, Aichryson, Greenovia and Petrophyes (Monanthes).

In European botanic gardens these Canarian plants are well represented, but as regards their nomenclature they are in a state of confusion equalled only by their Alpine cousins. By the kindness of many fellow-workers I amassed during the last two years a collection of some 350 plants from gardens situated anywhere from Scotland to Servia, and from Portugal to Finland. The names under which these plants arrived represented every known Canarian species, and included others as yet undreamed of in our philosophy. But the plants! Some twenty species could be identified, masquerading under more than twice as many appellations; but the balance included a welter of plants intermediate in character and often merging by degrees into one another, which proved impossible to name and rendered the identification of the good species the more difficult. These were evidently mainly garden hybrids of undetermined origin, and their presence confused the whole issue. It was plain that garden material alone offered but little help. Salvation lay not that way, and accordingly I arranged to spend three months on the islands, collecting and studying the group in its natural home. It may be said at once that one did not thus get away from the confusion which hung over the genus, for the records of the local distribution of the different species proved often erroneous or vague, and to a considerable extent one had to begin *de novo*.

However, we landed (my wife and I) with high hopes on Tenerife on March 6th, and I felt a thrill when, motoring to Orotava, I saw my first wild Canary sempervivums—big palm-like plants of Æonium urbicum on roadside walls, followed farther on by the branched tree-like Æ. holochrysum, and on rocks near Orotava the flat green discs of the remarkable Æ. tabulæforme, one of the most curious of the whole group, and the soft hairy leaves of Aichryson annuum (dichotomum). I may say at once that the subdivision of the Canary plants into four genera—Æonium, Aichryson, Greenovia and Petrophyes—seems, after study on the ground, to be well justified.

The Canary archipelago includes seven islands—"Tenerife and its Six Satellites"—three lying eastward of Tenerife and three westward. We proposed to explore all and, after a few days at Orotava to establish a kind of base camp, we took the inter-insular boat for Fuerteventura, 150 miles to the north-east. Fuerteventura is a large island sixty-three miles in length, and is the least fertile of the group on account of its very small rainfall, due to its position and its comparatively small elevation. In exploring it and the other outlying islands we had the advantage of the company of Dr Oscar Burchard of Orotava, whose knowledge of the country, the language and the plants was very valuable. Landing at Grand Tarajal, we struck southward for the mountainous peninsula of Handia, across mere desert, "desperate and done for," sometimes of black stone, sometimes of white sand, trekking on camels by day and sleeping under the stars at night. On the afternoon of the third day we reached the summit of the Pico de la Zarza (2,770ft.), the highest point of a lofty ridge which on the north-western side fronts the ocean in a magnificent fifteen-mile range of enormous cliffs. In contrast to the desert valleys behind, these cliffs have a luxuriant vegetation, due to condensation as the ocean winds strike them. Here we got Aichryson pachycaulon (?); this is its only known station, and it has apparently never been collected since Bolle discovered it in 1854. Petrophyes agriostaphys was here, too. Next day we got another of Bolle's endemics, A. Bethencourtianum, when crossing the pass which leads down to Cofete. This was all we succeeded in doing in Handia, though a couple more endemic sempervivums called aloud for re-discovery. The great difficulty of securing food, water and shelter (we "slept out" for a week) drove us northward again. We reached Monte de Cardon, a fine upstanding cliff-walled hill of 2,200ft., but it was too dry for sempervivums (which are by no means desert plants) and, abandoning our camels at Tuineje, we motored north to Oliva, where a slightly greater rainfall produces comparative fertility. Here we collected A. pulvinatum, which proved to be indistinguishable from the well known A. pygmæum, and also, but in a station open to suspicion of introduction, the fine Æ. balsamiferum. We left Fuerteventura after twelve days' work with only five species to our credit—no more than we had seen on the first half-day on Tenerife.

Photo Dr. Oscar Burchard.

ÆONIUM CANARIENSE IS WIDELY DISTRIBUTED OVER THE ISLAND GROUP.
Note the small white stick which measures ten centimetres.

Lanzarote, the most eastern of the islands, was explored next. Haria, our destination, was an oasis full of palm trees and crops. The town lies among high hills, which on the west drop into the ocean in a long line of magnificent 2,000ft. cliffs. This was our best ground, but its exploration was rendered difficult by a persistent gale of wind which made cliff-climbing a dangerous form of exercise. However, I crawled along ledge after ledge, and

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had the satisfaction of finding Æ. balsamiferum unquestionably native, another Æonium not yet determined, A. pygmæum, P. agriostaphys and plenty of Sedum lancerottense, first found near here by the Rev. R. P. Murray, and still the only known Canarian stonecrop, except for the annual S. rubens. Inland cliffs and rocks yielded all these species again, except the first.

From Lanzarote we passed to Grand Canary and, motoring through the coastal sub-tropical desert zone, reached the hill region, where green fields, bushes and trees formed a welcome contrast to the barrenness of the eastern islands, and where for the first time we revelled in a rich sempervivum flora. The barranco on the edge of which our fonda at Valsequillo was built was full of Æ. Manriqueorum and one or two others not finally determined, the handsome Greenovia aurea, A. punctatum, A. annuum and P. brachycaulon. Tenteniguada, a few miles away, is a glorious place, with great gorges, cliffs and pinnacles vying in picturesqueness with the best pieces of the Alps, though the highest point is only some 6,000ft. Here we saw for the first time the beautiful Æ. cæspitosum, and also a very large yellow-flowered species which appears to be new. All these plants were seen repeatedly as we wandered westward along the hills by San Mateo to Firgas, a mule carrying our baggage. In the great Barranco de la Virgen the large downy-leaved Æ. virgineum came in in millions, to the exclusion of almost every other sempervivum. Cuesta de Silva, a glorious gorge down by the sea, proved a very garden of sempervivums of the species named above, and along with the splendid crater called Caldera de Bandama, it also yielded Murray's Æ. percarneum, a fine plant much flushed with red. We left Gran Canaria with regret.

We now turned our attention to Tenerife for a short period, and explored the north coast, past the great cliff ranges at San Juan de la Rambla, starred with innumerable Æ. canariense and Æ. tabulæforme, to Icod de los Vinos, which proved a good centre. Here the scarps formed véritable rock gardens decorated with the two last-mentioned species, bushes of Æ. holochrysum, hanging masses of P. agriostaphys and plump reddish clumps of the beautiful P. polyphyllum. We pushed on westward to the very perfect little volcano called Montañeta de Taco, whose slopes and crater have a fascinating desert vegetation. Here Æ. Haworthii is abundant, and we also secured the rare Æ. sedifolium, with small green and scarlet leaves.

Back in Orotava, we made an expedition on mules to the Roques de Guimar on the southern slope of the island, up through the cultivated zone to Agua Mansa, where Greenovia aurea starred the cliffs in thousands, through the Retama zone, over high screes almost devoid of vegetation, across the ridge at 6,500ft., and down into a vast savage crater. Here, in a gorge in the many-coloured crumbling volcanic rocks, we got Æ. strepsicladum, the remarkable Æ. Smithii and the rare Greenovia rupifraga.

Photo Dr. Oscar Burchard.

AICHRYSON PACHYCAULON GROWING IN ROCKY CLEFTS ON FUERTEVENTURA.

Photo Dr. Oscar Burchard.

ÆONIUM SEDIFOLIUM, ONE OF THE RAREST OF ALL SEMPERVIVUMS.

Anaga, the narrow eastern end of Tenerife, is composed of very old volcanic rocks, which have been carved into mountains and gorges fantastic in their ruggedness. Laguna forms a good strategic centre for the exploration of this region, which is of deep interest to the botanist, for from Laguna one easily reaches a bridle path which leads for miles at an elevation of about 3,000ft. along the backbone of the promontory, affording easy access to the pinnacled ridges and deep valleys which drop steeply down to right and left. We spent several delightful days in this region, securing the fine Æ. cuneatum, like a glaucous Æ. canariense with rosettes 1½ft. across, the thick-leaved Æ. Lindleyi, the very rare Greenovia gracilis, and a remarkable Petrophyes for which I have not yet discovered a name.

We landed on Palma on May 4th, with a feeling of regret that the vagaries of the inter-insular steamer service allowed us only seven days for the exploration of this lovely island. The time was spent in working up and down the east coast from Fuencaliente, at the southern end, to La Galga, and in the great barrancos behind Santa Cruz de Palma. The southern region consists mainly of lava flows, cinders and pine woods. Here the very local Æ. cruentum has its headquarters, growing often on the bare lava, where in summer it is burned to a leafless twiggy bush. With it was a Petrophyes still unnamed. The grand barrancos near Santa Cruz, whose precipitous wooded sides rise for up to 2,000ft. above the cañon-like stream-courses, were full of Æ. palmense (the Palma representative of Æ. canariense) and other more familiar species. Tramping northward from Santa Cruz, we had the good fortune to find a remarkable Æonium which is undoubtedly new—a massive plant, with thick, sticky leaves larger than a man's hand, a solid unbranched stem, and a large flat-topped inflorescence. Further on the pink-flowered Æ. Goochiæ became exceedingly common. Like many of the Canarian plants, its world-range is limited to portion of one island of the group. The Barranco de la Galga was searched for another endemic species, Aichryson parviflorum, recorded only from there. We were rewarded by an equally rare species, A. palmense, previously known only from a spot further north. Night overtook us entangled in a succession of great gorges crammed with sempervivums. We found refuge in a kind of cellar under a tiny shop, and next day rode back rejoicing to Santa Cruz.

We next raided the small island of Hierro. The principal town, Valverde, lies at 2,000ft., and the aspect there, though pleasantly green, is somewhat bleak. But it proved rich in the group which I was working. In a crater above the town and in neighbouring gorges the grand Æ. hierrense grew in profusion—a noble plant 2–4ft. high, with an unbranched stem terminating in a huge inflorescence, up to 2ft. long and 1½ft. across, of thousands of pink blossoms. With it were the tall yellow spires of Æ. canariense, and an interesting series of hybrids between these two. Another fine Æoniu

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undescribed, was abundant also, especially in the lower regions—a rather symmetrically branched plant several feet in height which hybridised with both hierrense and canariense. Petrophyes muralis, another addition to our collection, grew on house walls just outside our bedroom window. We made a four-day excursion on mules to the western part of the island. At El Pinar Æ. cruentum grew in its only station outside the island of Palma. Also our new Valverde Æonium and several other species already collected elsewhere. Then through forests of stately Pinus canariensis and across the island to El Golfo. This is a fertile slope enclosed on three sides by a semi-circle of gigantic cliffs 3,000ft. in height, and on the fourth by the ocean. The cliffs are literally clothed with sempervivums, especially Æ. canariense and G. aurea. The endemic Æ. hierrense was here, too, hybridising as at Valverde with Æ. canariense.

Our last island, Gomera, to visitors perhaps the least known of the group, proved to be possibly the most beautiful and interesting to us. From San Sebastian, the capital, standing on a sandy bay, where we first stayed, an immense branching barranco leads inland to the wild forested interior. Here grew in abundance three species all of which are confined to Gomera—Æ. viscatum, Castello-Paivæ and (more locally) Saundersii, all very distinct and characteristic plants. Æ. canariense was abundant also in a peculiar form, probably deserving sub-specific rank, the leaves very narrow below and exceedingly broad above, disposed in a flat rosette resembling tabulæforme, the inflorescence very narrow. At the pass or Degollada leading across to Hermigua, where the vegetation was composed mainly of sempervivums, we got a new species, allied to Castello-Paivæ, but quite distinct. The neighbourhood of Hermigua, with its great cliff-walled valleys and lovely moist forests of laurus and erica, proved fascinating. Æ. viscatum and Æ. Castello-Paivæ were abundant. Perhaps it is the great abundance of the few species which occur which accounts for the finding on Hierro and Gomera of a number of natural hybrids, hitherto considered very rare in this genus. We got Æ. canariense × viscatum, canariense × Castello-Paivæ and Castello-Paivæ × viscatum, also a Petrophyes still undetermined. Thus Gomera, though quite a small island, added considerably to our collections.

We had now to hurry home, for a large quantity of living material had been amassed from the different islands—235 gatherings in all. Of these two (both Petrophyes) collected early in our tour died during our absence on the western islands. Of the remaining 233 all arrived alive in Ireland, owing largely to the kindness of Captain Pope of the Yeoward liner Alondra in placing at my disposal an empty stateroom. Here all the plants were spread out to the air and light, and without water they actually improved on the voyage.

In these notes I have "stuck to my text" and dealt merely with the collecting of the group at which I am working.

(Photographs by Dr. Oscar Burchard.)

SHOWS AND SCHEDULES

BY EDWIN BECKETT.

(Continued from page 734.)

FOR the second part of these notes we will briefly consider the shaping of schedules, for average societies, for three periods, viz., for a show say about the middle of April, for a show about the end of May, and for one early in September. The ideas set out can, of course, be modified to suit local conditions, as will undoubtedly be necessary, and it should be further borne in mind that the suggestions are made for the neighbourhood of London, therefore southern societies will realise that their conditions will permit earlier efforts up to as much as ten days, and the northern associations will be able to modify the dates for a period of up to a fortnight later. Before considering the suggestions in detail, it is well to state that, for a society that only runs one show each year, the ideal period is probably from the middle to the end of July, weather conditions being about the average, and therefore it would be well to aim for that time as far as possible.

MID-APRIL SHOW.—At this time of the year it would be well to understand the effort to be principally for the benefit of those who raise spring bulbous plants, and therefore it should be a spring flower show, the prime attraction of which will be daffodils, tulips and hyacinths, the chief classes being allotted to these.

Classes for daffodils could comprise, say, a collection of twelve distinct varieties, twelve (or six) stems to a vase. Similar collections of six distinct varieties, vase of twelve trumpet daffodils all one variety, twelve stems to form a vase, and other classes for the other types such as the Leedsii, the poeticus, the Barrii, etc. Other classes could be formed for hyacinths grown in pots, or fibre, and call for, say, a collection of six distinct varieties, or for a collection to occupy a certain table space, and then minor classes for colours. Other classes could be formed for tulips and early spring flowers, such as wallflowers, violets, polyanthus (an especially enticing class), and even for roses and carnations grown under glass, if there are growers who can fill the bill with these, but they should be omitted if the members of the society do not go in for glasshouses. Another fascinating group that would probably be well looked after by enthusiasts, are rock plants, and a class could be included for a table rockery, to cover a space not exceeding certain limits. In addition, form a class for twelve distinct rock or alpine plants grown in pots or pans, and a smaller class for six plants. Early-flowering herbaceous plants could well form a small class, say, for three vases of distinct kinds. Another good class could be formed for, say, six vases of cut material from early-flowering shrubs and trees. Table decoration classes should not be omitted, and those very charming classes of wild flowers and grasses, for children's competition should certainly be included. Finally, for the vegetable enthusiast, classes could be formed for rhubarb, asparagus, cabbage and broccoli, which would be the chief probabilities at such early period, and as the efforts of the members grew, so the classes could be extended annually for vegetables in order to entice them to attempt forcing under glass in heated pits and frames on hot beds.

THE END-MAY SHOW.—This could be a general effort period, and vegetables commence to take a more prominent position, so that a class for three distinct kinds of vegetables (or more if the cultural efforts are well established and of high level), with separate classes for early broad beans, leeks, onions (autumn sown), cauliflowers, etc., such as might be likely to be in season at this period in particular localities. Again, classes for small table rockeries, and cut flowering shrub and tree material, as also for the table decoration and wild flowers should be formed, and good classes for collection of perennial flowering subjects, as well as single vases of different kinds. Inducement to interest those who went in for stove and greenhouse plants should be added, and a class calling for an ornamental group of such plants formed, as well as classes for isolated plants, under different kinds, included, such as a class for the best three pots of begonias, qualifying this for tuberous-rooted varieties if desired, and even a separate class for other varieties. Incentive should also be given to growers by the formation of a class for early (forced) strawberries, calling for a dish of, say, twelve, eighteen or twenty-four fruits, and another class might even be formed for grape growers, for careful storage methods should permit quite a nice display of this attractive fruit.

EARLY SEPTEMBER EXHIBITION.—There need hardly be very much limitation to the effort for this period of the year and here I will tabulate classes to save space:

Plants in pots:

Three window plants, distinct kinds in pots, not to exceed 8ins.
Three fuchsias, distinct varieties. Pots as above.
Three geraniums, distinct varieties, etc.

Cut Flowers:

Twelve bunches (or six) hardy border flowers, not less than nine (or four) distinct kinds, excluding annuals, biennials, shrubs and trees.
Three bunches (or vases) ditto, ditto.
Six cut roses, in vase, with own foliage.
Three ditto.

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Best arranged bowl of roses, any variety, with own foliage, no other foliage permitted.
Six cactus dahlias, not less than three distinct varieties.
Six dahlias in not less than three distinct varieties, excluding cactus.
Six vases of chrysanthemums, not less than three distinct varieties.
Three vases ditto, ditto.
Three vases of Michaelmas daisies, distinct varieties.
Classes for violas and show pansies, calling for say twelve and six distinct varieties.
Three vases of antirrhinums, distinct varieties.
Vase of gladiolus, not less than six spikes.

Fruit :

Collection of four distinct kinds.
Collection of apples. Six distinct varieties, six fruits of each.
Collection of pears. Six distinct varieties, six fruits of each.
Collection of plums. Three distinct varieties, six fruits of each.
Apples, dessert. Dish of six of any one variety.
Apples, culinary. Dish of six of any one variety.
Pears. Dish of six of any one variety.
Plums. Dish of nine of any one variety.
Damsons. Dish of twenty of any one variety.
Cherries. Dish of twenty of any one variety.
Figs. Dish of six of any one variety.
Red currants. Dish of twenty stalks, as grown, of any one variety.
Raspberries (autumn fruiting). Dish of twenty fruits.
Nuts, filberts or cobs. Dish of twenty of any one variety.

Vegetables :

Collection of six distinct kinds . Size of the dish to be in
Collection of four distinct kinds . accordance with the numbers set out below for single kinds.
Collection of salads. Four dishes each, comprising a distinct vegetable, used uncooked as a salad. Beet may be included, and mustard and cress to count as one kind.
Potatoes (two dishes). Nine round and nine kidney, one variety of each.
Potatoes. Nine round of any one variety.
Potatoes. Nine kidney of any one variety.
Six onions, winter sown, of any one variety (*i.e.*, sown under glass and planted out in spring.)
Six onions, spring sown, in bed, of any one variety.
Four beet of any one variety, long.
Four beet (round) of any one variety.
Six turnip of any one variety.
Six carrot of any one variety.
Four parsnips of any one variety.
Twenty-five pods of runner beans of any one variety.
Twenty-five pods of peas of any one variety.
Six leeks of any one variety.
Two vegetable marrows of any one variety.
Three cabbage of any one variety.
Two cabbage (red) of any one variety.
Three cauliflowers of any one variety.
Three celery of any one variety.
Six tomatoes of any one variety, red or yellow.
Twenty shallots of any one variety.
Twenty brussels sprouts of any one variety, to be shown off stem.

So much for the main sections, which can, of course, be modified to suit local conditions. To finish off the programme, classes can be formed for rock plant collection, table decoration, floral or this could be extended in scope to permit of decoration with fruit and floral work, to comprise a table set out for dessert. Other items could be a buttonhole class, classes for vases of flowers arranged for decorative effect, vases of wild flowers for children's competition, and one that should specially be added if well into September, is a class for a bowl of autumn foliage and berries arranged for effect. This latter class of decorative material is too frequently overlooked, and I should like to see more effort directed towards this, so that classes may appear in schedules calling for say a dozen vases of distinct kinds of autumn foliage or berries, as fine ornamental effect would thus be given to the showroom, and the beauty of these items for home use would then be more fully realised. In conjunction with this idea I would recommend to the schedule makers a class for a vase of rose hips, the fine effect of which would surprise their visitors to the show.

Just a final word, the foregoing is only intended to suggest a reasonable programme for a schedule, but, of course, the compilers will have to use discretion, according to their class of exhibitors, and not necessarily hold fast to the ideas set out, but utilise them to meet their own needs.

CORRESPONDENCE

GARDEN IN NEW ZEALAND.

SIR,—Your article on "The Purpose of Wisley," page 444, in suggesting a modification of educational methods there, remarks "but I happen to know the scarcity of matured gardeners, not only in this country but in the colonies . . ." You have certainly stated a fact as regards this Dominion. Yet it is not to be wondered at. The status of a gardener here is scarcely better than that of a labourer; in most places employing such he has to be a good deal of a "rouse about," as a man doing any odd jobs and rough work is often termed. Decent opportunities of employment for thoroughly trained gardeners are few and far between, and commercial horticulture gives better opportunities for such men, who are thus lost to the profession. A few juniors—very few—become apprentices to the nursery trade, and then, mostly, sooner or later get on to some other and better line from a paying point of view. I am concerned here in the horticultural trade, and know only too well that remuneration is not in keeping with knowledge and responsibility, but an enthusiasm keeps me to it. However, this is somewhat by the way.—A. H. SHRUBSHAW, *N.Z.*

EUCOMIS PUNCTATA.

SIR,—I showed Mr. Canning-Wright's article on "South African Bulbs" to a friend of mine, who lived in South Africa for many years. He says the Eucomis punctata is quite familiar to him, but when he saw it it was *blue* in colour and grew in profusion in the garden of the late Mr. Cecil Rhodes.

Can any of your readers tell me if it is possible to procure *blue* Eucomis punctata bulbs in England? If so, they would be even more attractive than those described by Mr. Canning-Wright.—VICTORIA SLADE.

FURCRÆA LONGÆVA.

SIR,—Your readers may be interested in the enclosed photograph of a Furcræa longæva in flower in the open. The plant is situated in the grounds here on a grass bank with a south aspect a quarter of a mile from the sea. It was grown from seed brought from the Scilly Islands by a former tenant nineteen years ago. Last May, for the first time, it showed signs of activity and in two months had thrown up a flower spike more than 14ft. high. The effect of the innumerable white blossoms on drooping green stems was very pleasing.—BEATRICE MILDMAY, *Holbeton, Plymouth.*

A BEAUTIFUL MEXICAN FURCRÆA.

FUCHSIAS.

SIR,—Mr. Coutts in his very excellent article on fuchsias mentions the plant that came into the possession of Mr. Lee, the Hammersmith florist. This was a plant of Fuchsia fulgens brought from Mexico, but it was not the first fuchsia to be received here, for, according to the *Botanical Magazine*, Fuchsia coccinea had been growing in the Stove at Kew since 1788, and F. lycioides arrived from Chili in 1796. About twenty years later quite a number of fuchsias came to this country from Mexico and Chili—microphylla, gracilis, virgata, macrostemma and one from New Zealand, excorticata. Fuchsis corymbiflora was stated to be raised by the late Mr. Standish of Bagshot, and Dr. Lindley observed that it cast all other fuchsias into the shade, but in a book on the Peruvian flora this variety is described as magnificent, growing to a height of 6ft. and laden with flowers, making it appear a native of Peru. It is a beautiful flower, the long tube of clear rose, the much reflexed sepals deep rose, with corolla of brilliant carmine. Fuchsia fulgens used to be grown extensively for bedding. I remember seeing many years ago at the Crystal Palace a huge

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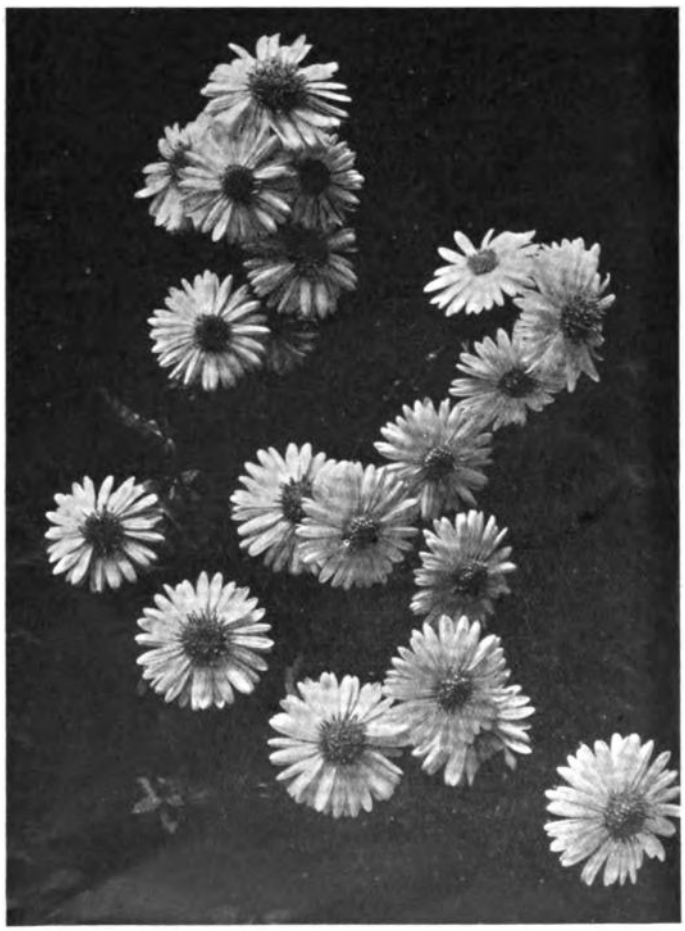
bed of these plants covered in bloom and making a very beautiful display. Riccartoni is a grand hardy plant. Three years ago my specimen was 9ft. high and 9ft. through, with myriads of its pretty scarlet and purple flowers, but the severe winter cut it to the ground, though it had escaped injury for nearly twenty years, being in a sheltered spot. It is now about 7ft. in height and has flowered well. In an old florists' book published in 1844 there is a list of ninety-six named sorts and a capital coloured plate of a variety with the queer name of Money-pennyi with long, slender tube of rosy red, sepals same colour, with deep red corolla. Some of the very old favourites still continue to be grown, notably Rose of Castile and Mme. Cornelissen.—J. P., *Cheltenham.*

ASTER CLIMAX AS GROWN BY A READER.

SIR,—I hope the enclosed photograph of Michaelmas Daisy "Climax" grown as advised by the Rev. J. Jacob, will interest your readers. The picture is of two horizontal sprays from single stem plants of an average height of 6ft. and covered in blossom. The plants are really a glorious sight during these autumn days. I was much interested in the illustration "Nail-Galls on Lime."—C. LACEY, *Wimbledon.*



TWO FINE FLOWERING SPRAYS OF ASTER CLIMAX.

CATALOGUE DESCRIPTIONS.

SIR,—I agree to a certain extent with your correspondent as to the failings of nurserymen's catalogues as set out by "E. H. M. C." in the issue of October 25th. A, B, C, D are necessary in case of new plants. E seems to me unnecessary except in case of some plant which "ramps" badly, *e.g.*, eryngium, epilobium or montbretia. In these cases a word of warning would not be amiss. F.—Desirable, but not absolutely necessary. G.—Until a universal colour chart is used there would appear to be no hope of accurate description. To this list I would add H.—Height of flower. At present a few catalogues give this, but even this small and select band are divided as to whether the height of the plant or height of flower should be given. The height is chiefly important in the rock garden, and it is just there that the catalogues fail us. It is useless describing plants as "dwarf." A dwarf in one rock garden is a giant in another. The maximum height should be given. I have never yet found a catalogue giving the height of dwarf conifers for rock gardens, hence I have never yet bought a dwarf Pinus sylvestris, as nowhere can I find its maximum height, and it would go to my heart to have to root up a flourishing tree solely because it had grown too tall. Some catalogues give cultural notes for each species. This appears to me sufficient unless one variety differs greatly from its relations. If it does, the fact can be stated. One catalogue has a code on the inside of the cover to meet the needs of each plant. Thus A, Sun; B, Shade; C, Dry situation; D, Moist situation; E, Likes lime; F, Dislikes lime; G, H, I. etc.; and after the name of the plant there appears the letters B, D, K, P, S, and so on according to its requirements. In case of doubt as to treatment of plant it is only necessary to turn to the code. This is cumbersome, but useful. If nurserymen complain that a little more description would add to the cost of the printing, they might economise by omitting the "Choice collection, our selection." Does anyone buy these collections? One of the joys of gardening is the selecting. On a winter's evening it is a delightful occupation to go through a catalogue marking the plants one would order if space, and purse, allowed. No "Collections, our selection" for me. Again, would a full description take very much more room if condensed. For example, "Viburnum fragrans.—Chinese deciduous shrub. Hardy. Handsome foliage. Quick grower, 12ft. or more, 6ft. diam, Jan.–Mar., numbers tubular flowers (? ins.), shell pink or white, fragrant. Moist loam. No pruning. Flowers stand 10° frost. Does not flower freely till fourth year." You will notice I have omitted "good habit," as this phrase has always been meaningless to me. Also "likes lime," as a note at beginning of catalogue can state that all plants therein can stand lime unless the contrary is stated. The same can be done with "hardy." But on the whole catalogues are not so bad. I could give a list of some half a dozen which need but very little modification. The size of the actual flower would be a useful guide sometimes instead of "large flower." The height of perennials would be the average height in a normal year. Delphiniums are not always 8ft. tall nor hollyhocks 17½ft. Let us hope this year was exceptional, it made staking such a problem. In conclusion, I *do* agree with "E. H. M. C." that where prices are approximately equal the nurseryman with the most descriptive and fullest catalogue will get the order. I do not think that he always realises that in almost every case his catalogue is in competition with five or six others before the order is given, and that the customer will not bother to write asking for details.—HUMPHREY SWANN, *Wimbledon.*

SIR,—"E. H. M. C.'s" article on catalogues is most interesting, and I think from the purchaser's point of view the specimen suggested is excellent. But—and a very large but—the nurseryman says, and very naturally, to print twelve lines on each plant is too costly in space and time. The catalogue would become a volume. Taken on the whole the average catalogue gives height, hardiness—which again is very difficult to vouch for—colour, and very often aspect is included. It seems to me asking too much to have the whole history of the plant given, as well as price, etc. Garden books abound nowadays, both cheap and dear, and if you are interested in your garden you must have some to refer to. What I find catalogues fail in is telling you that what they describe as a quick-growing trailer is really the most poisonous weed to get into your rock garden. I once put in Coronilla varia, and in a year it had choked every plant near and come out yards away from where it started, and there are many others equally dangerous.—N. S. C., *Godstone.*

THE NEW ZEALAND INSTITUTE OF HORTICULTURE.

[It may interest many readers of THE GARDEN to learn of the rapid progress that horticulture is making in this far flung outpost of the Empire. Great strides have been made during the last few years largely owing to the efforts of a few enthusiasts and also to the backing and impetus given by the New Zealand Government.—ED.]

SIR.—On August 5th the second annual meeting of the Dominion Council of the New Zealand Institute of Horticulture was held in Wellington, with Mr. J. A. Campbell, President, in the Chair, and a large number of delegates from all parts of the Dominion, including many of the leading horticulturists and some prominent scientific men, were present Dr. L. Cockayne, F.R.S., was elected Dominion President and also Hon. Botanist; Mr. George A. Green, Dominion Secretary; and Mr. H. Baillie, Hon. Secretary of the Executive. The meeting opened with an address from the Hon. W. H. Nosworthy, Minister of Agriculture, who congratulated the Council on the fact that the Institute was fairly launched and expressed his belief that it would be of great benefit to the Dominion. Many important matters were discussed, including education in horticulture from the primary school to the University, plant quarantine, revision of nomenclature for all classes of plants grown in New Zealand, affiliation of horticultural societies and public bodies, certification of plants, bud selection and publication of bulletins—the *New Zealand Fruitgrower* being made the official organ of the Institute. The Government has made a grant of £150; members are being enrolled from all parts of New Zealand, district councils have been set up in the chief centres, so now all the machinery is in place for making the Institute a national undertaking which must have a most beneficial effect on the horticultural development of New Zealand.—L. C.

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NOTES FROM CONTRIBUTORS

WAYSIDE FLOWERS OF GREECE.

HERE in this corner of Greece I have as yet seen no show of flowers so splendid as the crimson peonies on Kossovo battlefield, of which I wrote some time ago. (July 5, page 473.) But the wild hollyhocks have been a splendid sight. Where the forest has been burnt they have come up like the foxgloves in woods at home: tall sheaves of them 6ft. to 8ft. high, with big, mallow-pink flowers not regularly spaced in close order like those in the photograph of Hollyhock Palling Belle, but sprinkled. There is a colour that pink sunbonnets go to when they have been much washed, blue-shadowed in an evening light. That is the colour of these hollyhocks: pale violet rose shining against the greenish blue of windless evening sky. Readers of Mr. Stephen Graham may remember his picture of yellow hollyhocks growing like this by the northern shore of the Black Sea. Those, I suppose, were Althæa ficifolia, while this Greek one was A. rosea, a parent of the garden forms.

A correspondent in this column, writing the other day in praise of the series of flower colours called magenta, was asking for a hollyhock of suitable colour. Would the species do? If so, I shall be pleased to send seed to her or to anyone else who cares to try it. The seed has at least the merit of coming straight from the wild source, where the plants are unweakened by the rust of gardens. If you only want the massive columns of a Palling Belle, do not bother about this wilding. But in a wildish place, or where Lavatera Olbia grows with Salvia nemorosa and silver artemisias, it may be worth trying.

Another fine sight has been Vitex Agnus-castus. As it grows here, in great bushes of lavender blue or pink-flushed white, it looks very unlike the plant one knows neatly trained on walls at home (*e.g.*, at Kew). It thrives in the sandy alluvial soil of the river bed, making clouds of colour 8ft. or 10ft. high and 4yds. or 5yds. through. In its wild state the plant is extremely variable, some bushes having short spikes, others long plumes reminding one of buddleia, some a strong blue, deeper in tone, I should say, than Ceanothus Gloire de Versailles, others in the equivocal grey-blue that is so beautiful in Ceanothus thyrsiflorus griseus, and others again in white with rosy buds. I kept thinking as I walked through the groves of them how well they would carry the trails of clematis. Just as Ceanothus Gloire de Versailles is an ideal companion for the bluer clematises, such as Perle d'Azur and Jackmanni, so would the bluer types of vitex be. The paler vitex should carry, say, Jackmanni superba or Gipsy Queen or Lady Betty Balfour, and the rosy white should be the foil for Ville de Lyon or Kermesina or that splendid Crimson King.

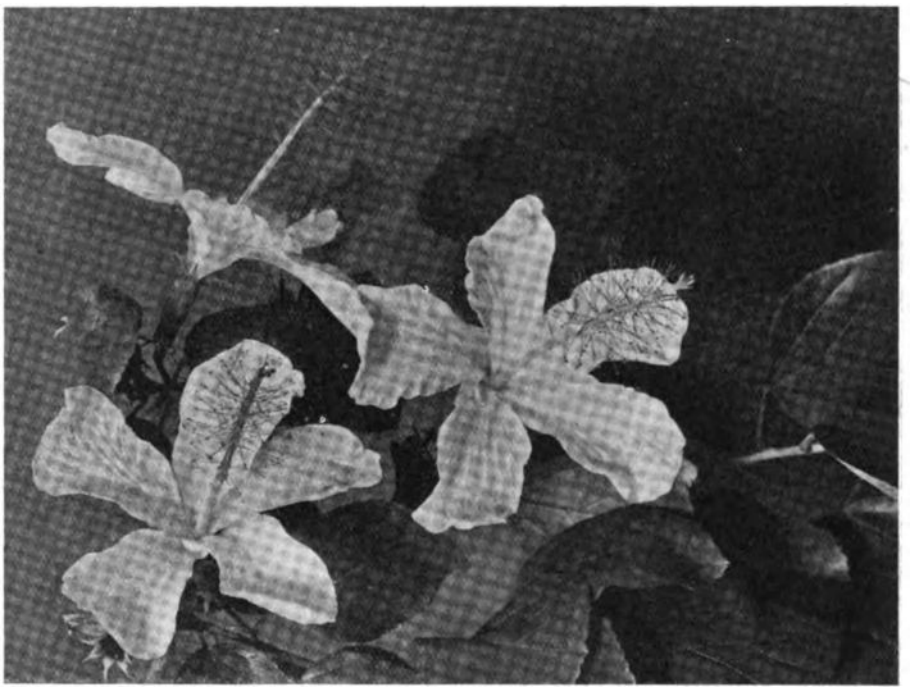
To be able to grow oleander really well out of doors is one of the chief opportunities of gardening in a climate rather hotter in summer than ours. Here the wild pink sort bursts out of cliff faces or spreads on the river shingles and among the olives by the roadside, and it seems equally at home and in place in a garden mixed up in a forest of self-sown hollyhocks or in a tub on a Venetian balcony. (Would anyone care for wild seed of this?) Here are a few of the characteristic summer flowers of the neighbourhood: Cistuses (pink and white), Clematis Flammula, Spartium junceum, myrtle in great beauty and profusion, Erica arborea and E. stricta (?), Arbutus Unedo and Andrachne (?), white rose (sempervirens?), acanthus, the dreadful crimson-spotted arum that reeks of carrion, and the magenta gladiolus. In winter there are the cyclamens. Even now one can occasionally see their huge bulbs sticking out of a weathered bank like knobs of wood, and in their flowering-time they must be almost as lovely a sight as the Anemone blanda. The common eryngium (tripartitum, or one like it) that fringes every road makes a haze of perfectly related blue against the straw yellows of burnt fields, and one begins playing again the game of finding the perfect complement to eryngium blue. In a border with E. Oliverianum and planum and tripartitum (to go no further) there are inexhaustible opportunities. Try, for instance putting a montbretia of middle orange yellow tone, such as George Davison, with E. Oliverianum, or Alstrœmeria aurantiaca major, or Lilium pseudo-tigrinum, or mulleins and pale yellow potentilla. The violet Eryngium Violetta is also delightful to play about with. Try it near Sparks' dark purple aconite and Thalictum dipterocarpum.

Besides the wayside eryngium there is an intense vivid blue one that makes low rounded bushes on the flats near the sea, far the bluest eryngium I ever saw. And there is an intensely blue echinops, dwarfer than humilis and perhaps even bluer. These blue flowers leap to one's eye in this sunlit country, especially where the fields are all burnt tawny or yellow. Not that sunlight is the best light for all of them. The vitex never shows up properly till the light is getting low or shadow falls on it, and the same is true of the bluer rhododendrons, such as Augustinii and hippophæoides and of many magenta flowers too, such as the magenta phloxes.

I have seen some welcome rock plants here: Campanula lanata flattened out on shady cliffs holding up big Canterbury bells in a luminous campanula blue; another smaller campanula in similar places with flowers rather like those of a C. garganica: a pinguicula that is gregarious growing in hundreds close together on wet, mossy rocks and having large conspicuous pale flowers. And, lastly, I will mention the caper flower. Have you ever seen the capers on the Acropolis? Long grey-green trails of leaves beautifully graduated in size and buds that flatten till they burst open into great white St. John's worts, or eucryphias, with violet anthers. On the Acropolis they trail about among fallen chunks of the honey-coloured marble, and sometimes, looking down from the ramparts of an Italian hill town, one can see a caper hanging out of the wall below. That is why boiled mutton brings to mind the Tuscan plain and on the Acropolis one remembers the boiled mutton. —A PAINTER.

HIBISCUS WAIMEÆ.

THIS hibiscus, which received an award of merit at the R.H.S. meeting on September 9th, is without doubt one of the most beautiful species of the genus. It is a native of the Hawaiian Islands, where it forms a small tree up to 25ft. high. The plant was obtained for Kew from a Californian nurseryman under the name of H. Arnottianus, and it first flowered in the Mexican House in 1913. Planted in a border of this house the plant is now about 12ft. high, and on account of its free-blooming disposition and the remarkable size of the flowers it is much admired by visitors during August and September. The large white flowers, from 6ins. to 8ins. in diameter, with the conspicuous reddish coloured staminal column over 6ins. long, are most attractive. When not in flower the plant is very ornamental with its large, sub-orbicular evergreen leaves. H. Waimeæ is quite suitable for the warm greenhouse, and although it thrives best when planted in a border, it may be successfully cultivated in a large pot. It requires similar treatment to the well known H. rosa-sinensis, the group to which it belongs.—T. W. T.



THE LARGE WHITE FLOWERS OF THE HAWAIIAN HIBISCUS WAIMEÆ.

FORTHCOMING EVENTS.

November 11.—Brighton, Hove and Sussex Horticultural Society's Exhibition (three days).

November 13.—The Sheffield Chrysanthemum Society's Annual Show (three days).

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SIMPLE GARDENING

PLANTING ARABIS, AUBRIETIAS, AND DAISIES.

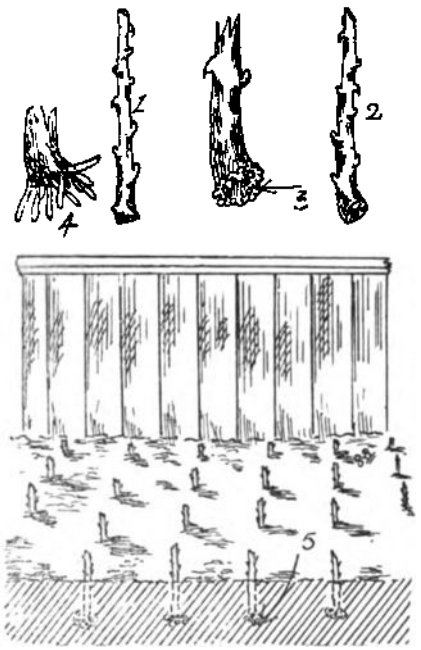
OLD plants are never as satisfactory as young ones, and the latter, if well treated, bear wonderfully fine individual flowers. Usually, too, these and similar kinds of plants are grown in a very poor soil which has the effect of spoiling the foliage as well as the blooms. Rows of the double-flowered arabis have borne spikes of flowers resembling from a short distance those of hyacinths. Of course, to obtain these lovely flowers the plants should be properly cared for early in the season—directly the flowering stage is passed. We have, now, to deal with the planting of the specimens in the borders where they are to flower. Both the arabis and aubrietia will succeed in a medium light loam; indeed, I have grown them in almost pure sand. They thrive, too, in a rather heavy loam if planted carefully when the soil is rather dry. The daisies like a stiff loam better than a very light or sandy one. In the former, organic manures are not required, and this is a great advantage to town and suburban cultivators. Where the soil is really very light or sandy add rotted manure freely, and always take the precaution to keep the centre of the plant free from soil, as it retards growth. The daisies are suitable as a groundwork, as edgings or bordering plants; but the others are most attractive when seen in clumps, especially the aubrietia clustering and nestling gracefully among other rock plants.

HEDGES.

A well kept garden hedge is like a suitable frame to a charming picture; it is attractive and adds to the beautiful features that a nicely appointed garden contains. Three times every year the hedges need attention, mainly to keep them free from rank weeds and straggling shoots. The principal times are May (for evergreen plants), midsummer, September and late in October. However carefully done in September, some straggling shoots will grow after the cutting then. These shoots should be dealt with now whether they are on evergreen or deciduous plants. This is also a suitable date for soil cleaning under hedges. In doing this work, however, refrain from unduly cutting off basal shoots, as it would entirely spoil the general appearance of the fence. The sides should be full and shapely right down to the soil, giving a pyramidal form to the hedge and not that of a balloon. Rank and tap-rooted weeds get established in the soil around the roots of young hedge plants, and when this occurs through want of timely attention it is a difficult task to remove them. All young hedges should be carefully examined during this month for such weeds, which if found, should be taken up with tap-roots intact in order to save future trouble. This is also a suitable time to apply a surface mulch of half-rotted manure to hedges that are not as vigorous as they should be.

PROPAGATING ROSES FROM CUTTINGS.

The rose-lover possesses a single plant or, maybe, two or three; the variety is a favourite and he wishes to add to the number. This he may do by taking a few cuttings and inserting them in a cool border—one facing north, north-west or north-east. The most suitable wood is that made during the current year with a "heel," a small portion of old wood attached. But well ripened shoots may be cut off just below a joint, inserted and they root freely. Such is shown at No. 1. No. 2 represents a cutting with a "heel" of older wood attached. No. 3 shows how new roots begin to form—the swellings are termed a callus. Then real roots grow as



shown at No. 4. The cuttings should be about 7ins. long; 4ins. being inserted in the shallow trench at a distance of 6ins. apart. Sand freely scattered in the trench so that the base of each cutting may rest upon it, as shown at No. 5, encourages the early formation of roots and preserves the cuttings from decay at the base. After frosts, when the soil has dried, it should be made firm again by treading.

STORING GLADIOLI CORMS, TUBERS OF BEGONIAS AND ACHIMENES.

Towards the end of this month gladioli corms may be lifted from heavy soils and stored. In light ground they may be left a fortnight later. If the flower-stems were left uncut or others were so cut as to leave plenty of stem and leaves, so much the better. Do not pull up the corms forcibly, but insert the garden fork and gently but firmly raise both soil and corm. Then place the latter with tops and any small quantity of soil adhering to the roots in boxes about 7ins. deep, taking care not to overcrowd them and keep them so for several weeks in a cool, airy, dry shed. In due course the tops and soil can be removed, leaving the corms nicely browned, firm and in good condition for storing in paper bags, which may be kept in drawers or suspended from nails in a dry store-room. The names of the varieties should be written on the bags. The tubers of begonias should be left in the pots or boxes till the leaf-stems naturally fall away, then remove the soil without bruising the skin of the tuber and pack them rather closely together on a thin layer of coconut fibre in a shallow box, filling up the spaces with the same material or dry leaf-soil. These will keep safely in a warm greenhouse. Achimenes are much better retained in their own dry soil in the pots till next spring.

CLIMBING PLANTS IN THE GREENHOUSE.

These plants, when well looked after, always adorn a greenhouse if they are suitable for the structure. Now, by suitable specimens I mean those that will appear to be a part of the house, namely, pillar plants for low and roof plants for lofty houses. If the roof climbers were trained in a low structure they would dwarf it and their natural beauty would be lost. A few pillar plants, neatly trained, would look well in a low greenhouse and would also be suitable for a high one. Borders near back walls in lean-to houses are frequently cold and bad for the roots of plants. Large pots are much more suitable. Front borders are not detrimental. Very sound drainage should be provided in every case and pillars painted before the branches are trained on them to avoid unnecessary disturbance of the plants for several years. The best compost for general use is one made up of very fibrous loam two-thirds, half-rotted leaf-soil one-third, and to each bushel of the combined parts a 6in. potful each of coarse sand and old lime rubble. Feeding can always be attended to afterwards. The following are a few charming climbers or suitable pillar plants. Bougainvillea speciosa, Clematis indivisa lobata, Clianthus puniceus, Cobæa scandens, Ficus repens, heliotrope, Jasminum grandiflorum, Passiflora Constance Elliott, Plumbago, Solanum jasminoides, tacsonias and tropæolums.

MUSHROOM BEDS.

Hundreds of amateur gardeners make the attempt to grow mushrooms and fail because they neglect to attend to minor details connected with their cultivation. If it is the first attempt this should be made in the autumn, or even in mid-winter, rather than in the summer-time, because it is easier to manage the beds correctly in cold than hot weather, providing sheds and other necessary materials are available. A very suitable position, also, is one under the stage in a greenhouse. Beds formed and spawned now will bear mushrooms in February and March.

GEORGE GARNER.

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GARDENING OF THE MONTH

FLOWER GARDEN.

ANTIRRHINUMS.—Sow on light soil in frames and plant out in spring.

BORDER CARNATIONS.—Pot remaining layers which have not been planted out and stand in frames for the winter.

BULBS.—Plant the remainder as soon as possible. Prepare ground well, add wood ashes and bone-meal and a little sand at the base of bulb, and plant fairly deeply. Make flat-bottomed holes.

CALCEOLARIAS AND PERENNIAL LOBELIA.—Lift, put roots in light leaf-soil, and store in a frost-proof house. Keep soil slightly damp.

EARLY CHRYSANTHEMUMS.—Lift and store roots in a cold frame.

HERBACEOUS BORDERS.—Finish the planting and reconstruction at once. Divide and re-arrange large clumps of perennials. Do not disturb anchusa, delphiniums, lupins or tritomas. Double dig the borders, giving a liberal supply of manure and a good dressing of lime. Basic slag at the rate of 4 oz. per square yard may also be added. Keep tidy and tie up remaining plants.

LILY OF THE VALLEY.—Plant crowns in well prepared beds of good loam and leaf-soil. Make beds in partial shade facing west.

PROTECTION.—Place bracken or ashes over the roots of pyrethrums, scabious and gaillardias. Cover helleborus with lights supported on boards.

ROSES.—Chief planting time. Double dig ground and allow to settle. Manure well, but do not allow manure to come in contact with roots. Add basic slag at the rate of 6 oz. per square yard. Plant firmly. Prune, cut out old wood and tie up climbers and ramblers.

SPRING BEDDING.—Finish planting out at once.

STORE begonias, cannas, dahlias, gladioli and Hyacinthus candicans. Lift and place in a frost-proof shed.

FRAMES.—Ventilate carefully all cuttings. Stir soil frequently; prevent damping, and pick off decayed leaves. Examine rock plants in pots plunged in ashes.

VEGETABLES.

ASPARAGUS.—Cut down grass to within 6ins. of the ground. Clean beds and top-dress with well decayed farm manure.

BROCCOLI.—Protect by taking out a spadeful of soil on the north side of plants, bend the heads to face north, and place removed soil over the stems.

BROAD BEANS.—Sow early dwarf or long-pod varieties on a warm south border.

CELERY.—Complete final earthing up. Draw soil carefully round the head until only the tips of the leaves are visible.

ENDIVE.—Lift some plants carefully and replant in a cold frame. Cover with dry leaves for blanching. Ventilate only on sunny days.

PARSNIPS.—Lift and store these if obliged, but they are best left in the ground.

PEAS.—Sow round-seeded varieties fairly thickly on a warm border.

SEAKALE.—Clean beds. Lightly fork in from 3lb. to 4lb. of kainit per 30 sq. yds. Place 9in. pots over each crown, cover the whole area with leaves, with a little manure on top.

ROOT CROPS.—Store beet, carrots, celeriac and salsafy in a frost-proof shed. Sprinkle sand between each layer.

GENERAL.—Trench ground where root crops have been grown ready for onions, cauliflower and early broccoli next year. Add well decayed manure at the rate of a cartload per 4 or 5 sq. rods. Double dig other vacant land, giving a smaller dressing of manure and basic slag at the rate of 7lb. per sq. rod. Give all land a dressing of quicklime, using 3 bushels per sq. rod. Apply gas-lime to ground infected with pests, such as cabbage gall weevil, club-root, etc., letting it remain on the surface until spring.

HARDY FRUIT.

PLANTING.—Hardy fruit, including bush fruit, should be planted as soon as possible. Prepare ground well and allow to settle. Give a dressing of lime for stone fruit. On heavy soils plant on a slight mound. Cut away bruised portions of the roots, using an upward cut. Do not plant deeply; spread out roots, press soil in between, avoiding "air pockets." Stake securely. In cold districts protect with a light covering of litter.

PRUNING.—Can be done any time from now onwards. Cut out old fruiting wood and lay in young wood of peaches, nectarines and Morello cherries, and nail up again to the walls. Cut old fruiting wood from raspberries and loganberries, and tie the current year's wood to the wires.

PROPAGATION.—Insert cuttings of gooseberries and currants.

PESTS AND DISEASES.—Burn black currants infected with big bud; do not plant in the same position for several years. Remove top 3ins. of soil under gooseberry bushes attacked by sawfly and burn the soil. Cut out parts infected with canker and dress wounds with gas tar.

CLEARING.—Clear off weeds round bushes and trees after pruning, and lightly fork in between.

ROOT PRUNING.—Trees which have made excessive growth and are unfruitful need root pruning. Lift young trees, cut back the tap roots and replant. Root prune others where they stand by taking out a trench 3–5ft. away from the base of the tree and digging down to the roots. Cut away roots penetrating the soil perpendicularly, and fill in the trench with fresh compost.

INSIDE FLOWERS.

ANNUALS.—Pot on in sandy compost for flowering in spring. Guard against damping. Stake well and keep the temperature 45°–50° at night.

ARUMS.—Will stand considerable forcing if necessary. Give plenty of moisture if temperature is high. Give frequent doses of liquid manure, soot water or Clay's fertiliser.

BEGONIAS.—Stake carefully, keep temperature 55°–60° at night.

BULBS.—Bring in Roman hyacinths and Paper White narcissus in batches from the "plunging ground." Do not expose fully to light for the first few days.

CALCEOLARIAS AND CINERARIAS.—Pot on into 5in. pots. Cool conditions are necessary. Never allow cold draughts to blow on cinerarias or let them become "pot-bound."

CARNATIONS.—Ventilate freely, always keep a crack of air on. Syringe occasionally to keep down red spider. Maintain a night temperature of 55°.

CHRYSANTHEMUMS.—Give a free circulation of warm dry air to prevent damping of blooms. Insert cuttings in sand, using basal growths only.

LILIUMS.—Keep L. longiflorum growing well and in a temperature of 45° at night. Fumigate regularly for aphis.

PRIMULAS.—As they come into flower keep atmosphere dry; only water when necessary and maintain a temperature of 45°–50° at night.

SHRUBS.—Wash cool-house with insecticide; bring in pot shrubs from outside. Keep azalea and camellia roots moist to prevent bud-dropping in spring.

ZONAL PELARGONIUMS.—Pot autumn-struck cuttings into 4in. pots. Give spring-struck cuttings a drier atmosphere as they come into flower. Ventilate well and keep the temperature 50°–55° at night.

SHRUBS AND TREES.

PLANTING.—With few exceptions, plant now.

PRUNING.—Cut back shrubs which flower on the young wood made during the current summer. These include Ceanothus azureus C. Gloire de Versailles, spiræa, Buddleia variabilis, Hydrangea paniculata, Jasminum officinale, etc. Cut back straggling growths of Buddleia globosa, berberis, choisya, rhododendrons, etc. Nail long growths of climbers to the walls.

HEDGES.—Plant holly, yew, hornbeam, Rosa rugosa, Penzance briars, Cupressus Lawsoniana, etc. Trim conifer hedges.

TRANSPLANTING.—Remove shrubs and trees more than three years old with a ball of soil attached. Transfer intact by wrapping round with sacking. Preserve all fibrous roots, especially of evergreens.

GENERAL WORK.

LAWNS.—Finish patching and re-turfing. Drain wet lawns, treat with worm-killer if necessary. Rake with an iron rake, apply lawn sand to help to destroy fibrous-rooted weeds and moss. Top-dress and feed lawns.

WALKS.—Roll and apply weed-killer.

LEAVES.—Collect, tread firmly and scatter slaked lime between each layer. Store wood ashes in a dry shed.

ROCK GARDEN.

Generally clear up and tidy for the winter. Pick off dead leaves and flower spikes. Stir the surface of the soil.

TOP-DRESS.—Give a top-dressing according to the requirements of the plants. Use a gritty compost made from finely crushed limestone except for "lime-haters," *e.g.*, Campanula alpestris, Achillea ageratifolia, erica, gentiana, silene, etc. Give more grit to some plants, *e.g.*, androsaces; and daphne, lithospermum, etc., a peaty compost.

PROTECTION.—Lodge a piece of glass over some plants, especially those with hairy leaves and those which suffer by remaining wet in the centre.

INSIDE FRUITS AND VEGETABLES.

FIGS.—Prune, wash trees and houses with Gishurst's compound. Remove top few inches of soil, top-dress with good loam and little bone-meal. Ventilate freely.

NECTARINES AND PEACHES.—Treat as for figs, taking care not to rub off the buds when washing. Do not allow the borders to become dry, otherwise the buds will drop in spring.

VINES.—Examine and pick off decaying berries from branches of late vines. Cut soon and store in bottles, then ventilate freely. Prune mid-season vines. Scrape off bark and wash with Gishurst's compound. Clean the houses. Paint with methylated spirit any parts infected by mealy bug. Keep vines on the dry side. Extend or re-make borders if necessary.

CUCUMBERS.—Keep temperature 65°–70° at night. Syringe lightly. Top-dress mounds when roots appear, and keep atmosphere humid.

RHUBARB AND ASPARAGUS.—Lift and force roots in boxes under the staging.

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BOOK REVIEWS

A COMPANION volume to Mr. Dykes' recent publication on "Garden Irises" has just come to hand in the form of "A Handbook of Crocus and Colchicum for Gardeners," by E. A. Bowles (Martin, Hopkinson and Co., Limited, London, 12s. 6d). The genus crocus is one which has grown enormously of late, and it has been well-nigh impossible to all save specialists in the flower to acquire an up-to-date and working knowledge of the many species and varieties which go to make the crocus one of the most interesting of our time-honoured flowers. This work, by one of the acknowledged authorities on the genus, comes at an opportune time, serving a most useful purpose by presenting in an interesting fashion a great mass of valuable historical, topographical and cultural information. After an extremely useful glossary of botanical terms, which all gardeners should find helpful, the author goes straight ahead to discuss the merits of the crocus as a garden flower. Many helpful hints are given to obtain the best results, and these are all the more valuable as they are the combined results of some thirty years' experience with the plant. The second chapter is a most instructive one, and therein the writer proves himself to be a botanist of no mean repute. The characters of the flower are singled out individually and dealt with at length in an extremely lucid manner. At the end of this chapter is a most interesting paragraph on the probable origin and distribution of the genus. From well reasoned argument he arrives at a "Southern or possibly North African origin and Romulea as a probable ancestor." The next ten chapters are devoted to descriptions of the various groups and the species comprising them. Each species is clearly and precisely described, peculiarities and any other outstanding characters noted. For example, when dealing with the Saffron crocus an exceedingly interesting *résumé* of the drug is given, which brings relief to the reader who has been wandering through descriptions of species. The specific descriptions are everything they should be, giving authorities, collector's name, region where found, colour and references to literature. A useful bibliography of the crocus completes that section of the book extending from 1597 to 1886. The last six, or more correctly five, chapters are given over to colchicum, wherein the author points out the clear distinctions which exist between the two closely related genera. This genus is treated on the same lines as those dealing with crocus, and the last chapter appears to be a helpful inclusion dealing with two plants which are frequently confused with colchicums, viz., bulbocodium and merendera. An index of undoubted assistance brings a most delightful book to a close. The illustrations throughout are admirable, and show every care in execution.

To the practical gardener and the botanist alike this volume should prove of the greatest interest and assistance. It contains a great amount of information which is treated in a lucid and captivating yet instructive style. The undoubted value of personal experience is worth much in such a practical manual, as it ensures that the reader will not readily find himself in the many pitfalls which entrapped the author in his cultivation of these two genera. The book is excellently printed throughout and is one which shows every care in compilation and proof reading. G. C. T.

THE newcomer to the gardening world is rather apt, these days, to be overwhelmed by the sea of literature which awaits him after embarking on his course, and, unfortunately, he is all too often wrecked in the sweeping and surging tide of information which confronts him in the various manuals on this subject. Such is to be deprecated, and the need of some simple, almost what one might term home-made, gardening recipes has long been felt. Such are to be found in the present little book, aptly called "A Real A.B.C. of Gardening," by A. J. Macself (Thornton Butterworth, Limited, London, W.C.2., price 6s.). As the author remarks in his preface, he begins at the starting point, catering for the "fresher" page by page. The manual gains much in value by being divided up into four parts—the first dealing with general or elementary principles, the second with planting and seed sowing, the third with seasonal work, while the fourth concerns itself with various phases of gardening work, such as manures, propagation, etc.

Many useful, timely hints and suggestions are given throughout its pages which should prove invaluable to the uninitiated. Tables listing hardy perennials for town gardens, shady situations, etc., vegetables for sowing, garden herbs, bulbs and tubers, are to be found and these, giving information in a concise and easily understood manner, are to be recommended. Mr. Macself's style is simple, lucid, yet decidedly instructive throughout the book, which can be recommended to the amateur as a useful and handy guide in his wanderings in the dark in a world where many unforeseen difficulties are apt to crop up, making one almost despair of success at times. It does not aim at being a comprehensive volume on the subject, but, as its title implies, is merely an introduction or A.B.C.

DURING the last twenty to twenty-five years our cousins across the "herring-pond" have imbibed deeply of all the available gardening knowledge in this country, and it is indeed interesting now to witness the first fruits of that knowledge in the shape of the book which lies before us, "Adventures in my Garden and Rock Garden," by Louise Beebe Wilder (Doubleday, Page and Co., New York, 5 dols.). The title is one which gives little idea as to the contents of the volume, as, after all, how many of us do have adventures in our gardens—unless it be one of a kind so different from those of our schooldays. A garden is surely not a place wherein one goes to seek adventure, but rather should it be looked upon as a sanctuary or haven. Be that as it may, one has all the greater joy in perusing its pages to discover these so-called adventures—the raising of a representative collection of American plants, and a comparison of the results obtained in the garden with those of the plants in their native habitat, a most interesting and engrossing occupation, no one will deny, and one which never fails to bring out new points of great cultural value. Plant associations in a garden hold much the same regard for the amateur as plant ecology does for the scientist, and if one has a knowledge of the latter it serves as a valuable guide to the former. In the author's garden one recognises plants from all the four corners of the globe, and they all appear to enjoy the association of their newly found neighbours. One claim of the author which calls for special mention is the fact that continuous bloom for eleven months out of twelve has been obtained. Again, the book abounds in personal experiences with many plants, which in itself is a valuable guide to growers in the States. For the more serious-minded, useful tables of shrubs and annuals for the rock garden are to be found in the two concluding chapters, while an exceedingly helpful appendix extending over ninety-two pages contains personal notes and observations taken over a period of some fifteen years in two gardens "differing considerably as to soil, climate and altitude." A good point mentioned is that all plants in the list are obtainable from nurserymen in America. The appendix shows every care in compilation and is well worthy of attention. Another appendix, giving plants for special purposes, should also prove of great assistance to a beginner who wishes success to attend his efforts and who is in quest of some desired effect. Chapters on soil, bulbs, seeds and landscape effects should prove as helpful to "the old hand" as to the amateur. A complete index brings one to the end of this interesting and useful manual. It is written in a captivating though somewhat American style, but the book loses nothing in lucid and clear expression. It is excellently printed, and illustrated by means of half-tone blocks. It is a book which an amateur, whatever his speciality, would find both interesting and instructive, although, unfortunately, it is not within the reach of everyone.

THE SWEET PEA AND ITS CULTIVATION, by W. J. Unwin, Histon, Cambridge. 1924. and Supplement, 1925.

THIS is an exceedingly useful little booklet on the sweet pea by Mr. W. J. Unwin, whom no doubt many of our readers have heard on the wireless in his sweet pea talks. In it the author has written interesting chapters on historical notes, cultivation for exhibition, culture for ordinary purposes, diseases and pests, and notes on varieties. It can be well recommended as a concise and informative little booklet.

PUBLICATION RECEIVED.

"The Bungalow Book," by Charles E. White, jun. Published by The Macmillan Company, New York. Price $2.25.

CATALOGUES RECEIVED.

Morse Brothers, Melton, Woodbridge, Suffolk.—Roses.

E. P. Dixon and Sons, Limited, Seed Merchants, Hull.—Fruit Trees, Roses, Herbaceous Plants.

Blackmore and Langdon, Bath.—Begonias, Delphiniums, Gloxinias.

D. and W. Croll, 63, Commercial Street, Dundee.—Bulbs.

Lowe and Gibson, Crawley Down, Sussex.—Border Carnations and Bearded Irises.

A. and W. Perry, Hardy Plant Nurseries, Enfield.—Comprehensive list of hardy plants, including alpines, ferns, rare shrubs, etc.

Reginald Winder (formerly Winder and Thomson), Lingwood Lodge, near Norwich.—Roses, Shrubs, Garden Planning, etc.

R. W. Proctor and Sons, Ashgate Road Nurseries, Chesterfield.—Roses, Bulbs and Sundries.

W. J. Unwin, F.R.H.S., Histon, Cambs.—Sweet Peas, Bulbs and Roses.

Laxton Brothers, Bedford.—Fruit Trees and Small Fruits, with many Novelties.

Thomas Rivers and Son, Limited, Sawbridgeworth.—Fruit Trees, Roses, Shrubs and Hardy Perennials.

FOREIGN.

F. Delaunay, Angers.—Trees and Shrubs and Fruit Trees.

Messrs. Rivoire and Sons, 16, Rue d'Algerie, Lyon, France.—Flower and Vegetable Seeds.

M. Herb, Naples, Italy.—Herbaceous Plants.

Sluis and Groots, Enkhinzen, Holland.—Wholesale Price Lists of Flower and Vegetable Seeds.

Walter Blom and Son, Overveen, Holland.—Roses.

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ANSWERS TO CORRESPONDENTS

FLOWER GARDEN.

Gilia coronopifolia (J. P.).—It is not safe to trust this plant outdoors during the winter, although it will often stand in warm dry soils. In common with many Californian plants of this class, damp during the winter months often proves fatal. Your plants should be quite safe in an unheated greenhouse. They should be given a light sunny position, and are best kept on the dry side, giving them no more water at the root than is necessary to keep them from suffering. The foliage should also be kept dry.

THE GREENHOUSE.

Unheated Vinery (C. B., Tetbury).—Do not be tempted to install stoves, lamps or heaters of any "makeshift" description; such contrivances, instead of providing an efficient remedy for the present evil, will bring in their train further and probably greater troubles. Predisposing causes of mildew are stagnant moisture, cutting draughts and erratic ventilation. If there is a bed of old, sour soil in the greenhouse, or even an earth path that becomes soddened with moisture, it will be an immense benefit to remove several inches in depth of the soil, and replace with coarse clinkers, stones or brick rubble, finishing off with ashes. See that walls, rafters, stages and doors are well cleaned, using hot water, carbolic soft-soap and a stiff scrubbing-brush, especially where there happens to be any green slime or other discoloration. Limewash brickwork after scrubbing. Next scrub the branches of the vines with a hot solution of Gishurst Compound—directions for preparing this are supplied with each package, obtainable from seed merchants, etc. The foregoing general cleaning should be carried out in full now, as the spores of mildew will be dormant about the vines and the house through winter. With a clean start, the vines may be kept healthy and clean next season by keeping the house well ventilated, but exercising care to prevent cutting draughts. Do not be impatient to hasten the vines into activity too early by keeping the house too close. Use ordinary flowers of sulphur freely, distributing with a powder bellows, dusting rods and foliage as well as stages and pathways. Dry sulphur is the deadly enemy of mildew. Encourage healthy growth of the vines by applying a good fertiliser to the borders, and your vines should fully recover their cropping powers. Half the trouble with unheated vineries is caused through endeavours to secure high temperature by keeping the house tightly closed, the result being violent changes from high day temperature to low night temperature.

MISCELLANEOUS.

Treating a Sloping Bank (M. T.).—The bindweed referred to is, no doubt, convolvulus, and its roots should be taken from the soil before any other plants are established there or it would soon become troublesome again. The deep digging necessary to remove these fleshy roots would be beneficial for the following plants, namely: Crocus, narcissi, crown imperials, snowdrops, Scilla sibirica, Anemone japonica, columbine, spiræas, violas, dielytras, saxifragas, doronicums, delphiniums, primroses and campanulas. The roots of privet rob other plants and it would be advisable to take out a trench between the hedge and the border and to keep the privet roots in bounds.

British Florists' Federation. — The British Florists' Federation's Market Floral Committee met in Messrs. Monro's salerooms on Monday, October 20th, at noon. Mr. W. E. Wallace presided and Mr. R. Miller, a florist from Neutra was present as a visitor. The Committee granted a provisional first-class certificate to Chrysanthemum Gloriosa, shown by Mr. H. Shoesmith, Woodbridge Nursery, Guildford. This is a reflexed Japanese variety of good size and pretty, rich, golden-bronze colouring. One of the plants shown carried no fewer than thirteen good blooms on long stems.

Perennial Asters. — The R.H.S. will carry out a trial of perennial asters in its gardens at Wisley during the coming year. Raisers are invited to send three plants of each new variety introduced since the last trial in 1919-20, to reach The Director, R.H.S. Gardens, Wisley, Ripley, Surrey, on or before November 30th, 1924. The necessary entry forms may be obtained on application to him.

Importation of Bulbs into the Isles of Scilly.—The importation of bulbs into the Isles of Scilly has been restricted since January 1st last by the Bulb Diseases (Isles of Scilly) Order of 1923, which requires every consignment of daffodil or narcissus bulbs landed in the Isles to be accompanied by a certificate that they have been examined and found free from disease, or a declaration that they have been submitted to the hot-water treatment. At the request of the growers in the Islands the Ministry has issued an amending Order—The Bulb Diseases (Isles of Scilly) Order of 1924—which came into operation on October 1st. Under this Order, the landing of daffodil and narcissus bulbs in the Scilly Isles may be licensed by an Inspector of the Ministry, on condition that the bulbs are sent direct to the Bulb Treating Station which has been established at St. Mary's by the Agricultural Committee of the Isles of Scilly, and there submitted to the hot-water treatment before being handed over to the actual consignee.

National Sweet Pea Society. — The management of the National Sweet Pea Society has cause for self-congratulation. At the annual general meeting on October 21st, the report and balance sheet showed that an immense improvement had been effected in the condition of the Society during the past year. Twelve months ago, through a variety of causes, there was a serious deficit on the year's working and the prospects did not appear to be at all rosy. But by dint of careful management the deficit has been transformed to a "surplus of over £12," and this, in view of the fact that the valuation of show plants had been marked down considerably, is a good augury for the future. The membership showed a proportionately large increase and, we learn, is the greatest during the present decade. That this enviable condition of improved finance and increased membership was caused largely by the untiring work of the Secretary, was evidently fully realised by the members who unanimously re-elected Mr. A. C. Bartlett to that responsible post. The new President is Mr. Edward Sherwood, while Mr. H. A. Perkin is to be Chairman of Committee and Mr. J. M. Bridgeford continues to be Hon. Treasurer. Considerable interest centred in the proposed alterations to several of the rules which govern the Floral Committee, but when it was fully realised that the Society's annual trials of new sweet peas are as secret as the parliamentary ballot the proposals were thrown out. But we feel that good has come of them inasmuch as they led to an amendment of a rule which provides that the Floral Committee shall be composed equally of amateur and trade experts, with the addition of an amateur as chairman. The trials of novelty sweet peas are again to be grown at the Syon House Gardens, Brentford, and next year's show is to be held at the R.H.S. Hall, Vincent Square, London, on July 16th and 17th.

International Spring Flower Show, Haarlem, 1925.—On July 1st, the site for the show was placed at the disposal of the organising committee. An office building, specially designed and executed for the purpose, was ready for use on the same day. The elaborate ground work has nearly been completed, and the planting of the bulbs was commenced during the first days of September. The exhibits for the open-air show are so numerous that the grounds will be entirely occupied with them. The great hall for the indoor shows will be completed in January. In front of this building a French regular garden is being laid out, in which enormous masses of crocuses, hyacinths, early and late tulips will flower in succession. In the surrounding grounds there will be a large garden in Old Dutch style, containing a selection of the best and newest varieties of bulbs, planted by the members of the Dutch Bulb Exporters' Association. Almost all the local branches of the Dutch Bulb Growers' Society are sending collective exhibits of their members, all forming very important collections of groups. All the known varieties of narcissi will be shown in the garden planted by the Society of Daffodil Growers. Aalsmeer, Boskoop and Naarden will show their best products for spring gardening. The show will be open from March 13th until May 21st, and excursions from various countries are already in preparation now. It is expected that a special steamer will sail from America for tourists to the Holland flower show and bulb fields next year, and, of course, numerous Easter trips will be organised from England, as the flowering period of the hyacinths will probably coincide with Easter time.

THE following awards have been made to dahlias by the Council of the Royal Horticultural Society, after trial at Wisley.

AWARDS OF MERIT.

Single.—Little Jennie and Nanno, sent by Messrs. W. Treseder, Cardiff. *Peony.*—The Rose, sent by Messrs. Velthuys, Holland. *Small-flowered Peony.*—Rosie, Charmer, Norah Bell and Gwynne, sent by Messrs. J. Burrell, Cambridge; Rosie Supreme, sent by Messrs. Jarman and Co., Chard; Sweet, sent by Mr. A. J. Cobb, Reading *Decorative.*—Polar Bear, sent by Mr. E. Beckett, Elstree; Emblem, sent by Messrs. J. Burrell. *Small-flowered Decorative.*—Carine and Thursa, sent by Messrs. J. Burrell. *Camellia.*—Nelly, sent by Mr. H. Carlee, Holland. *Star.*—Haslemere Star and Hindhead Star, sent by Messrs. J. Cheal, Crawley; Reading Star, sent by Mr. A. J. Cobb. *Cactus.*—Joyce Goddard, sent by Messrs. Jarman and Co; Mrs. Forester Paton, sent by Messrs. J. Cheal.

HIGHLY COMMENDED.

Collarette.—Mrs. M. Perry, sent by Messrs. W. Treseder. *Small-flowered Peony.*—Nuffield Priory and Vimy, sent by Messrs. J. Cheal.

THE dates for the examinations in horticulture conducted by the Royal Horticultural Society in 1925 will be as follows:

Written Examinations.—General Examination (Seniors and Juniors), Wednesday, March 25th. School Teachers' Examination (Preliminary and Honours), Saturday, April 4th. National Diploma, May 9th.

Practical Examinations. — Teachers' Honours, Friday, June 19th, and possibly also Thursday, June 18th. National Diploma, Preliminary, June 23rd and 24th; Final June 25th and 26th.

The attention of candidates is drawn to the fact that entries for the Diploma Examination must be received before January 1st, 1925. Copies of the syllabus and entry forms may be obtained by sending a stamped addressed envelope to the Secretary, Royal Horticultural Society, Vincent Square, S.W.1.

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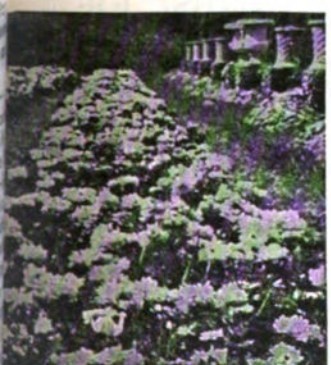

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VOL. LXXXVIII.—No. 2765 NOVEMBER 15, 1924

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SUPPLY and DEMAND

I HAVE mentioned before the question of supply and demand as regards plants. Usually the supply of a plant keeps fairly level with the demand, but occasionally a considerable lapse of time has to take place before the supply can equal the demand when the demand is of sudden growth, or the plant is difficult to propagate. A typical case of the latter is Acer griseum, which was introduced by Wilson in 1901 from Central China through Messrs. Veitch of Chelsea. Now, for some reason or another Messrs. Veitch rarely produced quantities of their new trees and shrubs. They certainly did not produce more than a dozen or two seedlings of A. griseum. Sometimes people are lucky who gamble on the ultimate value of a new plant; they are now reaping the benefit in the case of A. griseum, for they have shapely young trees of what is probably the finest of all the maples. It is handsome in the summer, turns a fine colour in the autumn, and has an added advantage in that its bark peels in large flakes, showing the new orange-coloured bark underneath; this is a habit common enough in birches, but rare in maples. As time went on the beauties of this plant became recognised and a demand started, but there was no supply. This acer will not allow itself to be propagated and only in the past year or two has it begun to set fertile seed. Seedlings may possibly be in commerce in 1926, after a delay of twenty-five years. And yet we cannot blame anyone for this delay. It is an extreme instance.

One more example: many years ago Messrs. Cunningham and Fraser introduced a fine yellow-flowered rhododendron, perhaps a species, possibly a hybrid, called Cunningham's Sulphur. At the time it gained a moderate degree of popularity, and then for some unknown reason the demand stopped, and shortly after the supply also languished. Towards the end of the war Sir Isaac Bayley Balfour suddenly realised that this treasure was threatened with extinction. The raisers did not possess a single plant. Owing to Sir Isaac's foresight Cunningham's Sulphur has been saved and is again in commerce; but what an escape. This affects the question of supply and demand from a different angle. Why this sudden stoppage in demand?

I have come to the conclusion that gardeners are little different from all other consumers. Let them get a habit and they will stick to it—for a time. But every now and again their memory has to be prodded, otherwise they forget. This prodding may be accomplished by propaganda by a band of enthusiasts, by constant reference to a plant in books or in the horticultural press, or by advertisement. The first two methods are perhaps obvious, but many consumers do not realise the value of an advertisement. Its primary importance is not always that it is a direct incentive to buy at the time of issue; it is useful in that it reminds people that such an article exists. There is the well known case of a universal household commodity which stopped advertising for the sole reason that the owners considered the article to be so well known that any further advertisement was a waste of money. The sales in the first year dropped to such an extent that the result was nearly disastrous. The advertisement in this case was a reminder pure and simple.

It is just the same with nurserymen and their wares. They advertise not entirely with the intention of making an immediate sale, but also to remind gardeners of their existence and of the existence of particular plants. Customers' memories are sometimes weak. In the same way THE GARDEN is constantly reminding readers of the existence of plants which are worthy, whether old or new. Although we pride ourselves that the more perspicacious of our readers use the paper as a work of reference, yet we realise that some make use of it week by week in order to jog their memories. We try to be eclectic and make the paper useful for every kind of garden lover.

This question of supply and demand may perhaps explain the reason why it is a necessity of occasion to mention plants which are difficult to obtain, for we are sometimes blamed for writing about rare plants. Unless a plant is asked for by the public, there is no incentive for a nurseryman to keep a large stock of it, and so a plant, however worthy, may suddenly fall into oblivion. It is only by bringing such plants to the notice of our readers that a demand is created, with a corresponding increase in supply. However well intentioned a nurseryman may be, he has to work for his living, and to produce numbers of a plant for which there is little or no demand may prove a disastrous speculation. This article may appear to bring the commercial instinct into gardening, but even hobbies may be the better for a slight admixture of economics.

E. H. M. C.

THE NEXT ISSUE IS OUR SPECIAL HERBACEOUS NUMBER.

AMONG OTHER ARTICLES WILL BE:

ON PLANNING A STRAIGHT HERBACEOUS BORDER, by Miss Gertrude Jekyll.

WREXHAM DELPHINIUMS, by the Rev. Joseph Jacob.

RAISING IRISES FROM SEED, by W. R. Dykes.

HOLLYHOCKS, by A. J. Macself.

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A CONTINENTAL BOTANIC GARDEN

BY GEORG BROCHNER.

SWEDEN has for centuries been to the fore in the matter of botanical research, including the creation of gardens specially intended to facilitate such studies. As much as three hundred years before the time of Linnæus, between 1620 and 1630, Bishop Johannes Rudbeckius laid the foundation of what is no doubt the oldest botanic garden in the country, the Viridarium Gymnasii at Västeras, which is still in existence; and his famous son, on his own initiative and at his own expense, in the year 1655 formed the Hortus Botanicus in Upsala. The great Axel Oxenstjerna on a visit to this ancient centre for learning had already, in the year 1637, urged the laying out of a botanic garden in connection with the university in this town and the study of medicine. Although Gothenburg, which has always been a rich and generous city, enabled several of the disciples of Linnæus to undertake costly explorations in distant lands, none of these in return gave the impetus to the formation of a botanic garden in the town, which, strangely enough, allowed itself to be left behind in this field by other Swedish towns.

A GENERAL VIEW OF THE BEDS. WITH THE STATUE OF LINNÆUS IN THE BACKGROUND.

THE SMALL POND IN THE GARDEN IN A TYPICAL NATURAL SETTING.

It is only ten years since a munificent donation by a Gothenburg citizen enabled the town to realise a long-cherished wish, and the new botanic gardens were opened last year in the presence of a distinguished gathering, which was unanimous in its praises.

The site is admirable, one might well say unique, and covers an area of about 900 acres. This allows room for everything, also for preserving portions of this picturesque spot in its primeval beauty. The gardens boast rare natural advantages, hills—one might say small mountains—streams, clefts, moorland, groves, vistas of wide and great beauty, and Professor Carl Skottsberg, who almost from the very beginning of the work in connection with the gardens has been the *primus motor*, will see that no one molests or interferes with all these charms.

In spite of all this, the place chosen has its drawbacks. The soil, for instance, is by no means genial, in some places almost forbidding, but admirable headway has already been made in the direction of improvement and the gardens are still in their infancy. Professor Skottsberg has, luckily, been given a free hand, not being trammelled by the considerations which, with one exception, prevail at all the botanic gardens in Sweden, Denmark, Finland and Norway, which are university institutions and thus have to fulfil a distinct mission. Professor Skottsberg, who is a widely travelled man, at once realised that as regards the Gothenburg Botanic Garden other views should be adopted. It might become more of a popular institution in which all classes could find delight—an object lesson in geographical botany without too stringent scientific limitation and, last but not least, æsthetic considerations must not be neglected. With this programme in the able hands of Professor Skottsberg, and the alluring natural conditions, the new gardens will assuredly before long have gained a world-wide and well deserved fame.

The flora of many parts of the world has already had its own particular domain allotted. Close to the western boundary we find a portion of America, while Eastern Asia has a central position, with Siberia sloping down to the west, the Orient more to the east, and so on. The many undulations of the ground afford a variety of natural conditions which are being turned to excellent account.

All who love alpine plants—and who does not?—will pilgrimage to this ideal enclave where they will no doubt also find some of Sweden's own sweet herbs, Arctic or otherwise. The Swedish flora boasts many treasures; to mention one, the daintily scented Linnæa borealis, of which flaxen-haired little maidens offer the stranger modest bouquets and on which Linnæus himself set such store that he planted it in his coat of arms. A tribute has already been paid to this great representative Swede in these gardens in the shape of the statue which will be seen in one of the illustrations.

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A typical Swedish manor house was found in the grounds. This has now become the residence of the Professor, and on both sides of it a formal garden has been formed, in harmony with the building and old traditions.

Other botanic gardens, no doubt, possess bigger and more ambitious glass-houses than the one at Gothenburg is ever likely to have, but it can safely challenge any of its fellows, in Europe at least, to equal it in the singular beauty of its *landscape*, with narrow winding pathways, steep ascents, steps and streams and ponds, nooks with seats, many a point of vantage from where one views the width and grandeur of the west Swedish country. Vegetation is strangely prolific in parts of Sweden, reminding one of what may be met with in much more southerly latitudes. Trees, too, are often possessed of a rare, impressive beauty, and in the Gothenburg Botanic Gardens. There are some magnificent oak trees, which shelter and cluster round a small but very attractive pavilion, designed by Professor Wahlman.

CORNUS SUECICA GROWING IN THE WILD STATE IN THE PARK.

Much, however, is still in its infancy, but there is plenty of scope and Professor Skottsberg is rich in initiative. No special section has, as yet, been set aside for American alpine plants, but the formation of a second alpinum is already on the tapis. The "rock gardens" (although the term is rather a misnomer) are meant to be very exclusive; they are reserved for real alpine vegetation and are barred to less genuine alpines, albeit attractive and decorative plants which are gladly admitted to many a rock garden of distinction. A stream on its way creates favourable conditions for various species until it reaches the sub-alpine meadows. I wonder if any botanic garden has ever been located under surroundings richer in beauty and taken in hand with a fuller conception of its possibilities than the one of Sweden's great west coast city.

INTERESTING TULIPS

MR. JACOB SHOWS THAT MODERN COUNTERPARTS EXIST OF MANY OF THE OLD FAVOURITES OF THE SEVENTEENTH CENTURY.

IF we make a garden of interest it is very necessary that the owner thereof should have a tongue wherewith to speak to visitors on behalf of its occupants. Flowers only have the power of telling us that they are beautiful and that they are sweet scented. In the days when the doctrine of signatures was in vogue, it was gravely argued that plants even had the power of suggesting their utility for medicinal purposes. But however that may be, it is certain that they are dumb, with a doubly portcullissed tongue, as far as being able to give one single positive hint themselves to account for their presence in the surroundings in which they find themselves. No doubt anyone who visited Tradescant's Ark was already prepared to see objects gathered together primarily for their interest, and with sufficient knowledge might have understood their presence. Just so certain gardens of modern times have become famous for the interest of their occupants rather than for their beauty or extent. Such an one was Edge Hall, Cheshire, in the days of the Rev. Charles Wolley-Dod: a garden of difficult plants living in health. But interest is many sided. There is, for example, the interest of history and the interest of novelty. Some tulips of which I am about to write demand admission because the superscription on their tickets is "Historical," whereas on others it is "Novelty."

I have often met people who have never heard of the tulip mania in Holland in the years 1635 to 1637. They naturally will have no wish to know what kind of tulips were then current coin among the dealers. On the other hand, let us suppose they know a little about it, they are surely curious enough to want to know what they were like. They are seldom seen anywhere nowadays. The old order has changed in more ways than one. We have Rembrandts or broken Darwins, and we have broken old English and May-flowering tulips, but the striped flowers of the mania time were none of these. They were all, or practically all, early or midseason bloomers. This induction from Parkinson and Ray is more than confirmed by van Kampen in the "Dutch Florist" (1764), where it is distinctly stated that it was "the spring tulips, which blow at the same time with the hyacinths, which were formerly in so great reputation that the florists placed their highest ambition in the possession of them." Semper Augustus, Gouda and Viceroy are now no more, but passable reproductions or reminders are to be found in Roi Pepin and Admiral Reyniers for Semper Augustus and Gouda as rectified "roses," and in Globe de Rigaut for Viceroy, which seems to have been a pale bybloemen. There are a fair number of early-flowering rectified tulips still to be found in catalogues. A bed of these would be most interesting. "These, friends, are not the actual tulips that were in existence during the mania, but they are of the same type, etc."

As a little collection I would suggest Admiral Reyniers, Roi Pepin, Globe de Rigaut, Grootmeester van Malta, Comte de Vergennes, Silver Standard, Silver Bride of Haarlem, Royal Standard, Golden Bride of Haarlem and Duc de Berlin. I am not sure if all these can still be had. Most of them can. A bed made up of some of them would be a centre of interest to all who are *historically* inclined.

The second group to which I would call readers' attention, and of which a bed might be made, is, as far as I can make out, a group within a group. Side by side with the striped and blotched varieties in pre-mania times there existed a class distinguished by their petals being of a self colour, each with a well defined edge all round it of another colour. One part was called the "Duc" class, and if we grow the early Duc, which in Carter's catalogue is called "Scarlet and Gold: red with yellow edge," we would have in our gardens practically one of the same edged varieties that Jean Franeau pictured in "Le Jardin d'Hyver" in 1616. There are several of these edgers featured and described there. The most uncommon of all was a white with a well defined black edge round each petal. A friend of the author's told him he had seen such an one in Brussels in 1615, and, quite in accord with the fashion, described it as "un chef d'œuvre de Flore." Our author goes in ecstasies over it. "Nonpareille beauté," "Miracle des Fleurons," he calls it. Whether such a flower ever sa

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the light of day or not, it is very certain that at this early date there were numerous varieties of rich red-purple shades edged with white or a pale yellow. These were sufficiently distinct to form a class by themselves. They seem to be what Parkinson describes as "Princes," and are the same as those we now call "Lacs," as, for example, Lac van Rhijn. There seems to be very little doubt of this variety being in existence before 1635. If so, it is one of the oldest of all our tulips. To create a spot of deep historical interest, fill a small bed with Lac van Rhijn, Mrs. Elwes, Eleonora and La Remarquable, you will then have samples of one of the most popular types among the earliest cultivators of the tulip. How or when the term "Lac" originated I do not know. Among the books to which I have access the earliest use of the word is to be found in the "Flora Ceres and Pomona" of Rea in 1665.

From the very old I pass to the very new. Some of the wholesale houses of Holland offered this year an entirely new race under the name of Mendel tulips, but I cannot find them in any of the English retail lists that so far have come my way, I therefore conclude dealers want to try them themselves before they offer them to the public. They are the result of crossing Duc van Thol tulips with Darwins, and are said to "present many new and uncommon colours and are valuable for early forcing." They have been raised by the firm of E. H. Krelage and Son. I am giving these new-comers a trial both under glass and in the open. To me they are veritable pigs in a poke. I never heard of them until last spring, and although I have now handled the bulbs I will have to wait until 1925 to see them in flower. I very much wonder what is in the lap of the gods, or, to be very matter of fact, in the pots in my greenhouse and in the beds in my garden. I have purposely refrained from trying to make readers' mouths water over Mendels. All I know about them is what "they say," and, like wise old John Mandeville, the globe trotter of St. Albans, I do not commit myself too far on mere hearsay evidence. I only say they will be a most interesting "wait and see" for me. Now for a few mouth-waterers. They can all be had from one source or another if you are prepared to pay the price. Most of them are recent introductions, and every one may be said to be given away if what is asked be compared to what Gouda, Viceroy and Semper Augustus sold for in the years when Holland went mad. Arethusa, an ideal deep yellow Cottage, the *it* of the type; Orange Perfection, a beautiful rose Darwin steeped in a bath of orange; Zwanenburg, the new white Darwin with black pollen; Marksman, a fine scarlet Cottage variety, very bright; The President, pure orange, rather dwarf; Fantasy, a "parrot" sport from Clara Bull, very charming; Canary Queen, which flowers at the same time as White Swan, a very beautiful pale yellow with lemon edge; Prince Albert, a gem for the lover of "browns"; Goudvink (syn. Goldfinch), another brown gem, but whereas Prince Albert is a long flower, this has big coffee-cup sized blooms; Carrara, a white cottage, not such a graceful plant as Zwanenburg, but some people may prefer it as it has yellow pollen; Zomerschoon, one of the loveliest of tulips, a relic of the distant past if it be identical with the mania-time one with the same name. I only doubt it because of its late time of blooming, but it may have been an exception. Soft salmon rose markings on the very palest of primrose ground. General de Wet (syn. de Wet), the beautiful orange red sport from Prince of Austria; Charm (Dobbies'), a blue-blooded old English tulip which seems inclined to remain a self, pure white base and shaded rose petals. All these are out of the way and for many will have the interest of novelty.

JOSEPH JACOB.

FRIENDS AND FOES OF THE GARDEN—III

BY CLIFFORD W. GREATOREX.

ONE of the most beautiful of all our common birds is the greenfinch, known in some localities as the green linnet. So familiar is it that few people realise its loveliness of coloration. A cock greenfinch in his summer dress seems more like a denizen of the tropics than an inhabitant of our own temperate land. Bright yellow, green, greenish yellow, black and dusky grey are included in the colouring of this bird.

Though often associating in small parties, greenfinches are heard more frequently than they are seen. The long-drawn call-note of the greenfinch—rendered by one naturalist "dwee"—is distinctive. Unfortunately, this bird has rather a bad name. Gardeners do not like it—not without reason. In the spring it nips off the buds of the trees. This, however, is the only charge that can be brought against it. And, be it remembered, on the other hand, we ought to consider that greenfinches devour great numbers of insects, especially when there are young to be fed—a statement applying to all finches. In winter they consume the seeds of many harmful weeds, such as charlock and spurry. The greenfinch often nests in orchards and in large gardens, and when it does so its value as an insect—and weed—destroyer should be set against its harmfulness as a spoiler of buds.

The pretty chaffinch is useful in the garden, and deserves protection. Truly, it is a seed-eater, but chiefly in autumn and in winter, and then it visits the stubble fields and stack-yards. However, the farmer has no reason to object to the chaffinch's visitations, for it is taking only the waste grain which, unless removed, is all too likely to attract rats and mice. The main diet of this bird throughout spring and summer consists of insects. Aphides are sought for and eagerly devoured, and there are very few small moths whose larvæ are secure against the attentions of the sprightly, bright-eyed "spink."

A very striking bird is the hawfinch. However, the gardener's maxim is—of necessity—"Handsome is as handsome does." Therefore, the hawfinch is regarded as an enemy. Its attractive appearance does not atone for its destructiveness. This bird has an annoying habit of inflicting injury upon the peas and leaving the gardener in doubt as to the origin of the offence. It is wondrously skilled in the art of keeping out of sight. It has learnt the wisdom of visiting the garden when mankind is sleeping. Early in the morning, sometimes with the first glimmer of dawn, this bird takes heavy toll of the choicest peas, splitting the pods expertly from end to end and extracting the contents as cleanly as though the work had been done by human hands. Fruit, too, is consumed; the hawfinch's great beak can crack the hardest plum or cherry stone with ease. He who would outwit this bird must sacrifice his rest. Even then, should he manage to arrive on the scene in time, the chances are that

THE BULLFINCH, HANDSOME BUT DESTRUCTIVE IN THE GARDEN.

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his intended victims evade him! Indeed, so wary are hawfinches that one writer remarks: "It is possible to get within gunshot of these birds only by the use of a decoy, or by imitating the birds' call-notes, which are not unlike those of the robin." And, unless the early morning expedition be successful, nothing further can be done that day. For, when the world in general awakens, the hawfinches retire into the depths of the woods, or, in orchards, conceal themselves high up among the dense foliage of the trees.

A friend of mine has just made a suggestion for the protection of peas from the hawfinches' disastrous attentions. It may or may not be practicable. I offer it for what it is worth. These cunning robbers might be scared away were a very loud-toned alarm clock placed between the rows, and set so that it would go off just about dawn. Better still would be a specially constructed alarm that would continue to ring for, say, an hour. But, of course, the birds would get used to it after a time, and would continue their depredations just as if the alarm-clock were not there.

THE SHORT-EARED AND LONG-EARED OWLS.—EXPERT IN RAT CATCHING.

Another very beautiful bird that ranks among the foes of the garden is the bullfinch. This is a regrettable fact, because the bullfinch is a truly handsome creature. But, alas! it has been seen, time and time again, in the very act of destroying the fruit-buds—and these buds are by no means always infected by insects. Even the most devoted lovers of birds are obliged to admit this failing on the part of the bullfinch. The bird will perch on a branch, nip off every bud within its reach, and then deliberately move to a fresh place and act in the same manner there. The buds of currants and gooseberries also are destroyed. These offences are serious, but, during the greater part of the year, the bullfinch's food consists of weed seeds. The man who can devise some means whereby the buds are safeguarded against the attacks of bullfinches without the necessity of destroying the birds themselves will have performed a valuable service to both the gardener and the naturalist.

It would be rather difficult to find a very good word to say on behalf of the house-sparrow, save that, when there are young to be catered for—a state of things occurring three or four times every year—it destroys large numbers of insect pests. Unfortunately, however, the very plentifulness of this bird renders it a nuisance. It has been obliged to develop catholic tastes. In spring sparrows attack crocuses and primroses, not to mention other valued garden flowers. As soon as the gardener plants the seedling peas, "the little brown birds" set about bringing his labours to naught. Yet, they include aphides and saw-fly larvæ, together with the seeds of various weeds, in their dietary. In moderate numbers sparrows would not be so troublesome, but their numbers are not moderate, and they take too great a share of the products of the garden.

One of the most valuable, and at the same time one of the most retiring, of all the gardener's feathered friends is the barn owl. This fascinating bird spends the daytime sleeping—and snoring!—in a hollow tree, in a cavity in an ivied wall, or in some suitable nook in barn or outhouse. Not until the shadows lengthen does it appear, and then—woe betide the mouse or the rat, the vole or the mole that happens to catch its ever-watchful eye! There is not even time for a scuffle. A sudden descent—absolutely noiseless—a grip of needle-pointed talons, and the owl has secured its victim. All the owls are of great use, and in rural areas the garden is sometimes visited by the brown owl and the long-eared owl. The latter is a keen hunter of sparrows, which it seizes while they slumber among the ivy. And not even the largest and fiercest of rats can resist the lightning attack of any one of these expert hunters.

WINDOW-BOXES

FLOWER-LOVERS who are gardenless because fate obliges them to live in towns or cities can satisfy their longing in this direction by window-boxes. Not the hackneyed ones with geraniums, calceolarias, marguerites and lobelias, but boxes which, like gardens, express the individuality of the owner, being arranged according to his fancy and planted with his favourite flowers. The boxes should be begun in October or November and filled with good loam mixed with leaf-mould and a little rotted manure. Wallflowers, Brompton stocks and intermediate antirrhinums (stocky, sturdy plants) are planted, together with bulbs of all kinds—daffodils, narcissi and all tulips save Darwins (which blossom too late and whose flower-stalks are too long). In the front of the boxes crocuses of every hue may be planted, or golden ones only mixed with gentian blue Siberian scillas, or grape hyacinths. Should the winter be mild, the wallflowers and stocks will blossom before it is over. For window-boxes in the shade, Victoria forget-me-nots and the mossy saxifrages should form an edging. The latter are a lovely green during the winter, and are smothered with pink, red, yellow and white flowers in the spring. Towards the end of May the soil is renewed and the boxes planted for the summer. Those in the shade with ten-week stocks, asters, in all the lovely new shades, and fuchsias. Mimulus, canary creepers or petunias, which hang down and cover the boxes, make showy edgings. Annuals of all sorts can be used in other boxes. Clarkias, marigolds, snapdragons, larkspurs and the like, heliotrope and the stock-scented summer wallflower (Cheiranthus Allionii) with its orange blossoms make a charming contrast planted in the same box. The wallflower should be kept constantly picked.

For bedroom window-boxes sweet-scented plants should be used, such as mignonette and night-scented stock. Each box should have a small plant of lemon-scented verbena, and Cupid sweet peas form a fragrant edging. Trailing lobelias and campanulas are planted to hang down and cover the sides. Another scheme is to fill the window-boxes with pompon or polyantha rose bushes, having a different variety for each box. These are most effective if used with any of the edging or hanging plants already mentioned. A little fresh soil should be added occasionally. VICTORIA SLADE.

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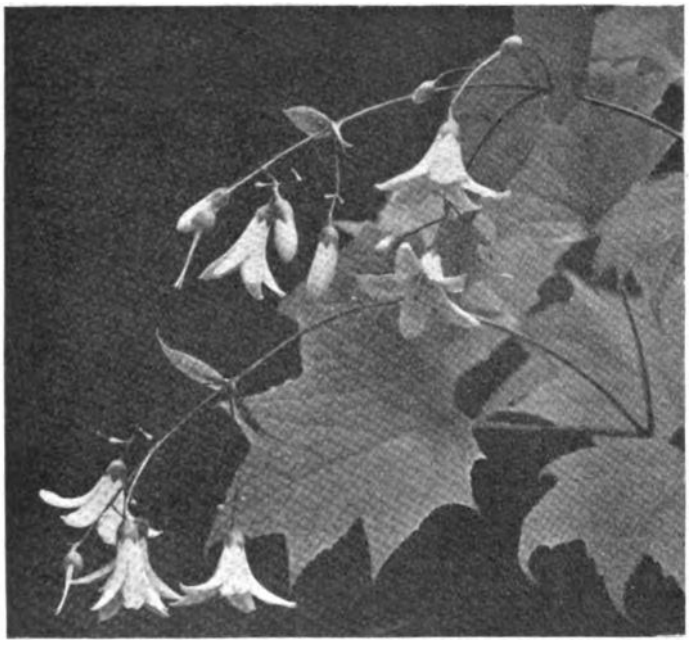
NEW AND RARE PLANTS

KIRENGESHOMA PALMATA.—This plant, with the curious name, is a Japanese herbaceous perennial of great interest and of no small garden value. It seems to be still very rare in Britain, as well as in the gardens of the Continent. I believe that it was advertised years ago in Dutch catalogues. I was quite surprised at its singular beauty when I saw the plant in flower in the Botanic Garden at Nymphenburg, near Munich. This garden, by the way, is the most interesting and best kept of the numerous botanic gardens in Germany. It has an extremely fine rock garden, and close to it there is a long, shady walk with borders of ferns and other shade-loving plants. Here stands a fine specimen, with its handsome dark foliage, of the Kirengeshoma, forming a broad clump, and in autumn almost covered with graceful, nodding, loosely-flowered inflorescences. The plant is sometimes called a sub-shrub, but I do not think that even its rootstock becomes woody. It is a striking representative of the saxifragaceous family. The shape of the flowers and of the leaves may be seen in the accompanying illustration. The flowers appear rather late in the season and seem to last for several weeks. Their colour is a pale, somewhat waxy yellow. Large inflorescences bear from twelve to over twenty flowers. The whole plant reaches a height of about 2ft. to 2ft. 6ins. It is a plant of the Japanese woods, and it likes a shady place under deciduous trees such as beeches or oaks. I do not know if the fruit ripens freely. To propagate it it seems necessary to divide strong plants which, of course, is a slow operation. Kirengeshoma is a very valuable shade plant because the number of herbaceous perennials of its size and beauty that grow in a rather deep shade is not large. Large groups of it in a wild garden along a shady walk would be unusually effective

SALVIA GLOBOSA.—Many years ago the Dendrological Garden at Prubonice, near Prague, received seeds of an interesting species of the genus salvia from the well known plant collector, Walter Siehe, at Mersina, Asia Minor. This salvia has been distributed under the name S. globosa or S. verbascifolia var. globosa. I am not sure whether this latter identification is a correct one. The true verbascifolia comes from the Caucasus where I collected seeds myself in 1909. S. globosa, the plant from the Cilician Taurus is very showy when in flower. The illustration represents a good specimen. During the first year the plant only forms big rosettes of handsome leaves, but in the second season there spring up the large panicles of almost whitish or creamy flowers. During the month of August such well developed plants are lovely. Together with certain verbascums and other tall summer-flowering plants they form striking features in the wild garden. They prefer a rather dry and sunny position with a deep, well drained soil. In their native country they grow on sunny hill slopes, and like some of the majestic verbascums, they occasionally cover whole mountain sides. It is a pity that the plant is not a perennial, but it can easily be raised from seed.

CAMILLO SCHNEIDER.



A VALUABLE SHADE PLANT, KIRENGESHOMA PALMATA.

LARGE HANDSOME ROSETTES OF SALVIA GLOBOSA.

NATIONAL CHRYSANTHEMUM SOCIETY'S SHOW

THE great popularity of the chrysanthemum was never more evident than on November 6th last, the first day of the annual show of the National Chrysanthemum Society, when the Royal Horticultural Hall, Vincent Square, London, was most uncomfortably crowded for several hours with lovers of the flower who endeavoured to view the exhibits. Although the dozen selected varieties from the forty novelties which were placed before the Floral Committee received their full mead of attention it was interesting to note the difference between the chrysanthemum and the rose enthusiasts. At the shows of the summer flower it is the new varieties that are the main attraction, but with the autumn flower the large competitive classes receive first attention and notes are taken of the varieties which make the widest appeal, and we feel certain that many who visited the show did not trouble to look for the new varieties at all. There should be a moral somewhere in this, but it does not seem to be self-evident.

So far as the exhibitors are concerned the most popular chrysanthemums to-day are the enormous exhibition Japanese and the large-flowered singles. The classes for these types were practically all well filled and there were very few of the small singles, anemone-flowered, incurved or pompons. While there is an undoubted demand on the part of a considerable number of exhibitors for opportunities of showing their monster blooms on boards, yet the large exhibition blooms were much more attractive when shown in vases. In nearly every case the exhibition blooms have outgrown the space allowed by the boards so that they are too crowded to be seen properly.

The classes for large Japanese blooms in vases provided an opportunity for selecting the best varieties. Louisa Pockett was placed first among the whites, but we preferred the greater purity of Queen Mary, which is also an immense bloom. The yellow class was very disappointing in that the chief prizes were awarded to Mr. R. C. Pulling of unlovely greenish tinge, though the blooms were perfect as regards size and shape

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and freshness. William Rigby, also of great size, is of far better colour, as also is the slightly paler Princess Mary, while Shirley Golden, which has narrow florets, is more graceful than either. Majestic, of delightful golden amber colour, and Mrs. George Morris, intense crimson, could scarcely be improved upon. Mrs. John Balmer has long curly florets of bright India red with golden reverse. F. Spring Watts, chestnut and gold, and Mrs. B. Carpenter, rosy mauve, were excellent.

Of the many large singles we selected Sandown Brilliance, crimson; Mollie Godfrey, bright mauve; Mensa and Nora, white; Pridle and Phyllis Cooper, yellow; Absolute, crimson bronze; Lady Astor, velvety crimson; Pink Beauty and Coronet, golden buff. In the competitive classes there were no really good small singles, but Messrs. Cragg, Harrison and Cragg showed delightful vases of this elegant type. Flavia, bronzy yellow; Ceddie Mason, crimson; Orlando, yellow; Portia, reddish bronze, and Clytie, were very charming examples. This collection, which was most delightfully arranged also included the best selection of the useful "Market Japanese" varieties. Aldyth, bright rich crimson; Isolde, pale lemon yellow; Felix, bright chestnut red; Jean Pattison, coppery bronze; A. Brooker, incurving red, showing golden reverse; Blanche du Poitou, one of the finest whites of recent introduction, and Sorcerer, bright bronze with golden tips, are valuable sorts.

The large trade groups of chrysanthemums were a great feature of the show. These showed every care and attention in their arrangement, the individuality of the blooms being shown to advantage. Mr. H. J. Jones was awarded a large gold medal and the Clay gold medal for a magnificent collection. Messrs. Keith Luxford and Co. received a large gold medal, and gold medals were awarded to Messrs. W. Wells and Co., and to Messrs. Cragg, Harrison and Cragg, for their splendid exhibits.

One of the outstanding exhibits was that of four very large pot plants of the brilliant Mrs. R. Luxford, shown by Mrs. Douglas Joy, Marylands, Bartley, Hants. On one of the plants there were no fewer than eighty-eight blooms, all of good useful size.

NEW CHRYSANTHEMUMS

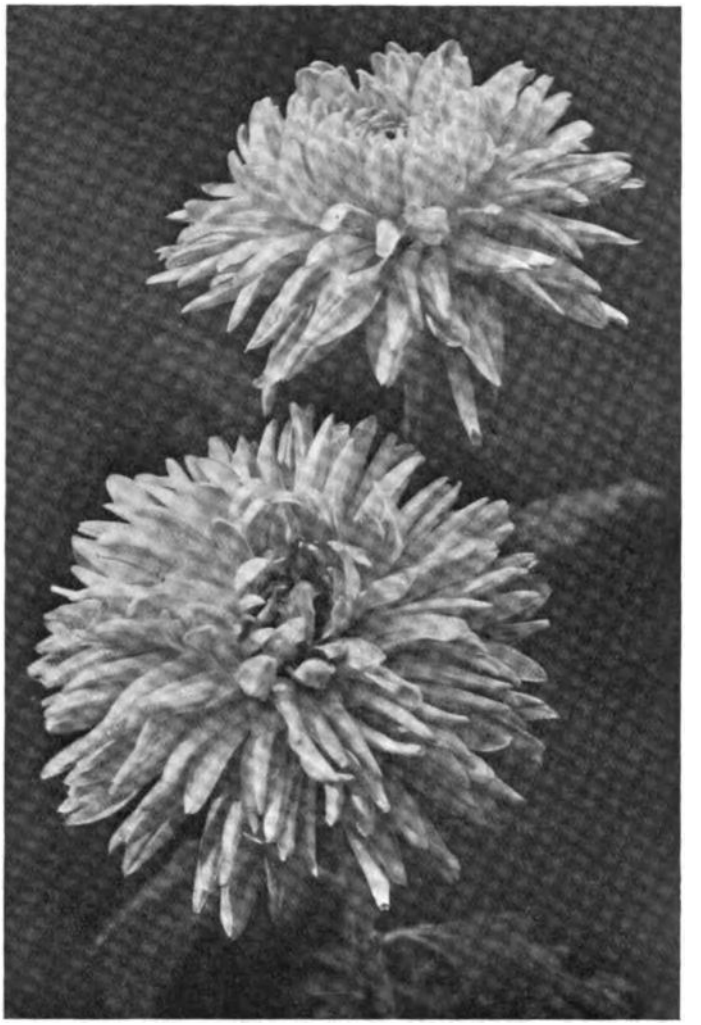
ANNETTE.—This is a large, well formed single of deep yellow which is heavily stippled with bright chestnut on the outer parts of the florets, giving a delightful effect. First-class certificate. Shown by Messrs. Cragg, Harrison and Cragg.

ENNISMORE. — An exhibition Japanese variety of elegant shape and pleasant light chestnut colouring. It is a welcome addition to its class of bloom. First-class certificate. Shown by Mr. William Scutt.

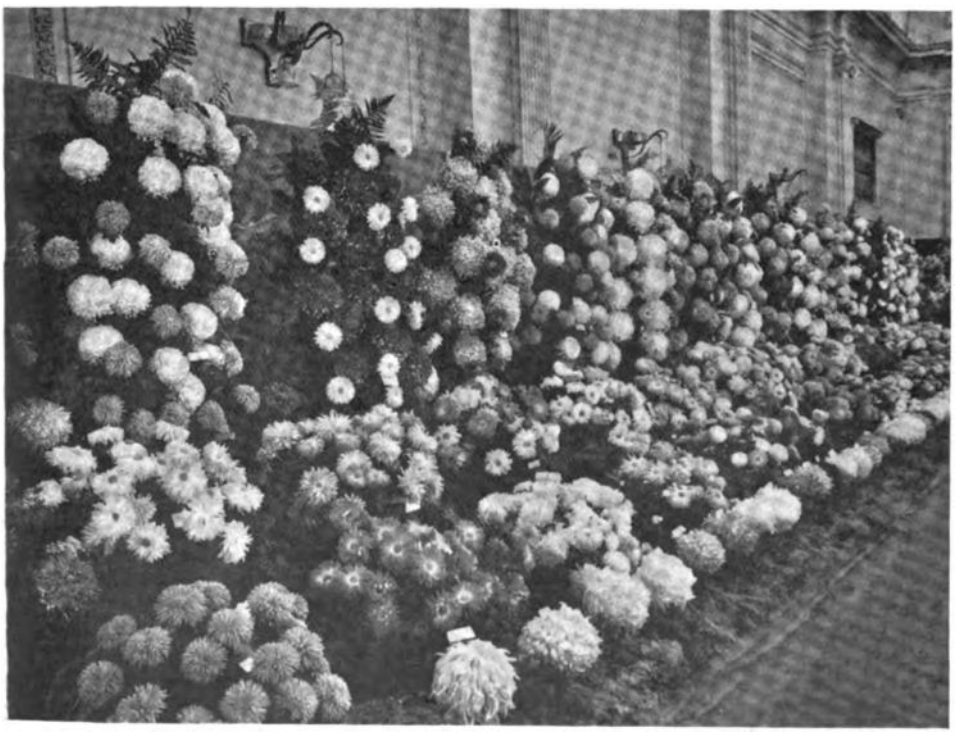
HARMONY.—A Japanese variety of the size most valued for market purposes. It is of glowing terra-cotta colouring and has a light gold reverse. First-class certificate. Shown by Mr. H. Shoesmith.

HON. EDITH SMITH.—This very large single chrysanthemum does not bear close inspection, as it is of poor type. The broad, loosely set florets are heavily flushed and lined with mauve. First-class certificate. Shown by Mr. W. Turner.

J. SYMONDS. — A large exhibition Japanese variety of great depth of bloom. The broad florets are of pale canary yellow colour. First-class certificate. Shown by Messrs. Keith Luxford tnd Co.



HARMONY, AN EXCELLENT VARIETY FOR MARKET PURPOSES



THE MAGNIFICENT COLLECTION OF BLOOMS STAGED BY MR. H. J. JONES.

MR. T. SLACK.—An exceedingly handsome large Japanese variety of the best exhibition type. The long broad florets twist and the golden reverse alternates with the bright reddish chestnut surface colour. First-class certificate. Shown by Messrs. Keith Luxford and Co.

MR. W. PETTY.—An exhibition Japanese bloom of large size and rosy bronze colouring. First-class certificate. Shown by Mr. Baxter

NAN LUXFORD.—This is a rather more than medium sized incurving Japanese bloom of considerable substance and delightful silvery mauve colouring. First-class certificate. Shown by Messrs. Keith Luxford and Co.

SPARKLER.—A perfectly formed single variety of nearly Mensa size and glowing ruby crimson colour with a narrow golden zone. Card of commendation. Shown by Mr. J. Barrell.

STIRLING STENT.—An exhibition Japanese variety of washy mauve colour, which has only large size to recommend it. First-class certificate. Shown by Mr. Baxter.

SUNBURST.—A well formed, medium sized Japanese bloom of fawn colour or terra-cotta shaded with salmon. First-class certificate. Shown by Mr. H. Shoesmith.

THOMAS POCKETT.—A very large exhibition Japanese variety. The long, broad florets curl and recurve. The general colour is pale mauve with a silvery reverse, but the centres of the blooms are of brighter tint. This variety has been named after the famous raiser and grower of Chrysanthemums in Australia. First-class certificate. Shown by Messrs. Keith Luxford and Co.

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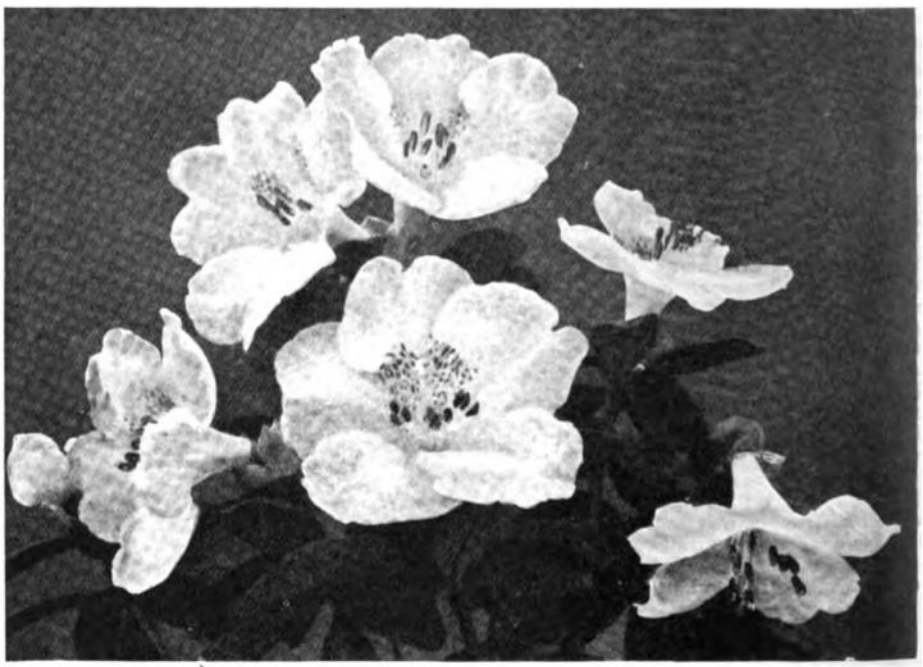
A RHODODENDRON HOUSE

BY E. H. M. COX.

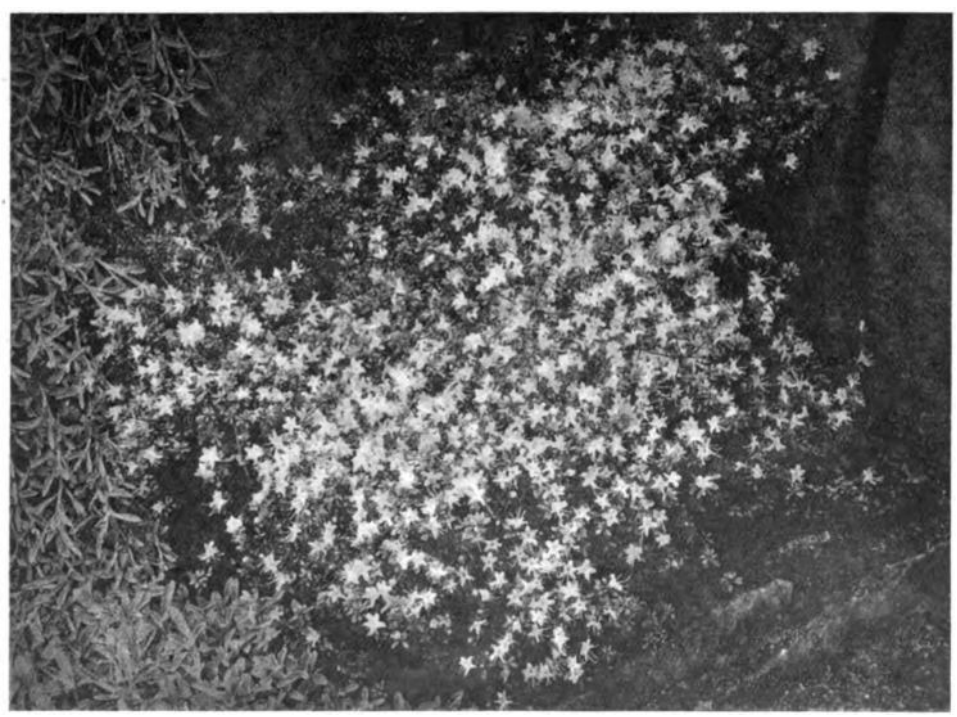
AT the present time, with the large influx of rhododendrons into this country—no article on rhododendrons ever seems to begin without some excuse as to their numbers—several species have arrived on the scene which are, perhaps, of doubtful hardiness; they break too early in the spring and are in consequence frost-bitten; in short, there are a number of rhododendrons which would be the better for living indoors. Let me qualify this statement by saying that these are in addition to R. javanicum and its allies and hybrids, which are really tropical and not only require to be grown indoors but in a damp atmosphere at a temperature approaching that of a stove-house.

This article would never be written but for the fact that many people have glasshouses, originally built for palms or vines, which, owing to the cost of coal and labour, have been given up, sometimes prematurely. All that is required for rhododendrons is a sound house, which is either vacant or of little use to its owner; aspect does not matter, neither does heat. Size is also not of the greatest importance, because sufficient rhododendrons of small stature can be grown to make even a small house attractive.

The first thing to do is to remove all staging and to prepare the ground in the same way as for rhododendrons outside.



R. MOUPINENSE, AN EARLY FLOWERER, AND SO USEFUL IN A RHODODENDRON HOUSE.



A MASS OF DELICATE BLOSSOM, R. SERPYLLIFOLIUM.

Particular care, however, must be taken over the question of drainage, and about 3ft. to 4ft. below the surface a thick layer of clinkers, stones, brick or broken crocks should be laid, while the actual soil is probably best prepared with half peat litter, a quarter light loam, and the other quarter made up of coarse sand and leaf-mould. I said above that all staging should be removed, but where some is already in use, one side or even a portion of one side will make a good bed of suitable size. It is, perhaps, as well to explain why a bed is necessary: the reason is that many rhododendrons are exceedingly difficult to grow in pots. When the roof of a greenhouse slopes at a sharp angle and there is little room for plants of any height, rocks can be made use of and a position made for alpine rhododendrons something approaching an indoor rock garden.

With the exception of that of R. moupinense, the photographs which illustrate this article were all taken either in the rhododendron or the alpine houses of the Royal Botanic Garden at Edinburgh, and they show how freely rhododendrons flower under glass in what are really ideal conditions. The only conditions necessary for their success are that the soil should be cultivated and fed in the same way as is done outside, that the plants should be watered and that they should have sufficient air. Watering is best done with a hose, and all the soil, including the path, should receive its fair share. In this way the air is kept moist. During the growing season watering should be done once a day, preferably in the early morning or evening, while from July to the end of January three times a week is sufficient. If the house is exposed to full sun, it should be shaded from May to August.

The kind and numbers of rhododendrons to plant depend upon the size of the house. Perhaps it would be better to describe the small ones first. Although the true dwarfs, coming from a high altitude, are of their nature perfectly hardy, yet they can all be grown to advantage in a cold-house. R. calostrotum, with its large rose-coloured flowers; R. myrtilloides, with mahogany-coloured bells; RR. intricatum, impeditum, scintillans and so on, are all charming little plants for this purpose, although the last three will probably have to be kept within bounds by use of the knife.

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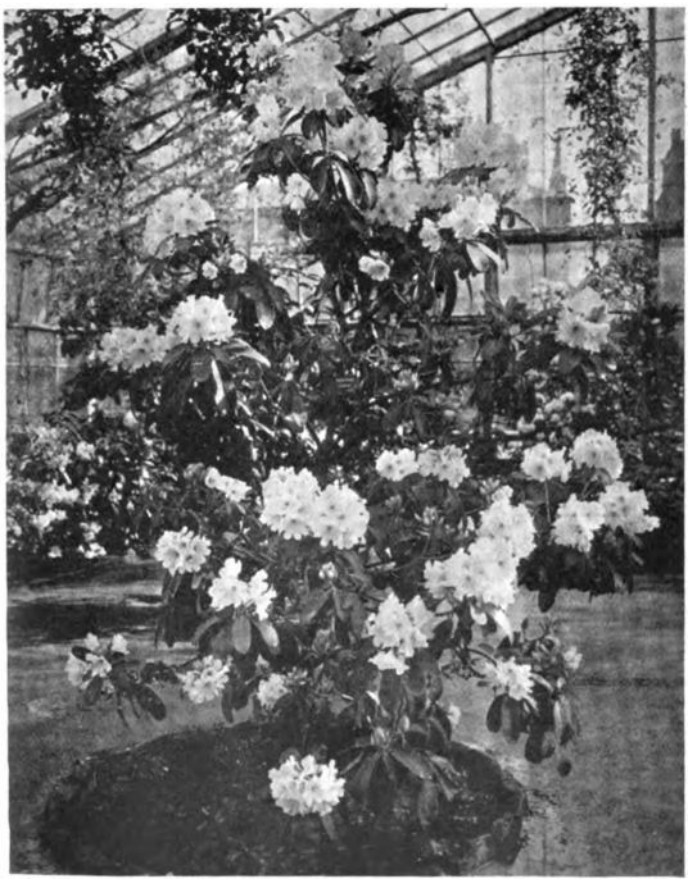
Slightly larger in size we have R. moupinense, which, although hardy, is such an early flowerer that the flower buds are usually cut outside by the frost. It is a bush which grows to 2½ft., the flowers are large and white with red spots. In this same class I would put R. spectabile (F 888), which is not over hardy except in the extreme west, R. floccigerum and R. hæmatodes, all with blood-red to crimson flowers. R. bullatum, which caused such a sensation when shown last year—it is large-flowered, white, and deliciously clove-scented, and has the added advantage of flowering at a small stage. In addition, azaleas like R. rhombicum, R. Vaseyi and all the Japanese Kurumes are of the greatest importance for decorating a cold house. Two of these azaleas are illustrated, a form of the Japanese R. Kæmpferi called Hinomayo, and R. serpyllifolium. They give masses of flower and never grow out of hand. And, of course, the old favourite of the cool house, R. ciliicalyx and its hybrids, must be included.

Big rhododendrons are more difficult to cope with, as plants which bulk large in diameter are useless in a house, unless it be of large size, and can receive the plant comfortably. R. discolor, as shown in our illustration, is certainly one of the best. The one shown is about 7ft. in height and yet is a shapely plant, and not particularly wide. Another useful plant is R. Hodgsoni, which outside is often of a muddy magenta in colour; in the house the colour seems to improve vastly in tone. Although this rhododendron is on the large size, yet it can be kept within bounds. In a large house R. barbatum should certainly be grown. It may grow to 8–10ft., but its brilliant crimson flowers are extremely handsome, and outside it is often cut, as it flowers early. But large-growing rhododendrons inside require individual treatment according to the amount of space available. It is, of course, for the smaller growers that a house is most suitable.

Naturally, other plants would be grown along with rhododendrons. Alpines of various kinds, among them the more difficult primulas, would be scattered among the alpine rhododendrons, while shrubs like Pieris formosa, that beautiful white-belled ericaceous plant which is inclined to be soft, and Camellia reticulata will thank you for the same treatment.



A MAGNIFICENT PLANT OF R. DISCOLOR IN THE RHODODENDRON HOUSE AT THE ROYAL BOTANIC GARDEN, EDINBURGH.

THE FORMS OF R. KÆMPFERI ARE PARTICULARLY AMENABLE TO TREATMENT IN A COLD HOUSE.

Then lilies can be grown in the beds and will give their share of attractiveness when the rhododendrons are past.

The cool house is only in its infancy, but it is of never failing interest, and the improvements that can be made from year to year are unending. To those who have an old house at their disposal such a scheme as I have roughly sketched is well worth a trial.

THE INVENTORY OF A GARDEN

THIS property is sold, and, while the appraiser goes round the house with his notebook, I take the garden's inventory in my heart. The antirrhinums (a flower I do not really love) form a yellow-orange-red " batik " shawl, stretched under a grey-wall—the effect of an antique shawl, for there are ugly rents in the *ensemble*, owing to the moles.

The peaches on the wall, owing to the sunless summer, are hard and spotted, so as I am going away I have let honeysuckle and Bignonia radicans cluster over the tree. The bignonia riots in France, but in England I rarely see it, even on a south wall. Below this welter is a lavender retreat where I have put a stone bench. Out of this lavender there waves gracefully Salvia azurea grandiflora.

The hollyhock leaves are ugly with rust and the French gardener forgets to burn them, undoubtedly intent on the 7ft. high stems on which double flowers, crimson and pink, bloom. I raised these from Vert's seeds.

Whatever I may feel about lavender and hollyhocks, it is upon one patch of September border that I shed a farewell tear. It has rained and rained since July, but this particular patch has grown inexpressibly lovely, and one hates to part with loveliness. An uncommon pinky mauve star bush of Michaelmas daisies is the *leitmotiv*—I wish I knew its name: it came from Blackmore and Langdon. Out of a fringe of catmint it rises, and is flanked with huge hybrid pentstemons of most joyful shades, in which rose and violet and blue somehow hold the field. There is a cunning mingling of delphiniums second blooming and several Reckitt's blue spikes of delicate Salvia patens, asking for a word before one swings on to a definite tract of floriferous Plumbago Larpentæ or Ceratostigma Willmottiæ, of pale rose phlox, and to the most unexpected pale yellow bush, as large as the largest tree lupin, of Œnothera Lamarckiana and the giant evening primrose. I describe badly the emotion of this autumn showing but not even *les roses remontant* will make my farewell so poignant as this array.

MILLICENT DUCHESS OF SUTHERLAND.

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DIGGING

THE SUCCESS OF THE CROP LARGELY DEPENDS ON THE PREPARATION OF THE SOIL; AND TO OBTAIN THE BEST RESULTS DIGGING SHOULD BE DONE IN THE AUTUMN.

WITH the approach of winter, all who possess a garden will be considering digging operations. Such work should be commenced as early as possible so that full benefit may be gained from the weather. The action of "weathering" on the soil is very important, and one of the chief objects of digging should be to expose the maximum amount of the soil's surface to that action. It therefore follows that loose open digging should be aimed at, thus providing for free aeration of the soil and better drainage, and, furthermore, enabling the frost to penetrate deeper. In addition to these actions improving the tilth of the soil, and rendering it easier to break down in the spring, the frost and birds will destroy many pests which may be present. Digging should not be undertaken when the ground is frozen or covered with snow, but is best done when the soil is more or less dry; light or gravelly soils can be dug when it is not advisable to work on wet, clay soils.

The bulk of digging will be necessary in the kitchen garden, and it is best to plan beforehand the position each crop is to occupy the following season and cultivate the soil accordingly, *e.g.*, root-crops and greens require deep cultivation, either double digging or trenching, while potatoes may be grown successfully on single digging.

The plot to be dug should be definitely marked out. This is best done by stretching a garden line on either side of the plot and notching out with a spade. Where box or other live edging borders the plot the notched out line should be at least 6ins. from it.

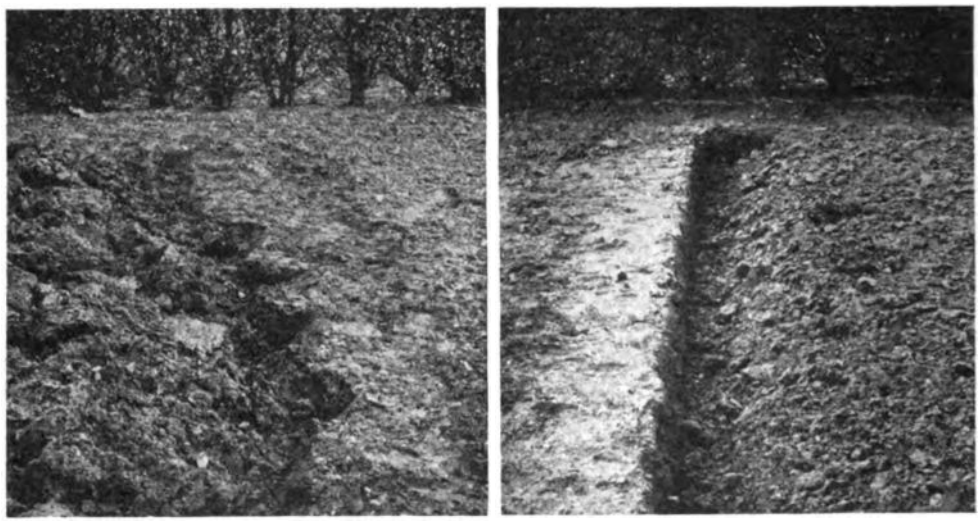
For single digging, before taking out the opening trench remove all weeds from the surface, take out a trench 9ins. wide and to the full depth of the spade, and also clean out loose soil from the bottom, and remove this to the place where it is intended to finish, a space having been previously cleaned for this purpose. Clean the surface width of the next trench into the bottom of the first, thus ensuring that any weeds present are properly buried. (Weeds near the seeding stage are best removed, as burying them will not prevent the seeds germinating at some future date.) Commencing at one end, it is best to cut the breadth of each successive spit by a sharp "jab" with the spade at right angles to the trench; the spade is then inserted almost vertically (as in illustration) to the full depth of the blade and the spit turned completely over, thus exposing to the air the soil that was previously beneath. Work across the plot in this way, maintaining a uniform depth and width, and to give the work a neat appearance the first and last spits of each trench should be turned inwards to the plot. It is in this also that the notching out of the plot beforehand proves an advantage.

It is a common mistake to lift too much on the spade. A spit of about 6ins. is sufficient on any soil. A uniform spit, in addition to maintaining an even trench, ensures that the whole of the soil is disturbed to the full depth of the spade: it is also important in maintaining a level surface, which is so essential when the time comes for breaking down in the spring.

It sometimes occurs that the soil taken from the first trench is inadequate to fill the last, but this should not happen if a good level has been maintained throughout.

For crops which require deep cultivation double digging is, perhaps, the best method especially where the subsoil is of a heavy nature. Too often one sees a wet, cold subsoil brought to the surface by trenching, and the surface spit which contains the substances for growth, is buried and very soon loses its valuable constituents. In dealing with a soil of this nature double digging should always be practised.

In double digging, prepare the plot in the same way as for single digging. The opening trench should be 2ft. wide and one spade deep and the bottom of the trench dug or forked over, thus breaking up the subsoil without bringing it to the surface. Mark out the next trench, taking care that it is the same



THE RESULTS OF INCORRECT AND CORRECT METHODS OF DIGGING OVER LAND.

THE WRONG WAY.

THE RIGHT WAY.

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width as the first, and then place the surface spit on top of the subsoil in the first trench; and treat each successive trench in a similar manner.

In order that a heavy subsoil may be broken up and become in a fit condition for bringing to the surface, farmyard manure or other decayed material should be worked in. Here I should like to point out that at no time should garden refuse be burned—except when diseased—for if this is collected and rotted it provides the best material for digging into a heavy subsoil, while farmyard manure may be spread between the subsoil and the surface spit.

After a heavy soil has been worked to a depth of two spades for a number of years trenching may be practised, as by such time the two spits have become almost equal in fertility. Such a condition is found in many old gardens, where the soil is of a light workable nature to at least the depth of 2ft.

The rougher a very heavy soil is turned over the better. The best method to accomplish this is to set it up in parallel ridges and thus expose a greater surface to the weather.

Sometimes a soil becomes "sick" to almost any crop, and when this occurs it is best to trench, and afterwards apply a good dusting of lime to the surface and allow it to remain until breaking down in the spring. Many of our gardens are deficient in lime, and this should be added, as it improves the fertility and tilth of the soil and neutralises acid conditions.

A mistake often noticed in practice is that of removing too many stones from the garden. Stones help to keep the ground open and porous, therefore within limits allow them to remain.

It is well to remember that the spade is the most important tool in the garden, and so should be taken good care of and at no time put away without being cleaned and rubbed over with an oily rag. The advantages of a polished, well kept spade are, perhaps, only known to those who use it constantly.

In the foregoing remarks I have tried to convey the importance of good digging and seasonable preparation of the soil, and a few of the advantages obtained from such. All cultivators should make a careful study of their soil and its proper treatment, for it is only by so doing that the best results can be obtained.

F. P. KNIGHT.

R. H. S. FORTNIGHTLY SHOW

DURING the last few horticultural shows one cannot have failed to have been impressed and struck by the standard of excellence reached by the numerous exhibitors despite the adverse weather conditions. But at long last these conditions have had their due effect in the distinct falling off of exhibitors at Vincent Square on Tuesday, 4th inst., on the occasion of the fortnightly show of the R.H.S. Many of the exhibits which were staged also showed clearly the rigours and vagaries of our British climate. No doubt, the National Chrysanthemum Society's Show on Thursday and Friday (of which a report will be found in this issue), accounted to some extent for the small number of exhibits and for the general lack of interest displayed. It is unfortunate when two shows come together in the one week, as the first one is always apt to suffer through preparations being made for the second. Nevertheless, one could not but be interested in a few of the exhibits on Tuesday last.

The commercial grower is now awakening to the increasing demand for shrubs, by placing all the latest varieties and species on show, allowing the public to gain a true impression of the plants. On Tuesday the most noteworthy collection of shrubs was that of Messrs. John Waterer, Sons and Crisp. It is well known how great an interest this firm has shown in the past in the raising of shrubs and trees, especially rhododendrons and also choice conifers. Their stand, however, included neither, the outstanding plant being the holly—present in numerous species and varieties. Innovations were plentiful, which, naturally, added a decided interest to the exhibit. One of the new arrivals from China was there in Ilex Pernyii, a very handsome evergreen of compact habit. The tinting in the leaves was noticeable, changing from a pale to a very dark green, the leaves being about 1½ins. long. The brilliant red berries are borne below the leaves and are thus hidden from sight. It is rather a difficult species to fruit really well, but when it does so it is a decided acquisition to the autumn shrubbery border. Another distinct and rare Chinese holly was I. Fargesi, with long, narrow, opaque foliage, giving the plant a decidedly graceful appearance. Many fine standard hollies, such as Waterer's Golden Queen, Silver Queen, etc., were on view. Several of these are particularly handsome trees. One worthy of notice was the yellow-berried variety, carrying masses of yellow berries. Many others were present with tinted leaves, variegated leaves, etc., and they all contributed to make the stand a pleasing one from the onlookers' point of view. Interspersed among the hollies were well fruited specimens of Skimmia japonica, which gives such charming effects in the rock garden. As an edging to the exhibit Veronica Hectori was utilised—the most whip-cord like of all the New Zealand veronicas.

The firm of Dobbie and Co. have long been famed throughout this country and abroad for the high quality of their potatoes, and the excellent results which the firm attain in the raising of good crops from their own Scotch seed were manifest on Tuesday, 4th inst., by the splendid exhibit on view. Nowadays the potato is open to so many diseases, both insect and fungoid, that the constitution of certain varieties becomes much weakened, so that after a run of a few years in cultivation a certain variety becomes exhausted and dies out. For seed purposes infected stocks are of no use whatever, giving a very poor yield. The reason, no doubt, why Messrs. Dobbies' meet with such phenomenal success in raising seed is because of the position of their trial grounds. Climatic and topographical conditions are such as to reduce disease to a minimum and the stocks supplied are as healthy and robust as possible. Non-immune varieties are being largely experimented with these days and already a few varieties have been found which, as well as being free from attacks of diseases, are excellent and heavy croppers. New potatoes are always wanted as early in the season as possible, and early varieties, such as Arran Rose, a kidney-shaped variety, and Resistant Snowdrop, will be found suitable. As second earlies and main crop varieties, Arran Comrade, Great Scot and King Edward VII will give good results, while for late varieties, Kerr's Pink, Arran Chief and Golden Wonder all old standing and popular varieties, cannot be beaten.

Messrs. Stuart Low and Co. were again to the fore with a tastefully arranged stand of their perpetual-flowering carnations. This firm has built up a well established reputation as carnation specialists, largely due to their untiring energy in trying to place on the market really excellent all-round varieties. On their stand were to be found notable kinds, such as White Pearl, which undoubtedly is one of the finest of all whites in commerce; Lord Lambourne, a gorgeous scarlet in colour, which will give excellent results and effects in the garden; Eileen Low, a perfect salmon pink in colour; Reginald Cory, a large flower of a shade of cerise; Duchess of York, a colour of rose spotted with red. These serve as an example of the breadth of choice which confronts the buyer. All forms and shades are there suitable for every whim and every garden.

The high standard of perfection which the chrysanthemum has now attained, its brilliant colours, variety of form and the fact that it blooms at a time when other flowers are scarce, make it one of the most appreciated of all flowers. This perfection has been reached by selection, crossing and great perseverance of many growers for a period of over a hundred years. The great range of sizes, varying from the minute pompon form to the huge heads of the Japanese type and the countless varieties which have been introduced are almost incredible. These features were well displayed by Messrs. H. J. Jones, whose exhibit was outstanding. Only extreme care, intensive cultivation and fine quality of stock could have produced flowers of such size and colouring.

From a colour point of view the yellows were superior, being of a clear and luminous tone. An excellent combination was that of the incurved variety Buttercup and Jean Pattison, a smaller example of the decorative type; the two distinct forms made a pleasing contrast; the coppery-orange of Jean Pattison showing off to great advantage the huge yellow head of Buttercup. Two more which blended well were George Carpenter, a shaded orange of excellent form, and In Memoriam, a beautiful crimson with a velvety texture. Both were introduced during this spring.

It is no easy matter to select from the Japanese varieties suitable for exhibition a few representative ones, for all of them were of equal merit, but perhaps the most striking was Mrs. J. Monro, Junr., a deep crimson; Mrs. G. Drabble, a white; Princess Mary and Wm. Ridby, both yellow, were of good form and exceptionally large.

As a contrast to the somewhat heavy Japanese varieties were the singles; Miss Joyce Moore, a bright crimson, being one of the best. Phyllis Cooper, a deep golden yellow, and Sandown Radiance, a chestnut crimson, make a splendid addition to any collection.

Other exhibitors are as follow:

Begonias.—Mrs. Sofer Whitburn and Stuart Low and Co.

Carnations.—Allwood Bros., C. Engelmann and Stuart Low and Co.

Chrysanthemums.—Godfrey and Son, K. Luxford and F. G. Wood.

Foliage Plants.—Stuart Low and Co.

Fruit.—Sir Charles Nall-Cain, Bt.

Hardy Ferns.—W. B. Cranfield, Esq.

Hardy Plants.—B. Ladhams, Limited, Reamsbottom and Co., L. R. Russell, Limited, and Carter and Co.

Landscape.—Percy S. Cane and K. and E. Hopkins.

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Roses.—J. H. Pemberton.
Topiary.—John Klinkert.
Vegetables.—Barr and Sons.
Violets.—J. Kettle, Baldwin Pinney.
Artists.—Edith H. Adie, Edith A. Andrews, Maude Angell, Marion Broom, Hilda M. Coley, Edith Fisher, Mrs. E. J. Lugard, Mrs. Henny Spencer, Winifred Walker, Ellen Warrington, A. F. Wilkinson.

NEW AND RARE PLANTS.

AWARDS OF MERIT.

CHRYSANTHEMUM GORGEOUS.—This is an excellent single variety with a large yellow eye, from which slightly reflexed florets spread out. In colour it is a dark red. The flowers are borne well and the habit of the plant appears good. Shown by Godfrey and Son, Exmouth.

C. HARMONY.—This is a market variety, the blooms of which were of good shape and texture. In colour the flowers were bronzy-yellow borne on erect stems. It appears to be a variety which will have a future in front of it. Shown by H. Shoesmith, Guildford.

C. SALMON QUEEN.—Also a market variety. The colour, at least to us, was not attractive, being of a lightish brown, with a light yellow centre. Shown by H. Shoesmith, Guildford.

CARNATION LADY HINDLIP.—This is still another variety of a perpetual-flowering carnation. It is a mixed colour, whitish ground speckled with pink or cerise. Shown by Stuart Low and Co.

CHRYSANTHEMUM MR. J. SLACK.—A handsome Japanese variety with blooms about 9ins. across.

C. THOMAS W. POCKETT.—This is also another Japanese variety with large blooms, fully 9ins. across. In colour it is of a satiny pink. The habit appears good, the flowers being carried on an erect stem.

C. SHEILA.—This is an exceedingly good single variety. In colour it is dark red to maroon, with the florets spreading outwards from a yellow eye. Above three plants were shown by Messrs. Keith Luxford, Harlow, Essex.

DIANELLA TASMANICA.—A representative of the lily family from Australia, where it grows to a height of 4ft. to 5ft. The leaves are long and linear and form a rosette. Flowers and the fruits are borne in a loose panicle. The plant bears great numbers of pretty blue berries which remain attractive for several weeks and form the chief charm of the plant. Shown by Colonel Stephenson Clarke, Borne Hill, Cuckfield, Sussex.

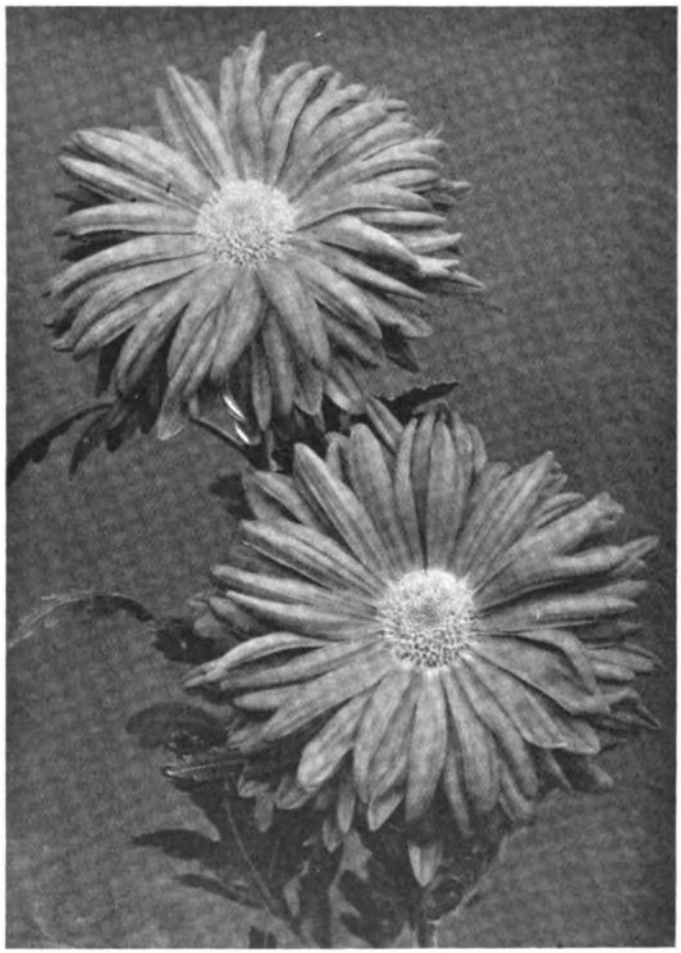
BILLARDIERA LONGIFLORA.—Another shrubby representative from Australia, where there are six to eight species. These are undershrubs with twining branches and terminal flowers, suitable for growing under glass. The leaves are showy, but the chief charm of the plant lies in the violet-blue succulent fruits which are carried in great numbers. Shown by Colonel Stephenson Clarke.

LONICERA LIGUSTRINA YUNNANENSIS.—This species is exceptionally like L. nitida and should make an excellent hedge plant with its close, compact habit of growth. It bears a heavy crop of round dark blue berries in groups close to the main stem, where they are somewhat hidden by the foliage. Shown by Colonel Stephenson Clarke.

COTONEASTER GLAUCOPHYLLA (FRANCHET).—One of the large-leaved species bearing heavy crops of dull red berries. Shown by Charles Eley, East Bergholt Place, Suffolk.

POLYSTICHUM ANGULARE DIVISILOBUM.—One of the numerous varieties of the prickly shield fern. This variety, as its name implies, has divided and spreading fronds, which are rather curved. It is of a dull green in colour and is suitable, along with the other variety, for planting in shady nooks.

P. A. FALCATUM No. 1.—The fronds in this variety are also much cut, but are flattened and spreading, giving the fern a pleasing habit. Shown by W. B. Cranfield, East Lodge, Enfield.



CHRYSANTHEMUM SHEILA.

ORCHIDS.

LÆLIO-CATTLEYA LUSTRISSIMA, WESTONBIRT VAR. (C. Warscewiczii × L.-C. Lustre).—A grand hybrid bearing a couple of large flowers, nearly 8ins. in width, of rose colour, the roundly formed labellum purple, heavily tinged with crimson. First-class certificate. Shown by Lieutenant-Colonel Sir George Holford, K.C.V.O., Westonbirt, Tetbury, Gloucester.

VUYLSTEKEARA ASPASIA VAR. POLYSTICTA (Odontioda Charlesworthii × Miltonia Charlesworthii).—The spike carried six flowers, in formation resembling the latter parent, sepals and petals crimson-red, labellum rose tinted, blotched at the base with crimson-red and profusely spotted with similar colour. First-class certificate. Shown by Messrs. Charlesworth and Co., Haywards Heath.

CATTLEYA WEMBLEY (Peetersii × Alexandra).—A large flower, remarkable for its brilliant coloration. Sepals and petals light crimson-rose, labellum ruby-crimson, and with an orange throat. Award of merit. Shown by Messrs. Flory and Black, Slough.

LÆLIO-CATTLEYA HASSALLII ALBA VAR. SUPREME (L.-C. Britannia × C. Warscewiczii var. F. M. Beyrodt).—The two large flowers have pure white sepals and petals, the labellum heavily stained with purple. Award of merit. Shown by Messrs. J. and A. McBean, Cooksbridge, Sussex.

MILTONIA BEAU BRUMMEL VAR. AUREOLE (M. Bleuana × M. Venus).—The spike bore three flowers in which the petals were flushed with deep rose, the flatly displayed labellum prettily spotted with crimson. Award of merit. Shown by Messrs. Charlesworth and Co., Haywards Heath.

CORRESPONDENCE

SERVICE TREE OF FONTAINEBLEAU.

SIR,—I am often impressed with the beauty of Pyrus latifolia, whether grown in the pleasure grounds of estates or in the garden proper. It might readily be taken for a beam tree, though not the white beam tree, because the undersides of the leaves are grey, not white. The berries or fruits, however, are the most striking ornament of the tree, being large, orange yellow, or tinted with red, for it varies on different trees. The fruit is produced in great quantity, usually every year. I have in mind also a tree that was planted in a front garden and was heavily cut back. After a year or so it fruited again regularly on the young growth of the shortened branches. Occasionally the birds carry away the seeds and young trees spring up and fruit in suitable places on commons and in woods. The value of the tree is recognised on private estates the owners of which specialise in trees.—J. F.

CATALOGUE DESCRIPTIONS.

SIR,—The leading article in THE GARDEN of October 25th with respect to catalogue descriptions of plants opens a wide door. Many would-be purchasers would undoubtedly come to a decision if information as to the habits of plants, soil, etc., could be included in the price list. It is a question after all which affects the seller as much as the buyer. We shall be told that the cost of production of catalogues to-day prohibits their enlargement, but if, as we see, novelties can be given preferential treatment in the way of describing their merits, and their good qualities extolled, would it not be a paying proposition to lift from the realm of comparative obscurity many plants to-day—the names of which to the average gardener convey little or nothing—by inserting more about them? I think so. We shall in all probability be reminded that the enhanced

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price of a novelty warrants its good points being enlarged upon. That may be so, but if it pays the distributor to do this when a plant makes its debut, why should it not also be remunerative to him to enlarge upon the merits of older plants, large stocks of which he may have in his possession, wasting their sweetness and beauty in the nursery year after year? "Lost for the want of proper advertising" might be writ against many a flower that once held high place, but unknown by present-day gardeners. I venture to say, if it were possible to have a bird's eye view of stocks in many nurseries which are not sold, we should come to the conclusion that one of the reasons was insufficient publicity. The concluding note in the leader referred to gives one food for thought. It is this, "After all, a plant is an article for sale." Precisely, and, if it has merit it is worth selling and therefore it is worth advertising well.—CLAREMONT.

SIR,—As an amateur gardener occupied throughout the year in the various branches of horticulture, I respond to your invitation to readers of THE GARDEN to express their views on this subject. I do so in defence of the nurseryman. I have purchased and have in cultivation some hundreds of plants all of which have been selected, finally, from catalogues issued by most of the best known nurserymen and specialists in different departments of horticultural interest. My experience thus arrived at is that plant descriptions, though it may be they are slight in some particulars, are not generally inadequate. I have found that nurserymen are most obliging in giving any desired information about the plants they sell or obtain for one. Your correspondent's complaint, formulated "with some heat" (which, by the way, is only useful in the hot-house or conservatory, temperamental heat being quite at variance with the peaceful occupation of plant cultivation) seems to be based—first, on very exacting criticism of the catalogues; and, secondly, to arise in circumstances over which neither he nor anyone else had any control. Your editorial article states that the primulas, which have caused the outburst in referring the matter to your valuable consideration, are *rare*. If so, why should your correspondent expect to find in any (or every) nurseryman's catalogue all the specific information he desires? As is said, there are books to refer to, and has your correspondent no friends whose experience of the particular kind he desires might be added to his own? If a personal statement is allowable, I may say that if I wish to get a plant—rare or other—I find part of the interest in it in informing myself as to its requirements of the kind set forth in your note before purchasing it. If I am fortunate enough to have rare ones sent to me, it is my custom to abstain from railing at nurserymen's catalogues generally. It is possible to deal quite successfully with plants sent from the Continent if accompanied with a note from the sender describing the situation and soil. It is a little difficult to realise what is comprised in the terms "tiny" plants. It may be that such description is confined to the various species and varieties of plants (bulbous as well as other) which are commonly known as rock or alpine plants. If so, or if not, what is the exact size beyond which the plants your correspondent is searching for must not grow? If I may be permitted to comment upon your own illustration of an adequate description, it is only to say that a nurseryman's catalogue on such a plan would become a volume. Your remark that the more an *article* is described in a catalogue the more are sold is suggestive of Harrods or Selfridge's stores. Plants being living things, possess the interest of requiring knowledge, skill and experience—greatly contributed to in your valuable paper—to keep them alive by cultivation. I do not doubt that Harrods or Selfridge's, on receiving exact measurements of your correspondent's garden and the size of the "tiny" plants he wants, would do the whole business for him; but—he would not become a gardener and would miss all the pleasure of being a cool and studious one.—A. J. H., *Tunbridge Wells*.

[A fair hit.—ED.]

NOMOCHARIS PARDANTHINA IN A PERTHSHIRE GARDEN.

LABELS AND LABELLING.

SIR,—Labels, I consider, are absolutely necessary in a garden, whether it be a rock garden, herbaceous border or fruit garden. I index all plants bought in or given me and label them temporarily with wood labels and when time permits write permanent zinc ones. I quite agree with your valuable reminder on page 692 and those of your contributors, W. Linders Lea and "Burton-on-Trent." No one, however good his memory, can remember where each plant is growing. How many readers have visited a friend's garden and "spotted" a treasure which he had not seen before and if the grower is asked the name, many a time he cannot for the life of him tell you off hand. Had a label been there, although only to prog his memory, one could then take note of it and when the season for planting comes round order for oneself. I was one who had the privilege of spending two days at the Imperial Fruit Show at Birmingham last week and how disappointing from an educational point of view, owing to many of the varieties of apples not being named. Many certainly were named and the name of the variety prominently fixed on to the box or boxes, but again quite a number of varieties of fruits were not named. Not only were our British growers at fault, those from the Dominions overseas were equally as bad.—GEO. STUART, *Edinburgh*.

PRIMULA VINCÆFLORA.

SIR,—I was much interested in reading your article in THE GARDEN of October 4th on Curious Relatives of Primulas, with photographs of Omphalogramma vincæflora. I may say I have grown and flowered these primulas in my garden in Glendevon, Perthshire for the last six years. Seedlings I raised from home-saved seed flowered this summer for the first time, and I find it takes from three to four years to flower this primula from seed.

A RARE PRIMULA, P. VINCÆFLORA.

My plants are growing in damp peaty soil facing north. Six of my seedlings flowered this summer and three of them set good capsules of seed. These plants have no protection whatever and stand the winter in Perthshire without any pane of glass over them. I have Nomocharis pardanthina growing in the same situation and find it does well. The Nomocharis I have planted 6ins. deep, and neither it nor Primula vincæflora shows any sign of growth until about the second week in May, therefore escaping any spring frost.

I enclose photographs showing Primula vincæflora and Nomocharis pardanthina in flower in my garden during the past summer.—A. H., *Perthshire*.

THE MORAINE OR SCREE GARDEN.

SIR,—I should like to thank Mr. Clarence Elliott for his most instructive and illuminating article on page 730 on this subject. He has demonstrated to us clearly, how it is possible to use an existing rock garden—not necessarily of great dimensions—and to convert it into a scree. It came very opportunely for me, as at the time I was engaged trying to effect a transformation with a small rock garden of my own, and the hints he has thrown out have been specially valuable. Most fully do I appreciate what he says about incorporating plenty of broken stone, etc., and to "go easy with soil." I have been using broken limestone for my purpose among some of the campanulas mentioned by him, Gentiana verna, Saxifraga Burseriana, S. oppositifolia, and lastly, that specially close creeping diminutive plant with foliage so white in summer, Raoulia australis, which appears to be so little known, and whose acquaintance I made only a few months ago. Two points worthy of reiterating in Mr. Elliott's article are the ensuring of good drainage, and the using of material for the scree that may be procured handy, such as sandstone, limestone or even granite chippings. The term rock garden conveys to some people a very large, elaborate structure—a quite erroneous idea—but in the case of a scree no one need be deterred in making one on the lines suggested by him, and it is easy to add to as time goes on, if it is desired to do so.—W. L. L.

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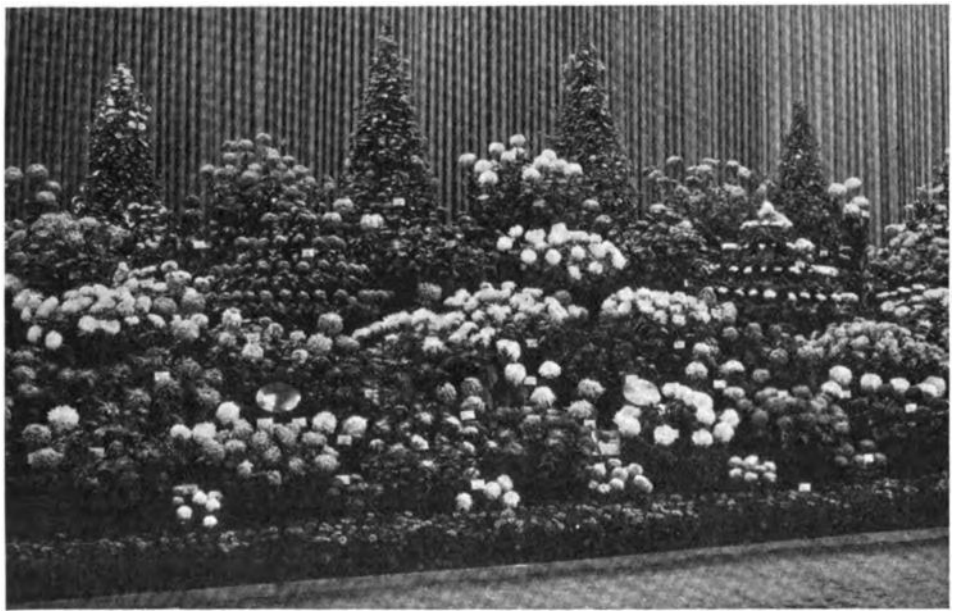
The AUTUMN HORTICULTURAL SHOW in PARIS

FINE, mild weather favoured the autumn show of the French Horticultural Society which took place in Paris from October 24th to November 2nd last. Unfortunately, the ordinary ground, at the Cours la Reine, was not available, owing to preparations being made there for next year's International Decorative Arts Exhibition, and the organisers had to be satisfied with a rather uncomfortable space near the Porte Maillot, where the general effect of the show suffered to some extent. Individual exhibits, however, were, as usual, quite interesting, and the show was an important one.

Needless to say, the chrysanthemums were, at this time of the year, much to the fore, particularly in the big Japanese varieties with very large flowers. These plants probably totalled a good half of the show. Next in importance came fruit, particularly apples and pears, fruit trees of all kinds, dahlias, roses, carnations, orchids, begonias, etc.



MESSRS. VILMORIN ANDRIEUX'S WELL ARRANGED EXHIBIT OF CHRYSANTHEMUMS.

Messrs. Vilmorin - Andrieux of Paris scored the success of the show. This old and well known firm had an enormous exhibit of chrysanthemums of all sizes and classes, from the large and elaborate pyramid with several hundreds of flowers to showy uniflorous plants, dwarf market varieties, singles, pompons, etc. A good number of novelties made the exhibit all the more interesting. The same firm had a huge stand of vegetables of the very best quality, some 75ft. by 20ft., where practically all autumn and winter kitchen garden produce could be seen.

Next in interest was the well arranged stand of Messrs. Cayeux and Le Clerc of Paris, who had a most up-to-date collection of dahlias, wonderful varieties of recent years in which the firm has specialised so much. Among the cream of the varieties may be mentioned: Mme. Victor Cayeux, Mme. Dresselhuys, Salmonea, Mme. Berthe Daru, Jean Chazot, De Rose, Simone Laurent, Orange King, Louise Aureau, King Harold, Mme. Wurfbain, etc. This exhibit was only made possible at this time of the year by the complete absence of frost up to the present in France.

Mr. G. Truffaut of Versailles was, as usual, a great exhibitor of chrysanthemums, uniflorous plants with large heads, grouped attractively in big masses of one variety. All standard commercial Japanese varieties—Mrs. Gilbert Drabble, Mme. Paquin, R. C. Pulling, Captain Fox, Ami Paul Labbé, Salonica, etc.—were very finely represented. A lovely semi-single white of great substance, Catherine Rambourg, was freely and successfully used.

Mme. Vve. Martin of Champigny has specialised for years in novelties and showed eight or ten seedlings, novelties for the year, among them Canari is one of the deepest yellows in existence, with medium sized flowers; Sir du Président Labbé, a fine red; Veronique, a large rosy lilac.

Singles were the speciality of M. Férard of Paris, who scored several awards in that class as well as in the class of pompons. Orléanais, yellow; Boetie, red, etc., were bright in that important stand.

Orchids came in fair numbers, but unfortunately the tent that contained them was rather too small both for the plants and for the public, and very few plants could be seen to full advantage. The prize for the best flower of the show went to Brasso-Cattleya Mme. Bokanowski, a fine deep pink flower, labellum deeper tinted.

Hardy pants and alpines were very few, owing to the late season and also to the fact that these plants are perhaps not so suited to the French climate as they are in England. MM. Férard and Thiebaut, both of Paris, had small natural rock gardens.

Mistletoe came as a surprise in a flower show; it was shown by Mr. Graef of Orléans, who had established small bunches of it on, presumably, apple tree stocks—standards 2ft. to 3ft. high and bunches 1ft. or so across. It is difficult to know whether the plants will continue to grow satisfactorily on a leafless stock.

Near the entrance were two very important stands of fruit, that of Messrs. Croux and Son of Chatenay, and Messrs. Nomblot-Bruneau of Bourg-la-Reine, who each grouped 500 to 600 dishes in the standard and amateur varieties. These two stands attracted much attention. Messrs. Moser and Sons of Versailles had also an interesting and important display with many rare varieties of pears and apples.

Vegetables, besides the remarkable stand of Messrs. Vilmorin-Andrieux already mentioned, were also shown by M. Truffaut of Versailles, who had, among other items of interest, fine collections of potatoes and leeks; and by the Horticultural School of Igny, a philanthropic undertaking which is a school for gardeners and orchardists. In two stands could be seen the curious Siamese or Malabar gourd mentioned in THE GARDEN some time ago.

Several large firms exhibited fruit trees, an important matter in French gardening. The trees were all full sized and models of good training. Croux and Son of Chatenay, Nomblot-Bruneau of Bourg-la-Reine, Moser and Sons of Versailles, Carnet of Mitry-Clayes, and Chauffour of Versailles, had numerous specimens trained as espaliers, pyramids, cones, vases, cordons, etc., 8ft. to 12ft. high; also many fancy shapes. This part of the show covered a vast area outside and attracted many visitors.

A *salon* of painting applied to flowers and fruits was attached to the show and quite a number of interesting works of art were shown, including "models" perfectly made, a speciality of Mr. Theveny of Paris, who has made a name for himself in that line for many years past.—C. L., *Paris*.

ROSA FARGESI.

THIS beautiful rose has loose and gracefully arching growths laden with conspicuously brilliant red bottle-shaped fruits of unusual size. It is of vigorous growth, resembling in this respect the better known R. Moyesi, to which species it is closely allied. By reason of its constitution it quickly forms a large bush, and throughout the month of June, when decked with large single pink flowers, is one of the handsomest of all wild roses.

A little careful thinning of the old wood is all it requires in the way of attention, while pruning as it is generally understood should never be practised, for it is a shrub capable of attaining 12ft. in height, with a fine and elegant spread of branches.

Seeds gathered during October, 1923, from this rose and sown immediately in pans of sandy soil—in cold frames for the winter—germinated with the greatest freedom from the beginning of March onwards and are now plants a foot in height. E. M.

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SIMPLE GARDENING

SOWING BROAD BEANS AND PEAS.

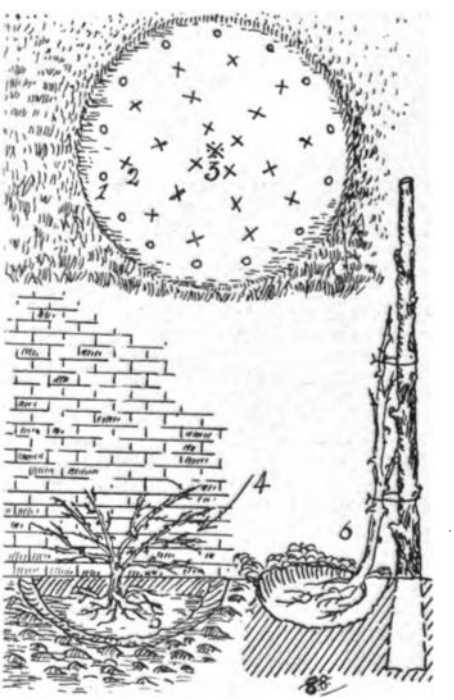
SOWING seeds and harvesting crops of one kind or another take up the time and demand the close attention of the gardener throughout the year. The true lover of a garden is never at a loss to find something to do. Just now we are busy sowing seeds of broad beans and peas in the open borders where the soil is not too wet. In low-lying gardens and where the soil is tenacious, special treatment should be given or the sowing deferred till next spring. I prefer single rows of broad beans 1ft. apart in the case of very dwarf varieties and 18ins. in the case of others. Beck's Green Gem is a good one, for the small garden especially, and Seville Giant Longpod, I find, a good one for general use. Now, where ordinary soils obtain they should be deeply dug and enriched with rotted manure only. Treading on the soil should be avoided as much as possible and the surface portion left in a rough state—at any rate it should not be raked down. Where the soil is heavy, the rows of seeds should be covered with dry sand, soil, wood ashes or even sifted coal ashes, and the surface, after sowing is completed, should be freely sprinkled with ashes. The same treatment applies to peas, but the most sheltered positions should be chosen for them. Only round-seeded varieties should be sown as the marrow-fats would rot in the cold soil. Damp the seeds and roll them in red lead as a protection from rats and mice, also birds.

SPIRÆAS FOR FORCING.

The spiræa is doubly useful when grown under glass; its flowers are pure, feathery and borne freely and, further, the foliage not only acts as a fitting setting to them, but helps considerably to furnish the greenhouse or conservatory. Unlike many kinds of plants that are to be subjected to a forcing temperature, spiræas may be potted and forced forthwith. But there should be no undue hurry in getting the clumps potted. The crowns, from which the main leaves and the flower-stems grow, must be matured; the old leaf-stalks should be allowed to ripen naturally and almost entirely before the roots are disturbed. Many leaf-stalks, however, remain rather firmly adhering to the crowns till late in winter, and their presence should not be regarded as any hindrance to the work of potting after the end of November. Such stalks should not be forcibly removed; the disturbance of the roots owing to the necessary potting will have the effect of loosening these stalks, which will soon fall away naturally. Large pots are not required; those that will nicely contain the clump and a very small quantity of sifted soil will do. The soil should be rich. One crock in each pot will answer for drainage. When potted keep them in the open air, exposing the crowns to frost, but protecting the pots from it by plunging them in leaves, ashes or litter. When forcing the plants, maintain plenty of moisture at the roots and in the atmosphere. Spiræa japonica, white, and the pink variety are easily forced.

PLANTING ROSES.

No doubt many readers of THE GARDEN made good resolutions about planting when they visited the shows and inspected the lovely blooms staged. I know that this was true in my own district and this is but one case out of hundreds. Like fruit trees, roses are all the better for being planted in the autumn, but even then they are better still if planted while the soil is fairly dry. Before a single plant is put in, the soil should be deeply dug and rotted manure only mixed with the top portion. The subsoil should be well broken up.



No. 1 shows dwarf-growing varieties; No. 2, bushes; and No. 3, a central standard or half-standard. This method applies to beds of distinct varieties or those filled with one sort only. No. 4 shows how to dispose the branches on a wall; and No. 5, the roots; while No. 6 shows how pillar, arbour and similar plants should be planted and tied temporarily. The roots must be neatly arranged to grow away from the underground portion of the post.

HOW TO KEEP RIPE GRAPES IN WINTER.

It frequently happens that a cultivator of grapes is unable to retain the bunches on the vines after the end of November. Some other means must be devised, then, to keep the berries fresh as long as possible. Where grape rooms are provided there is not much difficulty; in their absence we must devise a substitute. Perhaps a large dry cupboard can be used in a dry cool building and arrangements can be made to ensure ventilation at will. Bottles holding three half-pints should be filled with clean water and into each one a few lumps of charcoal should be placed. The bottles should be fixed at an angle of 45°, with a clear space below the necks for the bunches to hang free. The bottles must be fixed—secured to their rests. Before cutting the bunches examine them carefully and remove all unsound berries. The stems below the bunches should be cut long enough to allow free insertion in the bottles; the stems above the bunches need not be left more than 3ins. long. The stems should be severed with a sharp knife to leave open the sap vessels. A change of water in the bottles will be necessary every fortnight at least, and ventilation of the store should be such as to prevent any moisture settling for long on the berries.

SHRUBBERIES.

Even in one's own case one finds it difficult to keep the shrubbery as neat and as interesting as one wishes it to be. When first a shrubbery is formed, how careful of every individual plant the owner is, and this care extends over several years; then, with a few exceptions, neglect begins, the shrubbery is established and can take care of itself as it were. A mistaken idea. When shrubs overgrow into each other and are allowed to continue this growth for several years, two things must be done—severe pruning and the entire removal of spoiled plants. Hundreds of shrubberies are treated in this way year after year, and it is better that they should be than not receive any attention. My present object is to induce owners of young shrubberies closely to examine them now, and put right things found to be wrong. The work is not great if done annually. New shrubberies are being formed; there is ample evidence of this to be found all over the country. It is a good sign of revived interest in gardens. The permanent plants should be very carefully arranged in the new shrubbery. Plant them first, then those that are to fill, and in such a way that they will not interfere with the natural growth of the permanent specimens.

MUSHROOM CULTURE.

Those in cellars and sheds will begin to bear in March and continue until the end of June to yield crops; the beds in the greenhouse will fail about the middle of May because sudden rising temperatures will favour the attack of maggots. Of course, succession beds would be a means of prolonging the supply. Stable manure alone, or two-thirds of it to one-third of tree leaves, should be used. All manure should be spread out thinly and frequently turned in a shed to get rid of rank gas. Firm beds are essential. Lumps of spawn should be buried 2ins. deep; a surface covering of fresh soil 1in. deep and a thick covering of clean straw are other essentials. Complete darkness and even temperature must be secured. It is well to maintain a fairly moist atmosphere, but do not directly water the bed itself.

GEORGE GARNER.

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NOTES FROM CONTRIBUTORS

ATTRACTIVE ANTIRRHINUMS.

WE set out in the flower beds about the end of May young plants of Buff Beauty and Orange King antirrhinums, both intermediate varieties. The seed of each was sown on the same day in February and throughout the plants received the same treatment.

Buff Beauty, "a new and charming variety with soft pinkish buff self-coloured flowers, the most attractive of all the Buff Antirrhinums," has certainly made a fine display throughout August and well into September. Orange King, a glowing scarlet-orange, was a month later in making a show, consequently we are being favoured even at this late date—end of October—with a good show of rich and warm coloured flowers.—DAVID ARMSTRONG.

FOUR FINE ROSES.

THE present is admittedly the proper period of the year to plant roses, and those who desire to remove, re-plant or to form new beds or borders should embrace every opportunity to get on with the work. If the soil is poor a fair quantity of farmyard manure should be incorporated while the digging or trenching is going on. Where ground has not been turned over for many years trenching should be thoroughly and well done, as once the roses are set out, it is almost certain they will be left to grow in the same place for years, especially if they do well. Double digging might be recommended in places where the subsoil is barren and poor; this allows of the bottom layer of soil being turned over and mixed with manure or leaf-mould, but retained in the same position, while the richer and better surface soil is also well broken up, but kept on the top. Those who are fortunate to have access to plenty of turf from old pastureland have ideal material—when this has been stacked for a year or two before using—to mix with garden soil for growing roses. Well decayed manure, however, is not to be despised.

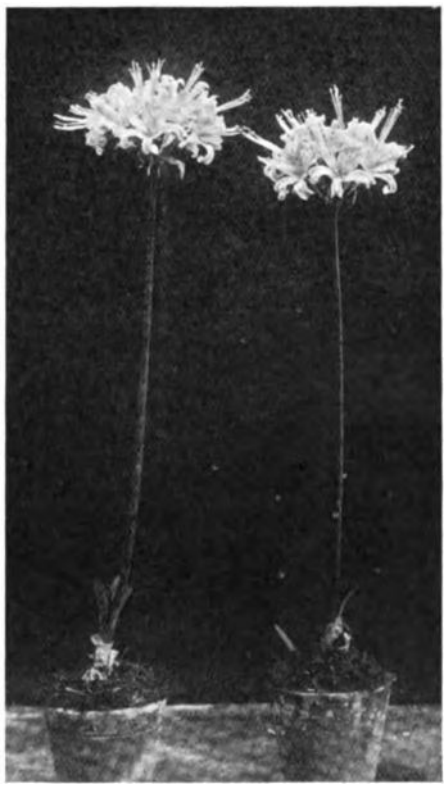
Last year, about the middle of November, we filled up a number of beds with roses. The varieties planted were Lady Alice Stanley, La France, Miss E. C. Van Rossen and Old Gold, all hybrid teas. It is interesting to state that all the plants have grown and flowered exceptionally well, not a single one having died. In the middle of July these varieties were gaily decked with flowers and they have bloomed more or less since then. Old Gold made a wonderful display throughout September and indeed well into October, so special mention must be made of its qualities: the beautiful soft apricot-coloured flowers, their fine shape when in bud, combined with such numbers produced—as many as sixteen buds and flowers having been borne on one stem and its short side shoots. Old Gold is therefore one of the very best bedding roses and seen when a pale September sun is shining it is a joy and charm to behold. The flowers are semi-double, and no doubt this is a quality *par excellence* in a variety for a wet and almost sunless season.

The flowers of Miss E. C. Van Rossen at a certain stage are delightful to the eye, but have a fault! Shall we keep it dark? No. The flower heads—at least a number of them—bend down and hide their faces. "This rose is the result of a cross between Leuchtfeuer and Red Letter Day," and the colour is described as dark velvety red.

Lady Alice Stanley and La France produce large blooms of good substance, which suffer sadly in a wet summer, the colour of the former is "coral rose, reverse silvery pink," while La France is described as silvery rose with pale lilac shading, both varieties are floriferous, vigorous and robust in constitution. La France, although a much older rose than any of the others mentioned, is still included and catalogued in "A select list of choice roses." This trying test of time surely proves the reliability of the fine old rose. However, no one need hesitate to plant and cultivate these four beautiful kinds. The foliage of each has, despite the wet, remained almost clear of mildew. About the end of June the ubiquitous green fly did get a footing on the tender shoots, but after a few sprayings the plants were relieved and have since remained clean and free from these insects.—DAVID ARMSTRONG.

NERINE MRS. W. R. LYSAGHT.

SOME four years ago we made several crosses among the nerines, and the subject of the illustration is the result of crossing N. Lady Lawrence and N. Mrs. H. J. Elwes. The former parent is more or less a crimson in colour, and the latter is a clear delicate shell-pink, while it ranks as



A FINE HYBRID NERINE.

one of the best nerines in commerce. The hybrid under notice is named N. Mrs. W. R. Lysaght; it is a beautiful shade of salmon-pink, exquisite in form, and possesses that delightful satiny sheen so characteristic of many of the nerines. It is an improvement upon the hybrid Mrs. H. J. Elwes.

Nerine Mrs. W. R. Lysaght was raised by me at Castleford, Chepstow, Gloucestershire, and it is named after the wife of the owner of Castleford, where so many rare and interesting plants find a genial home. A number of seedlings were raised, several of which have flowered, but the twain in the illustration were far the best and, moreover, absolutely identical. The photograph was taken by Mrs. Lysaght.—T. W. BRISCOE.

AUTUMN-FRUITING RASPBERRIES.

IN many private gardens the autumn-fruiting raspberries are held in high esteem, not only for culinary purposes, but for dessert, and thereby furnish an agreeable change to the usual run of dessert fruit at this season, viz., the end of October, and well into November if the weather is favourable.

It is a mistake to try to secure two crops in one year; if autumn fruits are desired the plants must be grown for this purpose.

Raspberries pay for generous treatment and when preparing the ground it should be dug deeply and some good farmyard manure and burnt rubbish incorporated as the operation proceeds. A suitable time for planting is November and December, and the roots should be planted in lines 5ft. or 6ft. apart, and a distance of 2ft. allowed between the roots. In the spring—say February or March—the autumn fruiters must be cut down to ground level, and when new growths appear they should be reduced to four or so of the strongest. The cutting down of the canes to ground level must be done each spring. Autumn-fruiting raspberries require frequent transplanting, and to make sure of a crop I transplant some annually, while others are never left more than two years without being lifted. When re-planting, select the suckers or young canes that appear a distance from the old root stock; they are more vigorous and, consequently, give better results.

The Hailsham raspberry or Hailsham Berry is one of the best; it produces a good crop of large fruits, rich crimson in colour, while the flavour is good and luscious. The comparatively new Raspberry Lloyd George is a perpetual-fruiting variety, and makes an excellent subject for autumn if treated as advised above. Another useful kind is November Abundance; while Belle de Fontenay and Queen Alexandra are also grown for autumn fruiting. If, however, one variety only is needed, then the Hailsham Berry should be chosen, with R. Lloyd George as runner-up.—T. W. BRISCOE.

PRATIAS.

TO make the acquaintance of any genus of plants through the medium of a comparatively poor species, yet one which is worthy of admiration, and then to go on to more attractive beauties, is an experience of much pleasure to most lovers of flowers. The converse is the case, however, when we meet first with one of the most charming species and, lured by its beauty, search for others of the race, and find them wanting in some of the loveliness of the first. With the writer the latter experience came among the pratias. He first made the acquaintance of the genus in the form of the lovely Pratia angulata, with its creeping carpet of small, oval, toothed, fleshy leaves and this carpet thickly ornamented with starry white flowers. A good plant of this is exceedingly charming, and it is a subject which one would fain commend to the alpinist. It comes, I believe, from New Zealand, whence it was introduced in 1879. It has also been known as Lobelia littoralis.

Of the other introduced species two at least are offered by the trade. These are P. arenaria and P. begoniæfolia, but one cannot conscientiously recommend them as superior or even equal to P. angulata. They are coarser, especially the former, and therefore less desirable. P. begoniæfolia is interesting on account of its coming from the Himalayas, but both can well be omitted from the rock garden without regret. So far as known to the writer, the yellow-flowered Pratia macrodon is not in commerce, but its description as a yellow-flowered pratia, forming tufts a foot across and with a profusion of fragrant yellow flowers, is sufficient to compel us to long to possess this native of the South Island of New Zealand. Whether it would please us should we ever be privileged to grow it is doubtful; but with such a beauty as P. angulata we need not greatly repine

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This needs a sandy, well drained soil, with full drainage, but with plenty of water in summer. It is a good precaution to keep a plant or two in a frame, lest an occasional severe winter should prove too much for this charming little flower. It increases by division.—S. ARNOTT.

COLLINS' FLOWER, COLLINSIA BICOLOR.

HARDY annual flowers of North America are the collinsias, and of considerable beauty when grown in large masses, even though such masses are carpeting the earth beneath taller-growing plants.

Their culture is of the simplest, and all that is necessary is to prepare a plot of ground and scatter the seeds broadcast, thinly, for almost every seed will grow and the thinner they are sown the taller and more handsome will their whorled flower spikes rise.

Sow the seeds in September, March or April and thin out the plants to 3ins. or 4ins. apart as soon as they are large enough to handle.

There are at least eight distinct kinds of collinsias, and the plant here dealt with is probably the strongest of the group. Its flowers, which are produced in whorls or rings round the stem, are white and lilac, and if sown in September, which is really the best time to sow, are very effective during May, June and July.

C. grandiflora is another modest but extremely beautiful plant which responds to similar treatment and, rarely exceeding 1ft. in height, is very desirable for producing carpets of colour either in the flower or rock garden. The flowers are of a lovely blue and pink shade, and colonies of them clothing the soil beneath groups of early-flowering rose species form a pleasing setting to those charming graceful shrubs.—E. MARKHAM.

PLANTS FOR THE CONSERVATORY AND GREENHOUSE.

LOROPETALUM CHINENSE is a pretty and interesting plant. Even in the south and west it never seems to have been over satisfactory outdoors, but when grown in pots it makes a fine plant for the cool greenhouse. Good specimens in 6in. or 7in. pots are very effective when in flower, for its creamy white strap-like petals are very uncommon. This plant is deserving of more general cultivation. It is easily propagated by means of cuttings of half-ripened twiggy shoots inserted in pots of sandy soil and stood under a bell glass in a cool house. This plant grows quite well in a light loam, with the addition of a little leaf-soil and sand. The young plants should be potted on as they require it until they are in 6in. or 7in. pots. Perfectly cool treatment is essential during all stages of its cultivation. During the summer months the plants may stand out of doors in a cold frame. This shrub is a native of the Khasia Mountains and of China, and, although introduced in 1880, is by no means so common as it deserves to be.

NANDINA DOMESTICA.—Although this plant is hardy in sheltered situations in the south and west, it must generally be regarded as a cool greenhouse plant. Although it seldom produces its fruit in this country, it is deserving of more general cultivation for its elegant foliage and pretty white flowers. The young foliage is also beautifully tinted. It makes a pretty pot plant when well grown, but it is really seen at its best when planted out in a cool conservatory. This plant is propagated by means of half-ripened shoots inserted in sandy soil under a hand light.

PUNICA GRANATUM VAR. NANA.—This dwarf variety of the pomegranate is hardy on a warm wall in the south and west, and usually flowers much more freely than the type. It is a neat neat-growing plant, with sleneer twiggy shoots. It is surprising that it is not more generally grown in pots for the cool greenhouse, as it makes very neat free-flowering specimens in 6in. or 7in pots. It is easily propagated by means of half-ripened shoots inserted in pots of sandy soil, which should be allowed to stand under a bell glass in a cool greenhouse. In common with many plants of this class, propagation is much more successful if a stock plant is kept indoors, as cuttings taken outdoors are by no means easily rooted. The young plants should be potted on as required. They grow quite well in any good potting compost. The young plants should be pinched several times to lay a good foundation for the future plant. During the summer months the plants should stand outdoors in an open sunny position, as it is essential that the wood should be well ripened for the free production of flowers.

TIBOUCHINA SEMIDECANDRA.—This beautiful plant, known at various times as Pleroma macrantha and Lasiandra macanthra, has now been in flower for some time, and will continue in flower for at least another month or six weeks. Its large deep violet-purple flowers, some 5ins. in diameter, are produced very freely. This plant is seen at its best when planted out in a large conservatory, training the shoots on a back wall or trellis-work. When the plant has covered its allotted space the shoots should be pruned hard back early in the New Year. During the growing season the young growth should be trained in thinly. This plant is easily propagated by means of the young twiggy shoots during the spring months. These root readily in a close propagating case with slight bottom heat. This plant can be grown in small pots for the stage, or as large specimens in tubs or large pots.

For the stage good plants can be grown in 5in. or 6in. pots. The strong long jointed shoots should be pinched at every joint until fine bushy plants are produced. During August the plants should be allowed to stand out of doors in a cold frame, as it is necessary to get the wood well ripened. By growing on the young plants the following year, large specimens are quickly produced. When they have attained the desired size they should be pruned back every spring. As this is a strong-growing plant it is not necessary or desirable to keep old plants for any length of time. There used to be in cultivation a dwarf variety of this plant, known as floribundum, which produced its flowers on quite small plants, more or less all the year round. Needless to say, this variety was better suited for pot work than the stronger growing type. —J. COUTTS.

RARE PLANTS.

THE following plants are sought for by readers of THE GARDEN. They are rare in cultivation, and we are unable to trace them in trade catalogues. We should be glad if any readers who may know where they may be obtained, would communicate with us. In almost every case exchanges could be made.

Rodgersia podophylla.
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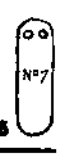

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THE GARDEN

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LUPINS

THE subject of our coloured cover in this issue is the lupin, one of the most popular of our herbaceous plants.

The history of the lupin is a little obscure, for different species were certainly grown by the Egyptians and after them by the Greeks and Romans as an article of food. Even at the present day the lupin is grown as a forage crop in Mediterranean regions, while the seeds are eaten after being soaked in water to remove the bitter flavour. The same is the case with the American species. In fact, in all sub-tropical regions it is used as an economic product. What is obscure is their introduction to other countries. They are spoken of as being grown in the Rhine Duchies during the sixteenth century, but their introduction into England was probably far later, and they certainly were not popular until the late eighteenth century.

They are so well known in our gardens at the present day that no description need be given, but they are certainly one of our most exotic-looking herbaceous plants. The new varieties are of every conceivable shade and tone. It is as well to point out that lupins when once established should be left alone, as they do not take kindly to moving. They are easily grown from seed and are propagated by division.

Our coloured cover in the Rose Number was much appreciated by our readers, one enthusiast going so far as to say that it was so realistic that he could actually smell their fragrance. It was one of the last coloured transparencies produced by the late R. A. Malby and is a model of what skilful colour work can accomplish. The original of the cover to this issue was produced by one of Mr. Malby's assistants, and I consider it to be as successful as the rose cover.

OLD HERBACEOUS FLOWERS

AT this time of herbaceous planting it is interesting to see which of the modern herbaceous flowers were found in old English gardens. It must not be imagined that garden flowers as mentioned in old English gardening books were anything approaching those of modern gardens. In almost every case they were ordinary wild flowers transferred from the field to the garden. There was little selection, no hybridisation, and cultivation as we know it was in its infancy. Dydymus Mountaine mentions the holyhoke in 1577 along with the garden poppy. The use of the word "garden" is interesting, as it is one of the first signs of differentiation between wild species and a garden form. About the same period the peony became very popular.

During Elizabethan and early Jacobean times the following plants were fashionable in knots and borders: wallflowers, the crown imperial, fritillarias, sweet williams, larkspurs and snapdragons. There is little doubt that the lily is the earliest of what might be called modern herbaceous flowers to be mentioned in connection with English gardening. Its beauty is extolled several times in Chaucer; this lily was obviously Lilium candidum, but in several early manuscripts it seems probable that the word lily refers to flag irises. It is a fascinating evening's ploy during the long winter evenings to read about the evolution of the modern garden and about the history of horticulture in England. The growth of our knowledge has been slow and sure, but there is still an enormous amount to learn. Running through all garden literature is that extreme love of flowers which is one of our greatest assets.

A GLUT OF FLOWERS

THERE is a glut of flowers at the present moment at Covent Garden. Chrysanthemums in every shape and size are by far the most popular. To me the giant exhibition-flowered forms are too grotesque and stiff for indoor decoration and do not compare with the pompons, but they last well in water, many of them a fortnight or more, which is an advantage. Most flowers in vases are the better for having the water changed every day, and this is particularly the case with chrysanthemums, for vegetable decay sets in quickly and the water soon becomes coloured and evil smelling. Another cheap flower is the narcissus from the Riviera, which has obviously arrived too early, and is in bad condition owing to the warm damp weather in the South of France. The price varies from 4s. to 8s. for 48 bunches, a price which also is perhaps uneconomic for the grower. Two years ago the price was £2 for the same number of bunches. Every flower has its correct season in the market, and both the consumer and the salesman show their disapproval of inopportune arrivals. The present time is devoted to chrysanthemums.

E. H. M. C.

IN OUR NEXT ISSUE WILL BE FOUND:

LATE AUTUMN IN THE ROCK GARDEN, by Dr. R. Lloyd Praeger.

CURIOUS ORCHIDS, by Gurney Wilson.

TREILLAGE, by D. G. S. Hook.

HARDINESS OF SHRUBS IN TYNESIDE GARDENS, by R. B. Cooke.

REPORT OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW

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AN OLD ENGLISH FLOWER

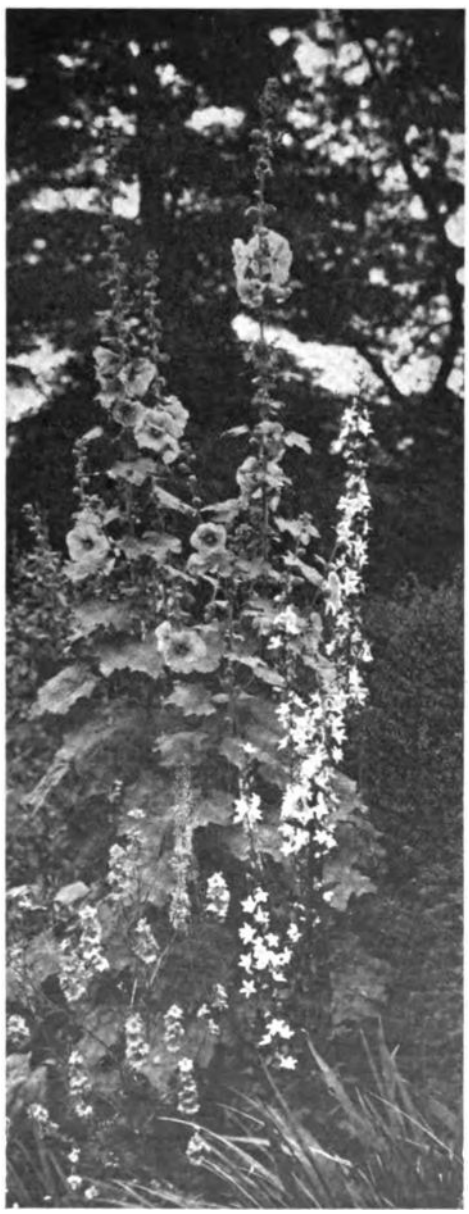
"THE HOLLHOCK DISDAINS THE COMMON SIZE OF HERBS AND LIKE A TREE DO'S PROUDLY RISE."

FLOWERS of an old-world garden, hollyhocks are not as other flowers are; their very attitude is one of aloofness from the common crowd. As they stand erect, unbending, towering above the rest of the garden's population, there is something in their detached and magnificent attitude that is of compelling attractiveness. Place a belt of hollyhocks in a garden within view of passers-by, and the most callous among those who know not gardening will not pass without taking a second glance and, consciously or subconsciously, paying homage to their unique character. Few, indeed, will see a hollyhock in bloom without involuntarily switching their thoughts back to the days of early childhood, and the older the person the more vivid will be the reflection, because it was when the veterans of to-day were children that the hollyhock held sway with regal splendour in British gardens.

Fashion, they say, rules among flowers as among people; but the hollyhock was never the victim of fashion's caprice, its enemy was the abominable disease which at one time well-nigh threatened its extinction, and did in fact wipe out many fine collections. Even the scourge of the hollyhock disease found its footing and worked its havoc not by reason of any neglect arising from waning affection, but rather through the over-zeal of its devotees, who carried skilful culture to a point that weakened the constitution of the plant and rendered it vulnerable to attack from its sinister foe, Puccinia malvacearum, the "hollyhock rust."

The name of Chater will always be as music to the ear of the lover of hollyhocks, because he not only produced some of the best varieties, but evolved and maintained a strain possessed of such stamina and vigour that it survived the grim battle with disease and defied its power to kill. This year is the centenary year of Chater's Hollyhock Nursery at Saffron Walden, and to-day, after a hundred years, the same superb strain, but rejuvenated by the production of modern varieties of robust constitution, grand form and gorgeous colour, may be seen in the same establishment wherein they grew in 1824, and from whence seeds and plants are distributed in ever increasing quantity to all parts of the world. Messrs. James Vert and Sons, the present proprietors of the Saffron Walden Nurseries, are as prominently the leaders of the cult of the hollyhock to-day as was Mr. Chater a century ago. Thanks to the co-operation between practical horticultural skill and pathological science the malignity of the hollyhock disease has been overpowered, and with clean, healthy stock and rational treatment the hollyhock is still capable of holding its proud position among the noblest nhabitants of the British flower garden.

The "rational" treatment presents no great difficulties when the adjective is submitted to clear interpretation, and perhaps the clearer idea of its intended meaning will be gained by first mentioning the departures from rational treatment which caused mischief in the past. The exhibitors of hollyhocks, who belonged to the old school of florists, were rigidly bound by their standard of "points" in the flowers they grew, and when a variety conformed to that exacting standard it was cherished and watched over with doting care. The only means of propagating such varieties was by cuttings, in itself an unnatural method of treatment for such a plant. The young rooted cuttings were of necessity given winter protection under glass, and when in spring the plants were turned out of pots into their flowering quarters they frequently had a considerable quantity of soft young foliage, but a comparatively small, weak root system. The soil into which they were planted was invariably "fat" with rich nourishment, liberal manuring being the great idea of every grower of exhibition plants. Ensuing growth was consequently very soft, sappy and flabby, to use an inelegant but expressive term. There followed still other operations which tended to concentrate upon development of size, but not upon improvement of stamina. All side shoots were removed, leaving the one main stem of the plant to be gorged with an abundance of nourishment, the richness of the soil being supplemented by liquid manures and often by mysterious concoctions which had more of the character of quack tonics than scientific plant foods. Thus was bloated foliage produced, which obviously would fall an easy prey to parasitical or fungoid diseases, and the one particular fungus which makes malvaceous plants its hosts and victims had opportunity thrust upon it to indulge in rampant aggression. The use of fungicides was not so well understood as to-day, and many growers adopted no other means of attacking the disease than denuding their plants of foliage. The fate of the succeeding generation of plants was sealed by propagating from diseased plants, and thus the disease became a veritable scourge.



THESE OLD-TIME FLOWERS LEND DISTINCTION TO THE SIMPLE BORDER.

The system of propagation in vogue during that period was obligatory, because it had not yet been made a matter of careful study to discover means or methods of maintaining seed stocks at a standard of purity which would ensure reproduction of a true variety. To-day we have, thanks to the untiring efforts of our specialists, stocks of seeds which may be relied upon to reach a very high average of true reproduction, and this fact makes rational treatment a possibility. For it needs no argument nor explanation to convince plantsmen that the natural method of reproduction from seeds is calculated to produce and maintain healthier and sturdier stock than can be secured by persistent propagation by cuttings.

Rational treatment consists of open-air culture, sowing seeds in the open in early summer, and transplanting in the autumn. The soil must be thoroughly well prepared by deep digging, attention to drainage and porosity, and manuring; but instead of putting young seedlings into soil which is over-charged with manure, the bed will be sweetened (when necessary) with lime, wood ash or burnt earth, the greater part of strong feeding being postponed until the active growing period between spring and the opening of the first blossoms.

We of the present generation have learned the value of spraying

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and it is part of rational culture that suitable fungicides shall be used either in the form of a dry powder spray or in liquid form. There is no lack of suitable materials scientifically prepared by qualified horticultural chemists and it is no part of my mission to indicate preferences between the many which are excellent. The great thing is to spray in good time, and to follow in detail the instructions of the manufacturers in regard to mixing and application.

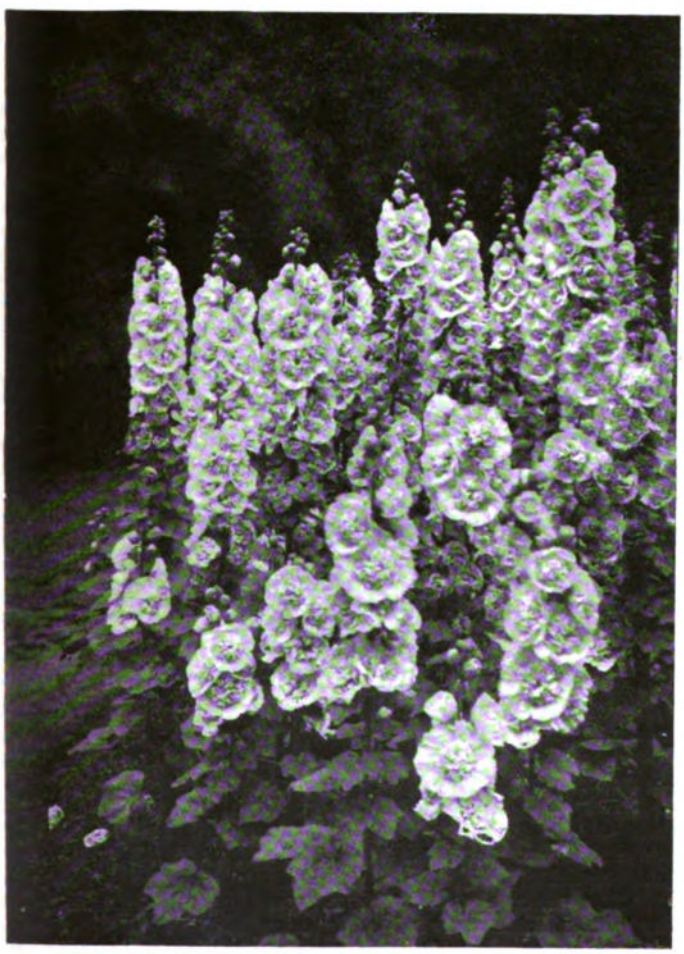
Having dwelt upon the great boon which the availability of true seeds undoubtedly is, I would dissipate any possible inference that propagation by cuttings must be entirely shunned. That would be an unfortunate misapprehension, for in order to fix and perpetuate a particularly fine variety it is quite legitimate to strike cuttings, and the retention of named varieties is essential to the continued popularity of the hollyhock.

We have this consolation, however, that our specialists are not now confined to persistent propagation by cuttings for the maintenance of true stocks, and are therefore ever watchful and alert to discard any plants which show the slightest deterioration in health and stamina.

There is no necessity for me to write of named varieties. Nothing that I could say would convey more information than is already available in specialists' catalogues, and the simple fact that I am particularly partial to Crimson Queen, Alfred Chater, Chastity and a few others is no reason why I should dictate to those of other tastes.

Form as well as colour must of necessity be studied by the exhibitor; but for garden display colour is of paramount importance, and it is purely optional whether that should be sought in named varieties or a good strain of seedlings, or, indeed, whether double-flowered or singles shall be grown. Many people are of opinion that single flowers are superior to doubles, and there are superb single-flowered hollyhocks which are capable of making glorious displays of colour.

The fig-leaved hollyhock (Althæa ficifolia) is a plant of distinctive character, the delightfully cool shade of yellow, elegance of flower, leaf and bushy habit being particularly



PINK HOLLYHOCKS ALWAYS GIVE A PLEASING CONTRAST WHEN SITUATED IN A GREY BORDER.

THE DISTINCTIVE CHARACTER AND ELEGANCE OF BLOOM ARE NOTEWORTHY IN THESE TIME-HONOURED FLOWERS.

noteworthy in a plant of large proportions. Hybrids of this species, retaining the elegance of deeply lobed foliage and bushy habit, but embracing many pleasing shades of colour, are worthy of extensive planting, and they are strikingly effective when grown in clumps with a background of tall coniferæ or trees and shrubs of dense, dark green foliage.

The staking of hollyhocks is a matter calling for something more than casual attention. The most unsatisfactory method of staking is to tie tightly the middle of a tall spike to a stout firm stake, leaving the upper portion to be buffeted about by the wind. Often a rough storm will result in the stem buckling over at the point where the tie encircles it. Tall, thick poles towering up among the flower spikes are unsightly; but an inconspicuous and effective stake is a bamboo cane thin enough at the top to be pliable, but stout enough at the bottom to be firm.

A couple of ties will hold a big stem securely, and when strong winds prevail the cane will bend with the stem, reducing resistance to the wind, and after the pressure is relaxed the cane reverts to an erect position, drawing the stem with it. This method will also ensure that the topmost part of the stem will not be broken off or unduly injured by the wind.

Hollyhocks are probably seen to the best advantage when they are massed together in a circular or oval bed. In such positions they have a most imposing appearance, as will be readily seen at Kew. As a background to a border, perhaps hiding a tall wooden fence, they are also admirable, and they generally do exceedingly well in such places, as the fence affords a certain amount of shelter from the prevailing winds. Their height and variety of colour are valuable assets in a herbaceous border and a plant which could be included when the border is in the making. No matter where these plants may be, however, they always bring joy to the eye of the onlooker and, in addition, they harmonise exceptionally well with any colour scheme that may be attempted.

A. J. MACSELF.

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ON RAISING IRISES FROM SEED

BY W. R. DYKES.

IT is always astonishing to find that comparatively few gardeners take the trouble to raise perennials from seed. It is quite true that in most cases garden varieties will not breed true and that all the seedlings from one pod of seed are usually slightly different from each other; but, on the other hand, there is no better way of obtaining a large number of healthy plants, for home-raised seedlings are often far more vigorous than stock which is raised by the division of purchased plants. Besides, there is always the chance of obtaining some striking new variety.

IRIS SIBIRICA BY THE WATERSIDE. - THE SEEDS OF THIS SPECIES GIVE THE BEST RESULTS WHEN PLACED IN A MIXTURE OF LEAF SOIL AND SAND.

There is no mystery about raising irises from seed, nor is it a very lengthy process. In fact, it is not impossible even now to sow seeds of Iris pumila, which will germinate early in the spring. If the young plants are carefully grown on and planted out as soon as possible, some of them may even flower next autumn, while all should flower in the following spring.

The chief difficulty will probably be to obtain the seeds. Few nursery firms offer iris seeds in their lists; and those lists which do contain them do not usually appear until the New Year. Now, if iris seeds are not sown until the New Year, they will often lie dormant for a year before they germinate. Even if they are sown as soon as they are ripe, some hybrid seeds will lie unchanged in the soil for ten or fifteen years, and then germinate; but, as a general rule, seeds of species and of the common bearded hybrids which are sown in October or November will germinate readily in the spring.

Seeds should, therefore, be obtained in the autumn from a nursery or from a friend's garden and be sown with as little delay as possible.

Very little that is accurate seems to be known as to the conditions under which seeds germinate most readily. My own belief and experience is that germination is much more certain in an open porous soil than in the close, finely sifted soil in which it seems to be the custom for gardeners to sow seeds. Possibly this finely sifted soil may be necessary in cases where the seeds are extremely minute; but, unless the seeds germinate quickly, it is extremely difficult to keep pots of this finely sifted soil free from moss, which, if allowed to remain, must tend to choke the tiny seedlings.

Iris seeds are by no means minute and, if the soil is passed through a ¼in. sieve, it will be quite fine enough. The actual soil which is chosen will depend on the section of the iris genus to which the seeds belong. In all cases the basis may be well rotted leaf-soil. If the seeds are those of bulbous species or of the bearded irises, then leaf-soil and sifted mortar rubble may be mixed together in equal proportions. If, on the other hand, the seeds are those of the Californian species or of I. sibirica and of its relatives, then sand or sandy soil should be substituted for the mortar rubble.

The pots should be carefully drained, and I have for years used circles of wire gauze instead of pieces of broken flower-pots with which to cover the hole at the bottom of the pot. Over the wire gauze is placed a little moss, and I find that this drainage remains good for several years. No worms can get into the pots through the wire gauze, and this is certainly no small advantage, for worms in a seed pot are apt either to throw the seeds out on to the surface of the soil or to drag them down too far beneath it.

When the drainage has been provided, the pots are filled with the prepared soil to within rather less than an inch of the top. There is no need to ram the soil down hard. One push with the fingers and a shake of the pot settles the soil in position, and the seeds may then be sown and covered with about half an inch of the prepared soil. Then the pots are well watered in order to soak the soil thoroughly.

The next step is to plunge the pots to the rim in the open, either in sand or in ashes. In sandy soil they can just be sunk in the ground, but when the soil is clay it is better to make up a special plunging bed of ashes and to put the seed pots into this. It is a great mistake to coddle iris seeds, and they should never be placed in a frame in the autumn. The stagnant air seems to have a bad effect on the seeds, of which a large number rot without germinating; while those which are fully exposed to the action of the weather germinate much more readily. More than once I have amused myself after a fall of snow by rolling huge snowballs across the lawn and then on to my seed pots, until I have been able to pile the snow up four or five feet high. Such a heap usually takes a week or two to melt completely away, and when it is melted a sharp look-out should be kept for the tips of the young seedling leaves.

As soon as the tips of these appear, the pots in which germination has begun should be placed under glass, either in a frame or in a cold-house. The object of this treatment is to take advantage of the slight increase in temperature which is found under glass and which will assist the young plants to grow rapidly.

The object of making them grow rapidly is to ensure that the young plants should be big enough to be planted out in their permanent positions if possible before the end of May and in any case early in June. This applies, of course, only to the rhizomatous species, for if the seeds of the bulbous irises are not sown too thickly, the young bulbs may be left to

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complete a second season in the pots in which the seeds were sown. As soon as a plant has made four or five leaves, of which the longest are about four or five inches long, it is ready to be planted out in the position where it is to flower. The holes for the plants should, of course, be made with a hand-fork or trowel and never with a dibber; and if the soil is very dry it may be necessary to fill each hole with water before inserting the plant. The surface will then be left loose and dry, thus acting as a mulch and the water used will be available for the roots of the plants and will not be so rapidly drawn out of the earth by the sun as is the case when it is poured on the surface after the plants are in position.

Seedlings of bulbous species should remain in an airy cold frame in their first season until the leaves turn yellow and die down. Then the lights should be left on the frame until September or October, so that the soil in the pots becomes quite dry and warm. In the autumn the old leaves may be cleaned off, taking care not to pull out the young bulbs with them; and a top-dressing of fresh soil of the same composition as that in which the seeds were sown may then be applied with advantage. The frame should now remain open until the young leaves appear and the lights need only be put on to protect them against bad weather. At the end of the second season the bulbs should be lifted out of the pots and planted in their permanent positions early in the autumn. Two years later the first flowers should appear.

All seed pots must be weeded occasionally, and for this purpose the fine sharp point of a knife is as good as anything. With this it is often possible to cut through the root or roots of the weed, which is just pulled up as far as it will come without tearing up the soil or disturbing the seeds or young seedlings.

THE INVALUABLE PYRETHRUM

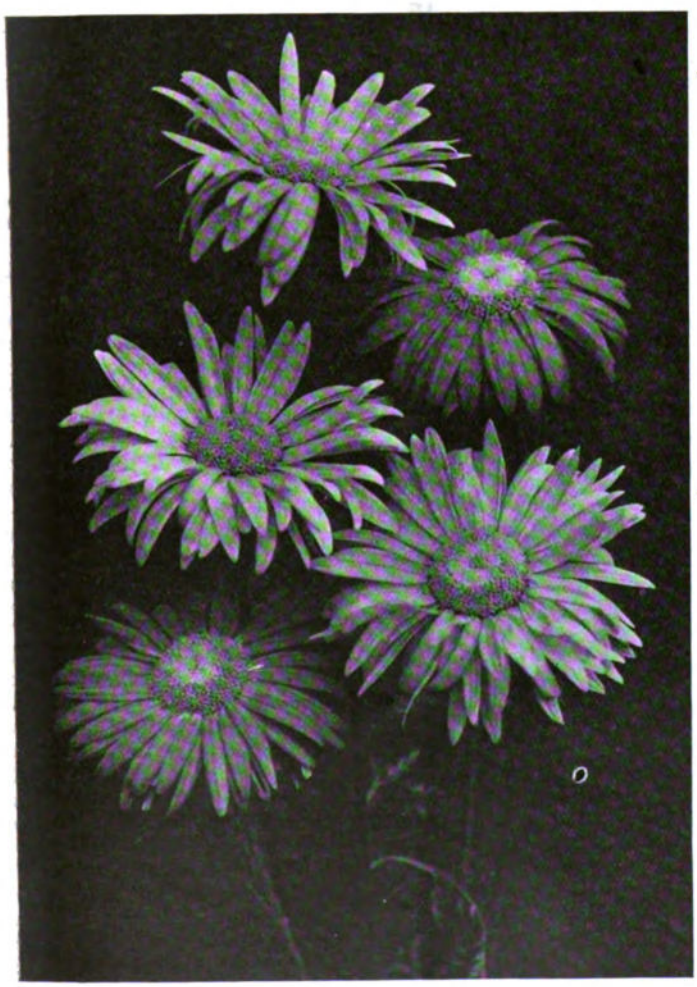
PYRETHRUMS undoubtedly deserve their wide popularity. Their season of flowering alone would ensure this. When, in addition, the wide range of colouring from which one may choose is considered, the fact that they are becoming more and still more a favourite flower is easily understood.

Pyrethrums are not at all particular as to soil, except that they are not fond of a heavy clay. They need a certain amount of moisture if they are to bloom to perfection; the result of an over dry season being registered by small insignificant blooms on very short stems.

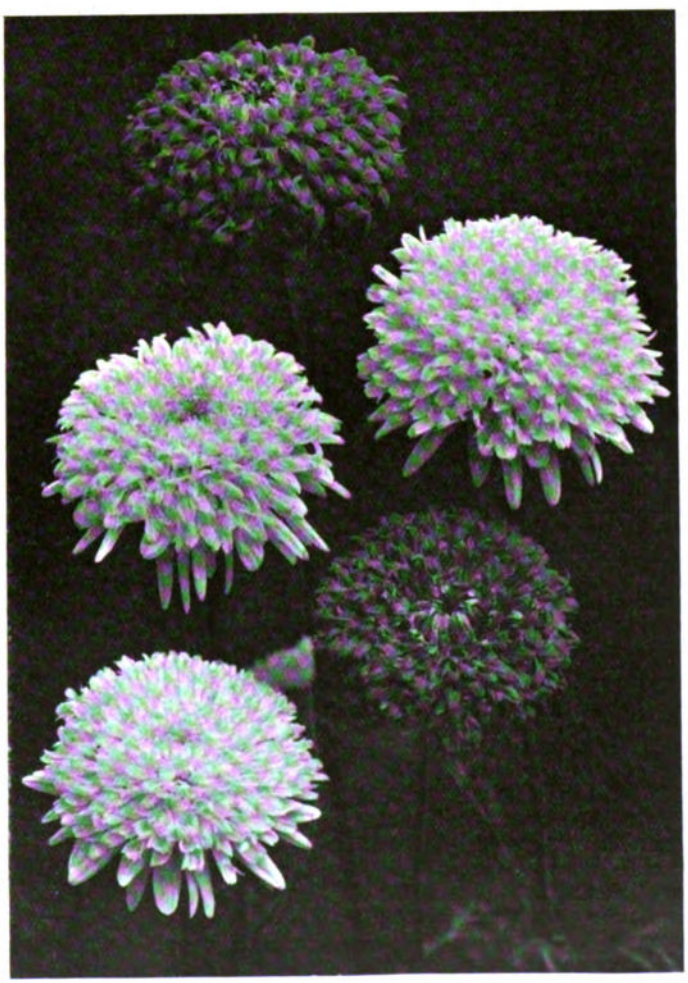
It is not always possible to find them a sheltered position in the garden with a southerly aspect, but this does not matter if they are planted in a reasonably warm situation and one in which they receive a fair share of sun.

Pyrethrums like best of all a soil which approaches a light or medium loam, and preparation for planting consists mainly in deep digging and well manuring the site or sites in which they are to make their home. If farmyard manure, which is expensive, cannot be obtained, Wakeley's Hop Manure will be found to be an excellent substitute. In addition to containing materials which render it valuable as a plant food, it will be found to be more economical. Plenty of space in which to expand should be allowed, as once they become established they grow rapidly, and unless they are divided about every third year they will have a tendency to become unwieldy, besides which the flowers will annually decrease in size.

Although pyrethrums may be grown from seeds, the experience is rather in the nature of the lucky bag of our childhood, one is never quite certain what will be the result when the seedlings



LATE-FLOWERING SINGLE PYRETHRUMS, INCLUDING GENERAL FRENCH, OF A CRIMSON MAROON SHADE.



THE WHITES AND CRIMSONS IN DOUBLE PYRETHRUMS ARE ALWAYS POPULAR.

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reach maturity. Choice varieties may be better increased by division of the roots every third year, and care should be taken not to divide these into divisions so small that they are of little value for planting. A three year old plant may be comfortably divided into about four or six parts, according to the size it has reached.

From the point of view of beautifying the garden the value of pyrethrums lies not, perhaps, so much in their splendid colouring effects, as in the season during which these effects are at their best. The pyrethrum bears its first and biggest bouquet during the month of May, when there are comparatively few flowers available and when it is certainly queen of the garden.

The planting out season is in autumn or in the spring, and although one authority states that the best time to divide the roots and to replant is immediately after the first flowering, the more generally accepted seasons will be found best to serve the purpose of the gardener.

Among singles there is a magnificent variety of recent introduction, which, as it becomes known, will certainly prove a first favourite for the garden, as well as in the matter of cut blooms for the house. Eileen May Robinson bears exceptionally large flowers, which in colour are difficult to equal for beauty, being a bright rich pink of a more beautiful shade than any of the older varieties of the same colour.

Eileen May is a vigorous plant, and, if fortunate enough to find a home where there is sufficient moisture in the soil, it will send up a glorious head of blooms which will not be matched anywhere else in the garden. Although this variety, which obtained an award of merit at the R.H.S. in 1922, excels all others, there are many very beautiful varieties which cannot be left out of a garden if monotony is to be avoided. Among these may be mentioned one or two of the already well known Kelways. A brilliant crimson scarlet is James, while Agnes Mary is a large-flowered variety of a bright deep rose colour; both of these are singles. Clemence is a single of some merit; but for earliness the Comet, which is a brilliant crimson, is to be preferred. Another early-flowering variety which is also a rich crimson is Mrs. Bateman Brown, the flowers of which are of exceptional size. General French is a late-flowering variety which has a colouring of crimson maroon, and is single, like all mentioned up to the present.

Among double pyrethrums there is, of course, the old favourite Queen Mary, with its bright pink blooms of rather large size. It flowers more freely than do many other varieties, and for this reason is loved by commercial growers. Captain Nares is another old favourite of a bright crimson colour, which colour is not found so frequently among doubles as it is among single varieties. However, there is the Melton for those who like a deep crimson bloom—and who does not? Whites are always popular, and if they are not over common among the singles, there is no lack of them among the doubles. First to bloom and valued on this account alone is Carl Vogt, the flowers of which are exceptionally large. Mont Blanc is perhaps too well known to need description, except perhaps as a reminder that it is freer than most other varieties. La Belle Blonde and La Neige are other pure whites which are worth noticing.

The fact that pyrethrums bloom a second time later in the season is not of such great importance in the garden as there are at this season many other flowers flowering to perfection. On the other hand, pyrethrums never send out a great quantity of bloom at this second effort. It has been suggested by some experts that greater perfection will be obtained the following spring if the autumn buds are cut off before they have time to open.

Careful staking and tying are necessary just before the buds open. If this is neglected and the weather chances to be rough, the flower-stalks will get twisted in all kinds of odd ways, which does not add to the beauty of the plant. Should there come heavy rains when they are in flower, the blooms will be beaten to the ground and present a bedraggled, untidy appearance in the garden.

Pyrethrums belong to the chrysanthemum family, and while in spite of the wide range of colouring they are much limited in this respect than other members of the family to which they belong every year sees the margin extended. It cannot be long before entirely new colours are added to the list, which will further enhance the esteem in which this valuable flower is held, and even to-day few gardeners consider their spring flowers complete unless more than one of the more popular pyrethrums have a place among them.

J. W. MORTON.

HARDY PERENNIALS for SUB-TROPICAL GARDENS

SUB-TROPICAL gardening, with its infinite possibilities, might be made a feature of many gardens but for one obstacle—its expense. One looks round to see where this high cost comes in and it is not at all difficult to locate. The large numbers of tender and half-hardy plants that are employed need considerable heat to raise them and house them during the winter and spring months. Both fire and labour are costly, and the whole matter does not seem worth while.

Yet one longs for the splendid "foreign looking" pictures and the noble and luxuriant effects, and one considers once again if it is not a practical possibility, without an over-draft upon the garden account. It is. Those two words are a very definite statement; and in two words more we can give the answer: Hardy perennials.

The right kinds of hardy perennial plants, well chosen and well placed, provide a "backbone" of noble and luxuriant flower and foliage among which but a very restricted number of really tender plants are necessary. These, of course, should be placed just at the most prominent points, where they will tell to the fullest advantage and thus the sub-tropical garden may be run at no higher cost than ordinary summer bedding. Closer examination of the matter will reveal an extremely wide range of plants that may be used, all of them of the utmost hardiness and capable of standing in the open, unprotected for many years without any more care than that which is usually bestowed on border flowers. Where hardy plants are used as the "backbone" for a piece of sub-tropical gardening, it is better to keep those kinds out of the general garden and not to allow them to appear in both places, otherwise the effect produced in one direction is apt to be marred by their appearance in another.

One of the first plants that will occur to the mind of the intending planter is the acanthus—a plant that looks best when used singly. This gives an opportunity for the magnificent leaves to spread to their fullest extent, without

DIFLORA, ONE OF THE DAY LILIES FROM THE EAST.

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competition with their fellows, and thus the noblest appearance is obtained. Let us not forget, in our praise of the splendid shining leaves, the curious and substantial heads of flower that are such a feature of the plant in August and September and that add not a little to its tropical appearance.

Beautiful effects are provided by a rather common plant, Iris fœtidissima fol. var., in which the leaves are strikingly variegated with green, gold and silvery white. Do not give rich soil to this, for the poorer the soil the more marked the variegation will appear. Where space is ample and plantings can be on the grand scale, nothing excels the pampas grass—Gynerium argenteum—which is useful throughout the season. Place this where one can get all round it and it is thrown out perfectly clearly and distinctly and none of its wonderful grace is lost by too close contact with other foliage. The huge plumes of feathery white grass do not appear until late, but, in combination with the gorgeous red-hot pokers, create an effect that is entirely their own.

In addition to the association of the red-hot pokers with the pampas grass, the use of the Kniphofias alone and on a lavish scale should not be omitted, for, with their luxuriant arching grassy foliage and vividly brilliant flower spikes, they are among the very best of all hardy plants for our present purpose. Many of the best varieties attain the zenith of their flower perfection in August and September, just when the sub-tropical plantings are at their most luxuriant stage; but, even in the early summer days, by including some clumps of such varieties as Tuckii with its yucca-like leaves and gold and scarlet spikes at a height of 4ft., noble effects are easily possible, and one wants the sub-tropical garden to be interesting over as long a period of the year as possible.

For surrounding and backing up, especially from the point of view of wind shelter, the bamboos are magnificent—and in the phrase "wind shelter" there is quite a valuable point. Although the bamboos themselves do not like to be too violently swayed, there is a very subtle attraction in the musical rustle of the leaves and stems as they gently stir in the wafting breeze, and the most should be made of this when planning out the garden. Happily, the family is a very large one, and bamboos are available ranging in height from a few inches to 16ft. or 20ft., so that, whatever the scale upon which the proposed planting is being made, it will be easy to choose suitable varieties for the purpose. Where the plantings are on a large scale and truly immense plants can be included, the gigantic leaves of the gunneras should be employed for every ounce they are worth. By the waterside especially they attain dimensions that can only be described as gargantuan, and when associated with Heracleum giganteum or H. mantegazzianum, extraordinarily bold pictures are produced.

Placed where it may run freely—as it quickly does—the plume poppy, Bocconia cordata, is really lovely and the larger the masses that can be accommodated the finer the effect. Although the plant is naturally a tall grower, it should be set, wherever possible, on a raised mound, for this still farther raises the plants and thus exposes the silvery stems and beautiful underside of the foliage. The wonderful plumes of feathery flower and charmingly cut leaves add not a little to the whole, and the plant remains decorative until very late in autumn. Thistles, both annual, perennial and biennial, are very valuable and, in this connection, special praise may be accorded to Carduus eriophorus. This rises to a stature of 4ft. and, with its handsome leafage and beautiful purple flowers, forms a most imposing specimen. Phytolacca virginica, the red-ink plant, is characterised by strong erect bushy growths that attain a height of 5ft. and are noticeable in autumn for their long spikes of purple berries which, when crushed, exude a red fluid, hence the name red-ink plant.

Sharing the love of moisture characteristic of the gunnera, the fuller teasel, Dipsacus Fullonum, gives splendid effects. It is well to remember that this is only a biennial, and one must renew the plants by seed annually, otherwise a big gap will be left where the former plants have died. The greenish-white flowers, at a height of 4ft., are extremely decorative for many weeks; indeed, the plant is ornamental from June to late September.

The larger-leaved funkias, used in great masses, are simply grand, although one always regrets that the magnificent variegation which is so prominent a feature in early summer is not retained in its fullest beauty throughout the season. For our present purpose, F. Fortunei robusta in which the leaves are shining green and each reaches a length of about 2½ft.; tardiflora, with its splendid form, shortly stalked leaves and its handsome flowers in full beauty in late autumn; and Sieboldi glauca, with strong glaucous green leaves and purplish flowers from July to September, are all especially good. All of these may be employed as a ground-work for tall "dot" plants of vigorous growth and, wh present a magnificent effe

Though less vigorous t our other plants, the valu coppery leaves and stems contrast to the crimson-sc the perennial lobelias, sh the very most of; for

ONE OF THE MOST EFFECTIVE AND USEFUL MEMBERS OF POLYGONUM POLYSTACHYUM.

employed in sufficient q lovely contrasting effect greenery. See that the and that the roots a abundance of moisture amount of vigour will comparison with ordin value that, by reason outstanding merits, it w to over-estimate.

In many gardens, the like Cineraria martiima hardy, and, where th plant could possibly b ciating with the lobelia whiteness of the one ser deep redness of the oth

In order to avoid should be made of vari which may be single mention Carex ripari reaches to 3ft., with bea drooping leaves; Eulal variegated in bars t of the leaf; and S feather grass, notice feathery white awns.

Polygonum cuspida weed, needs to be specimen to reveal th noble proportions. W it attains a height oval leaves and white during late summer. succeeded by pale the weight of which arch over in the mo Many other species be employed with polystachyum, whic and which, if plante not encroach on i readily lend themse gardening. H. W

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BONE FERTILISERS

I SHOULD like to call attention to the use and value of bones in the garden, especially as the time for application of most bone fertilisers is now at hand. There are quite a number of products on the market which consist of bones in some form or other, but in many instances little use is found by the horticulturist for them, and valuable mild-acting fertilisers are thus missed.

Bones themselves in their raw state are totally unsuitable for application to the ground, although this is sometimes advised. If one buries a hundredweight of bones after carefully saving them up for a few weeks with the assistance of the cook, or after purchasing them in a sack from the nearest slaughterhouse, one finds on digging them up again that there is very little change in their form. In other words, the plant food contained in the bones has not been dissolved to any appreciable extent, and hence one's crops have not been able to benefit by the application. Some kind of treatment is, therefore, essential if the locked up plant food in bones is to be of use, *i.e.*, grinding, charring, dissolving or intermixing with other materials.

In a short article it is impossible, of course, to do justice to each one of the very numerous bone fertilisers which can be obtained. I have selected, however, some which I consider to be the most important, and brief comments on these are now appended.

Animal Charcoal.—This product is identical with bone black or bone char, both of which are used by sugar refiners. As is mentioned under bone black, the form known as spent char is generally applied as a fertiliser, and often proves valuable as well as being quite inexpensive.

Bone Ash.—This material is the result of burning bones. Chemically it consists very largely of insoluble phosphate of lime, and has practically no organic matter or available nitrogen. Bone ash has, therefore, to be regarded as a very slow-acting phosphatic fertiliser, suitable only for autumn application and best applied when preparing flower or fruit borders which will stand undisturbed for a considerable period. It should be applied to these in the form of a fairly heavy dressing, *viz.*, 4 oz. to 6 oz. per square yard, and well mixed in with the soil. As it is a comparatively inert fertiliser, it is perfectly safe to mix it with dung or with other artificials.

I should like to point out one unrecognised use of this material, namely, as a dressing to manure-sick soils which are inclined to become permanently sour. These soils when tested prove acid in character, and although the acids are of a weak character, they are quite able to attack this insoluble phosphate and render it available for plant life. Soils treated with bone ash immediately show a reduction of sourness, and the crops grown upon them mature earlier, due to the action of the soluble phosphate which has been produced.

Bone Black.—As already remarked above, this is also known as bone char. In a fresh state it is rarely used as a fertiliser, but in the neighbourhood of sugar refineries, refuse or junk known as "spent char" may well be pressed into service. This consists largely of insoluble phosphate of lime with a fair proportion of finely divided carbonaceous matter. If not offered in a fine powder it should be thoroughly ground, as otherwise it will only dissolve very slowly in the soil. Despite the fact that this is used as a purifying agent, it very rarely contains anything of a poisonous character as far as plants are concerned. There is a chance, however, of it coming into contact with undesirable barium compounds, which are also used in sugar refining, and in the case of an application giving a check to growth or otherwise proving undesirable it is well to have the sample tested, which can now very easily be done by application to one of the many reliable agricultural chemists.

Spent char should be used as an autumn dressing, and can safely be applied to the ground at the rate of about 3 oz. to the square yard.

Bone Dust and Bone Flour are very similar in appearance and in composition, although one brand described as bone dust contains a considerable proportion of organic matter with nitrogen available as ammonia. Personally, I think it would be better if these two materials were not sold as each other. Bone dust should be the form containing phosphates and nitrogen with a reasonable amount of organic matter, but finer in character than bone meal, which I shall describe immediately; while bone flour should only be sold as steamed bone flour, *i.e.*, a material from which all organic matter and nitrogen has been removed in the production of glue, gelatine and similar materials. In either case, however, the materials will be found to be slow-acting fertilisers of a perfectly safe character, and may be applied to the ground at the rate of from 4 oz. to 6 oz. per square yard any time before the end of December. These two materials will be found exceedingly useful in the preparation of fruit borders both inside and out. They can also be used as mild stimulants when getting ready rose borders and so on, the phosphates they contain becoming slowly available, and the effect of both being of a lasting character.

Bone Guanos.—Mention must be made of these, although it is undesirable that materials should be marketed under this name. Bone guanos are of very valuable composition, and may contain large or small quantities of both soluble and insoluble phosphates, as well as some soluble nitrogen generally in the form of added sulphate of ammonia. Up to now they have proved full of impurities, and one frequently hears of samples which have been submitted for analysis containing very substantial amounts of sand, chalk, road dust and other useless components which can be had for the asking. I never advise their use in the garden, as in most instances the gardener is paying for rubbish.

Bone Meal.—This is a very valuable material for use at the present time. The genuine article consists of untreated bones which have been submitted to comparatively fine grinding, but are not in such a fine state of division as is a material described as bone dust. Bone meal should thus contain a substantial amount of organic matter and nitrogen which, of course, is generally reckoned as ammonia. Analysis will, in addition, reveal the presence of a fair amount of fat which, although often considered to be undesirable, makes the meal more lasting in its effects as it does not dissolve in the soil except very slowly. The major portion of bone meal is, as goes without saying, phosphate of lime, and in order to prevent the material fermenting it is customary to add salt to it, and this must not be considered as an undesirable adulterant.

For use outside bone meal is generally applied at the rate of 4 oz. to 8 oz. per square yard. It can be used with or without dung, and being of a harmless character most other fertilisers can safely be mixed with it. It is valuable as a dressing for lawns, can be applied as a top-dressing to herbaceous and rose borders, while it should be freely used as an addition to potting soil for grosser feeding subjects, such as chrysanthemums, tomatoes and so forth. A large potful to a small barrowful of soil will not be too much, while for both outdoor and indoor vine borders, and peach borders it will prove exceedingly useful. For indoor work generally a smaller quantity is used, say 3 oz. to 4 oz. per square yard, and this is well pricked into the soil before mulching with manure.

Bone Superphosphate. — This and *Dissolved Bones* should be the same thing under two different names. That usually sold as bone superphosphate is generally a rather coarse superphosphate with bits of bone plainly visible in it. Dissolved bones, although obtainable in several grades, do not, as a rule, indicate their source of origin quite so plainly.

I should like to mention that dissolved bones can be prepared at home without much difficulty if the gardener, assisted by the cook, saves up all the bones from the house. About 5cwt. of bones is a convenient lot to work on, and for this amount round about 2cwt. of strong sulphuric acid will be required. After making the bones into a large pile and thoroughly moistening them with soft water, a thick ring of fine ashes should be put round. One must then put on a strong pair of goggles and a leather apron, as well as a coarse pair of thick gloves, and then pour the acid cautiously over the pile. Great heat is sometimes produced during the addition of the acid, which, by the way, is exceedingly corrosive, and no effort must be spared to prevent this from getting on one's flesh or clothes. After the addition of the acid, cover up the pile for a few days with slates, stones, etc., then remove the ring of

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ashes, breaking the dissolved material up with a pickaxe if necessary, and submit it to grinding in an improvised pestle and mortar prior to bagging up for use next spring or during the summer months. The rate of application is from 1 oz. to 2 oz. per square yard.

Floated Bones.—These are a dust-like American product which is rarely offered in the English market. The action is similar to bone meal or bone dust, and the rate of application is similar also.

Half-inch and Quarter-inch Bones.—Although years ago it was customary to dig these into the ground when preparing it for fruit, roses, shrubs, climbers, etc., nowadays they are almost entirely reserved for use in potting materials. On account of their size they are very slow in action, and it is doubtful to my mind whether the application of them is strictly economical at all. A large potful, or in some cases a couple of potfuls is added to each barrow of soil, and thoroughly mixed in with it. The names, of course, refer to the size of sieve through which the coarsely crushed bones are put to prepare them. The finer material after such preparation is then ground in the form of meal while the coarser pieces of bone are again crushed to prepare more of the half-inch and quarter-inch variety.

Some gardeners use half-inch bones as drainage material in the bottom of pots or boxes. This is not at all desirable, as the bones are apt to ferment in contact with excessive moisture and may block up the drainage holes entirely.

Putrified Bones.—These are really semi-soluble bones prepared in various different fermenting or putrifying processes. A common one is to fill a barrel with bones well mixed with wood ashes, and to teem strong house slops into it at regular and frequent intervals. The bones fall to a coarse powder, a fair proportion of which is soluble in water, and on the whole the material resembles low-grade superphosphate in character and can be used in the spring in a similar way.

Vitriolated Bones.—The last bone fertiliser which I will refer to in the present notes is that sometimes described in the market as vitriolated bones. As its name suggests, it is the product of the action of sulphuric acid or oil of vitriol on bones. In composition it is almost identical with bone superphosphate, although it is sometimes equalised by the addition of sulphate of ammonia to increase its content of soluble nitrogen.

This in common with all other soluble fertilisers from bones should only be used during the growing season.

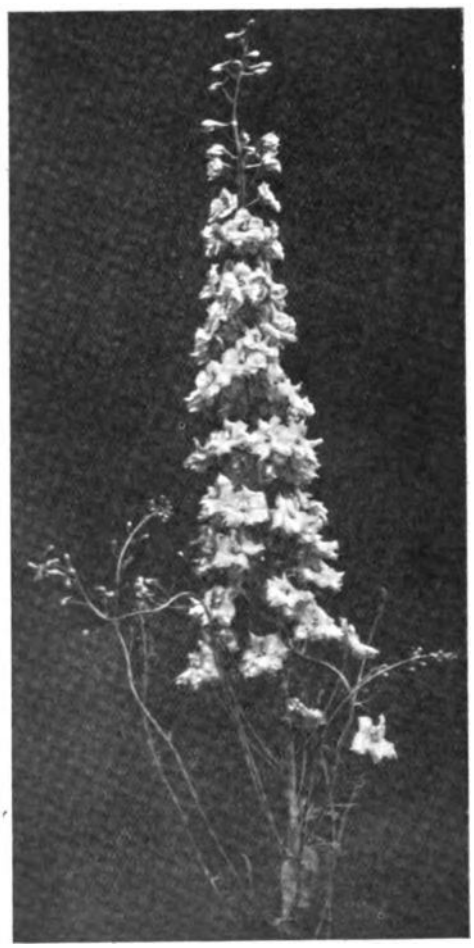
E. T. ELLIS.

THE WREXHAM DELPHINIUMS

A LONG SPIRE-SHAPED BREED OF DELPHINIUM, DIFFERENT IN APPEARANCE FROM THE USUAL BLUNT-ENDED VARIETIES.

I THINK the first time I was aware that there was such a person as my good friend Mr. Watkin Samuel was some time in the summer of 1920, when I received a few blooms of a tight little double-flowered delphinium from Wrexham with a request for my opinion about them, and at the same time the hope was expressed that another year I would manage to get over and see the plants. The result of this visit I placed before readers of THE GARDEN in the issue of September 3rd, 1921. I told then that his phenomenal successes at Vincent Square and Holland House were the visible results of his ploughing a lonely furrow for twelve long years in his small hillside garden as you approach Wrexham from the east, not, of course, from the west, as I absent-mindedly wrote in that article.

I recalled the pleasure which comes to those who try to unearth the buried treasures which lie hidden beneath so many simple and quiet-looking flowers. Four years more have now been added to Samuel's original twelve, but they have been years of encouragement. His fame has gone out into all lands. Articles of appreciation have been written in papers; dealers' catalogues like those of Bees of Liverpool and Hewitts of Birmingham sing the praises of his productions in England; the list of a delphinium specialist like O. M. Pudor of Pwyallup, Washington, U.S.A., proudly announces on its cover "also describing Watkin Samuel's Wrexham Strain," and letters with something much heavier than appreciation in them reach him in increasing numbers.



A TYPICAL VARIETY, MONARCH OF WALES.

He set out to see if a long spire-shaped spike was not a possibility—one with large semi-double flowers of pleasing colours loosely arranged all round it, and with an attenuated top, such as we get in Advancement and Monarch of Wales. He has accomplished much in this direction, and what he has done is all to the good, for the blunt-ended, bitten off looking spike seems heavy and wanting when compared with one with a tapering end. Now he is more or less concentrating on the improvement of the individual blooms. He wants them to have a well filled up look, such as we find in Forget-me-not, a new seedling. Mauve Glory is a second 1924 seedling. It is a light mauve self with a honey yellow edge to the inner petals on the eye. Forget-me-not is a light mauve with a centre of forget-me-not blue (Ridgway's Chart) and a light "bee" or eye. It is an exceptionally flat flower. These are samples of the very latest out. They seem to indicate that he has struck a good vein of ore. Watkin's slogan is "round pips" (flowers he means, he has borrowed an auricula term) "upon a perfect spire-shaped stem." He has in the above the round, well filled up flower all right, and there is a certain amount of "bee" remaining. I hope this distinctive feature will never be totally eliminated. There is a tendency in that direction. There are seedling raisers, I believe in America, who have this object in view, because no doubt they consider the eyeless flower the more beautiful. Is that so? Am I wrong in wishing to keep as one of the chief factors in an ideal specimen the old original "bee" with which all the earliest hybrids seem to have been blessed? Perhaps some delphinium lovers will tell us what their opinions on this knotty question are. Probably the verdict will be "room for both."

In my notes on my visit to Wrexham this year I say of several flowers, "Eyeless varieties: do not care for these. They look as if wanting something." The life-long association of the "bee" as part and parcel of a delphinium bloom persists with me, but a younger generation will not mind perhaps if it is deciduous and is dropped. Naturally, Mr. Samuel observes the behaviour of seed parents closely. He leaves the actual crossing and hybridising to the bees and flies, and beyond planting selected varieties in close juxtaposition, does nothing

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but gather the seed. It is the horticultural equivalent of pressing the button, as they do the rest. Among those which my friend puts in the front rank are (1) John Jones, which I rather regret to find Bees have renamed Sealandia, doubtless with the best intention in the world, as their nursery is at Sealand by Chester. Their catalogue says, "If flowers be judged by the same standards as feminine beauty, it is to this exquisite representative of the larkspur family that the prize should go." It has "parma violet flowers tinted sky blue with a small dark eye." (2) Climax, a deep blue and purple variety which has given varieties as different as the mauve Queen Mauve and the true blue St. George. (3) Merry Widow, which I think has gone to Hewitts. (4) Dare Devil, a dark mixture of deep red-violet and gentian blue, in many ways reminding one of the famous Jenny Jones. (5) The Villain, a tall extra dark fellow whose group of tall descendants with their 3ft. 9in. flower-spikes impressed me very much when I saw them in 1923.

The strength of a chain is to be found in its weakest link. So, too, the true test of a strain is to be found in the sort of seedlings it produces in the rough and tumble of the world when it has left the place of its nativity and has been sown in a distant land where expectant eyes are eagerly watching to see its results weighed in the balance. I have only seen them in the "land of their fathers," and perhaps I may be a too rosy-eyed judge as a fellow-dweller in Wales to give an absolutely impartial verdict. It is different when the plants are reared thousands of miles away, when a stiff price has been paid for the seed, and *when they are up against a strain of the grower's* of which he is not half-proud. Yet my friend Samuel has received the following testimony from such a source in a private letter which I have been permitted to see and from which I have copied the following extract: "You have created a delphinium strain of which you have reason to be very proud, and I am proud to display them in my garden and sell their seeds, and the plants later on as the Wrexham strain; *they are in a class by themselves.*" The italics are mine. But isn't it fine to get such a pat on the back? Can we wonder that W. S. thereupon ran out into his garden, planted himself in front of a big patch of one of his special favourites and had his photograph taken! An Irish chieftain wrote to me two or three years ago when matters were decidedly lively all round him, "I have taken to planting strawberries. It is better than taking to drink." I never grasped the why and wherefore for this particular comparison, but I appreciate its good sense. Let me assure my Welsh friend that he too acted wisely and well, for a good many people will like to get an idea of the man and the plants which have made Wrexham delphiniums something very like the eighth wonder of Wales.

The Bishop is "great," but The Archbishop is greater still. It has a wonderful eye, a splendid spike and fine large deep blue petals with a purple edge. Masterpiece and Blue Darling have what Mr. Samuel calls "crawling eyes." No; I cannot say I care for the type. Too much all-over-the-place for me. Tall Boy is one of the never-too-many real blues. Their black eyes set off the individual blooms. As I took note of the long flower-spike of the on-the-short-side Purple Dwarf I wondered if the delphinium would follow the example of the dahlia and present us one fine morning with a dwarf of perennial habit in the style as it were of Coltness Gem. Who knows? I have tried to visualise them. I do not think they would be nice. If we want dwarfs, let us rest contented with the pretty, graceful little annuals that a kind providence with a little human help has provided us with: Blue Butterfly and the rest.

I have one more to mention, Zebra. It is not anything very out of the way except in its "bee" part. The eye is white, but every one of its divisions has a very distinct streak of blue running down its centre quite as well marked, and quite in the style of the little spring-flowering Puschkinia libanotica. Only another straw, of course, but it whispers "potentialities."

A practical word in conclusion. Slugs are death on the nice succulent young shoots of delphiniums. They might be asparagus, to give a simile that most understand. Therefore some time in autumn put a covering of sharp cinders over every delphinium plant in your garden, adding thereto some soot. As to planting, when the soil is stiff it is best to plant in good time in the spring, but it must then be remembered that should there come a dry time fairly copious and constant watering will be necessary. When the soil is light autumn planting is all right. In either case remember the slugs! And remember, too, to stake betimes. When I used to grow a considerable number there always seemed to come a delphinium wind not long before their flowering time, which on more than one occasion caught us napping. It is bad for them, I can tell you, when it does. Remember this wind as well as the slugs.

JOSEPH JACOB.

CORRESPONDENCE

ROSE SOCRATES.

SIR,—On page 380 of Vol. 84 is a note by Mr. E. H. Woodall concerning this rose. He asks, "Does anybody in England possess this sweet rose, I wonder?" I have three or four plants of it if Mr. Woodall would communicate with me.—EDWARD SHOOSMITH, *Packhams, Halland, Sussex.*

BORDER CARNATIONS FOR AUTUMN PLANTING.

SIR,—Mr. Norman Lambert has been writing on the above subject in your issues of the 1st and 8th inst., and although I am in harmony with most things he says in his prefacing remarks on page 745, I draw attention to another important feature concerning autumn planting, probably more so than soil cultivation, etc. As regards his remarks concerning varieties for outdoor growing, he can hardly be blamed for leaving out much; on the contrary, I consider he at times goes too far!

His advice to apply lime in some form or other to soils deficient in that respect is sound; but although he rightly points out the advantages of autumn planting, he hardly goes far enough, because there is probably only one month in which that work is advisable, namely, September. He refers to Mr. M. Allwood's opinion concerning the importance of lime; but after many years' experience, I consider that moderately early planting is more important. If layering, therefore, cannot be done during July or early August and the resultant plants rooted and ready for transference to open quarters by the first week in October, it is advisable to have them put in pots for winter and planted in spring. I have more than one reason for saying that—our recent weather has been a noticeable instance.

I emphasise that point: it is probably the main reason (the secret) why so many fail with carnations planted outdoors. It is also a fact that September planting is more easily done than in October or November. That autumn is better than spring planting is correct; it applies to practically all parts, north or south, where the plants will thrive. There are some places, though not many, where it is hardly advisable to try to grow them in the open border.

On page 746, Mr. Lambert describes ten varieties raised by Mr. F. Payne, but as I have no knowledge of the varieties in question, the less I say the better. But one feature which he mentions—namely, that Glitter and Purple Emperor when disbudded attain the dimensions of 4½ins. to 5ins.—makes me retort that such cannot be ideal varieties even for pot culture! Such statements as "Bursts rather badly" and "Sometimes bursts" are not to be tolerated concerning varieties for outdoor culture.

In his second list Mr. Lambert is on firmer ground because, I conclude, he is speaking from experience. But I have the strongest objection to Bookham Salmon as an outdoor variety after trying it for two years. He says "It has a strong constitution"; my experience is the opposite. Also, Margaret Keep's *form* is by no means *perfect*, and I question The Grey Douglas both as regards form and real hardiness. And may I merely add that I do not consider any yellow self in commerce an ideal outdoor plant? Few possess sufficient constitution; in some parts they do fairly well, but in many they are failures. The old variety Miss Audrey Campbell—if it can be obtained—is, perhaps, still the best as regards hardiness.—R. MORTON, *Woodside Park.*

LILIUM AURATUM.

SIR,—I was much interested in the photograph in your issue of November 1st of a Lilium auratum bearing twenty-seven flowers on the one stem.

I remember some years ago sending you a photograph, which you published in THE GARDEN of October 9th, 1915, page 402, of a Lilium auratum which I had grown bearing seventy-six flowers on one stem. I thought this was rather a record, but the following week one of your correspondents wrote from Scotland that he had one with over 100 blooms on the single stem!

It would be interesting to know what is the record.—W. HUTCHINSON, *Chester.*

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SIMPLE GARDENING

WINTERING FRUIT TREES IN POTS.

MANY owners of small glass structures, heated and unheated, like to grow a few fruit trees in pots, such as apples, pears, plums, peaches, nectarines and cherries; lately, I know that some growers are including raspberries. The latter fruit I would leave out of the list, as the plants are troublesome as regards red spider. Fruit trees, whether in pots or open borders, require a rest period, and those permanently in glass structures must have the same treatment as nearly as it is possible to give it, namely, open ventilators and no artificial heat. Now, the trees in pots can be dealt with very easily; frost will not damage the branches nor the buds on them, but it will cripple the roots in the pots if they are frozen while in a wet state and then exposed to the sun's rays. Obviously, then, we should pay attention to the roots. The pots should be placed on a firm bed of ashes, and dry ashes, leaves or short litter packed around them and over the rims, burying the latter quite 4ins. deep. The ideal way is to use ashes and then short litter on the top, the litter being about 9ins. deep. So treated the trees will winter safely. Watering is unnecessary.

SWEET PEAS.

If the seeds sown by readers of THE GARDEN have germinated as well as mine, there will be no occasion to grumble. The young plants are now growing 2ins. apart in large pots; they are 3ins. high, developing leaves freely. All such plants should be shifted to small pots as soon as possible, placing one plant in each pot. The compost should consist of fibrous loam two-thirds, leaf-soil one-third. To a bushel of these combined parts add a 3in. potful of bonemeal and a 6in. one of wood-ashes. Coarse sand may be used, but some old mortar rubble would be better. Place one crock in each 3in. pot, then a small quantity of the fibrous loam. Turn out a potful of plants at a time so that all the roots can be disentangled without unduly breaking them. Allow the long roots of each separated plant to lie neatly round the sides of the pot, filling up with the prepared compost gradually so that the roots are well surrounded by the soil. Do not press down the soil very firmly, apply water, and then place the plants in a cold frame or on a high shelf in a cold greenhouse. During the depth of winter, even, grow the plants hardily, but prevent frost actually reaching them. Although it will not kill them, it certainly cripples young plants grown under glass. Admit air freely night and day except when frost prevails.

WINTER PRUNING OF FRUIT TREES.

I am now referring to hardy fruit trees. Before any cutting back is done the cultivator should take careful stock,

as it were, of the tree. He must cut out, first, all superfluous shoots, such as those on big branches and the tree stems as shown at *a*, *a*. Then, in dealing with the buds, he must note which are wood and which are fruit buds. The former are shown at *b*, and are found, mostly, on young spurs. Older spurs should be dealt with as shown at *c* and *d*, *d*. The cross lines show where branches should be cut. The next branch bears buds at *e*, *e*., two years old and at *f*,*f* and *g*, one year old. The letter *g* denotes the leader. At *h* a wood bud is shown, and at *i* a fruit bud. In some cases both buds must be retained where space must be filled. Young, fan-shaped trees should be pruned as shown at *j*, *j*, *j*, *j*, leaving the centre, *k*, open; this part always fills up with young wood soon enough. The tree bearing one year's growth from the grafting should be cut off at *l*. A bush, pyramid or fan-shaped specimen can be trained in future years.

PEACHES AND NECTARINES UNDER GLASS.

To many cultivators the trees are interesting all the year round, to others they only excite an interest when in flower and again when the fruits are ripening. We should always remember that the trees grown under glass depend upon our efforts to supply them with the very necessary water at the roots. Trees growing outside all the year round are saturated at the roots with rainwater during the autumn and winter. Mere surface sprinklings are not enough, the soil must be thoroughly soaked, preferably with rainwater, several times during the winter months. A very dry soil causes many buds to drop in the spring, directly the sap begins to rise freely. If the subsoil is well saturated, it remains in a moist state for several weeks. Then we must remember, too, that the trees are deciduous and require complete rest in winter. This they have when grown in the open air. Under glass they are warmer even when the doors and all the ventilators are left open night and day, and this should be the rule as far as convenient.

WINTERING BEDDING-OUT PLANTS.

In some gardens it is necessary to find room for hundreds, probably thousands, of summer bedding-out plants. In others only a few of these stock plants are retained. Where there is ample convenience — heated structures — very little difficulty need be experienced. But in gardens where there is not much room under glass and the artificial heat is very limited there is a difficulty. It is wiser in such cases to buy tender kinds of plants in spring from nurserymen advertising in this journal than make the attempt to keep the plants in a healthy condition. Generally, cultivators should guard all plants from excessive damp, especially zonal pelargoniums and others of a succulent nature. Every week it is advisable to examine all the plants and remove faded leaves, to apply any necessary water early in the day so that spilled water may dry up before the night comes. To under rather than over water makes for success, too.

GEORGE GARNER.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

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Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

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NOTES FROM CONTRIBUTORS

THE VIRTUES OF TWO TROUBLESOME WEEDS.

AS a nation, we Britishers are profoundly ignorant of the wonderful properties, chemical, medicinal, poisonous and refreshing, which all plants possess, even those which we disdainfully class as weeds. French people, on the contrary, have a use for everything that grows, including couch grass and minor convolvulus, O! British gardeners! Unbelievable but undisputable fact! Think of the couch grass which is burned in rubbish heaps or piled up in heaps to dry in the sun in the summer when it deigns to shine. Such a sight is never seen in France, since roots of couch grass (French *chiendent*) are worth fifteen to twenty francs the kilo! The medicinal properties of this gramineal are soothing, laxative and refreshing. An infusion of its roots makes one of the many *tisanes* which are so much used in France.

In every household and hospital in France *tisane de chiendent* is in constant use as a cure for chest complaints and feverishness and to allay inflammations.

Even in England this despised weed is known to be good for horses, to whom it is often given as a substitute for oats. It makes the animals' coats smooth and glossy.

Agriculturists know, too, that if mixed with quicklime it forms an excellent manure.

Minor convolvulus or bindweed is undoubtedly one of the greatest of garden scourges. From its roots a medicine of great efficacy in intestinal maladies is obtained. Its stolons, like those of the couch grass, are rich in sugar and so form a nourishing tonic.

A good laxative is made by steeping twelve to fifteen crushed bindweed leaves in a half-pint of water. The dried leaves mixed with honey form a good medicine for children which they like taking.—VICTORIA SLADE, *Christchurch, Hants.*

MICHAELMAS DAISIES.

I HAVE a fine collection of these lovely flowers in my garden. They are making a bright display in spite of the inclement weather. As gardeners are keenly interested in Michaelmas daisies, I thought readers of THE GARDEN might be pleased to hear of the varieties which I have found successful. My garden is situated in the suburbs of the city of Cardiff. Beauty of Ronsdorf is a dwarf kind, reaching not more than 3ft. in height. The individual flowers measure 2ins. across on the average. They are a beautiful clear lilac pink in colour and develop with the utmost freedom. This character, combined with dwarfness of habit, makes the variety ideal for small gardens. Climax is now one mass of pale lavender flowers. Some years ago the variety received an award of merit from the Royal Horticultural Society. It is worthy of that honour. The flowers are thrown in rich profusion at the apex of 5ft. stems. The variety named Charmer is endowed with numerous attributes of beauty. The flowers are pink in colour, and they are produced in graceful sprays. The disc or centre is very distinct. I can think of no Michaelmas daisy which is better than this one as a table flower. As a garden flower it takes high rank, being dependable and comely in habit. The variety is 5ft. in height. The blooms of Mrs. J. F. Rayner are a vivid crimson hue, a really attractive sort. When the sun consents to shine the colour glows like fire. The variety makes very strong shoots, which grow 5ft. tall They require no staking whatever in a sheltered situation. I have to speak a good word for White Queen. The white flowers of this variety resemble a snowdrift in the garden. I intend to increase the stock the height of 3ft. being very convenient I grow two deep blue kinds—Eileen and Mala. It is a pity that the best qualities of both varieties cannot be combined in one Perhaps they are. If so, I should welcome information. The flowers of Eileen are a deep and lovely blue; but they are borne in compact spikes of very stiff appearance The flowers of Mala, on the other hand lack that decisive pigment which is essential in a blue flower. The refined, graceful bearing is most attractive. The flowers of Eileen and the habit of Mala would indeed be a charming combination. Both varieties attain a height of 5ft.—GEO. F. COPLEY.

ASTER AMELLUS KING GEORGE.

THE varietal forms of Aster Amellus are numerous, and, as a whole, they are charming autumn-flowering subjects either for border, beds or cutting purposes, especially the variety King George. It received an award of merit from the Royal Horticultural Society on September 8th, 1914, when shown by Mr. Amos Perry, and, seeing that it possesses such a fine constitution, I was much surprised to see it so little in evidence at the recent Cardiff and County Show. It is a plant that should be in every garden, and a dozen specimens would not be too many. This delightful plant attains a height of 20ins. to 24ins., the stems are near and branched, while the flowers are from 2½ins. to 3ins. across. The colour is bright purple blue or bluish violet, with a golden disc, but when the blooms are old this turns to a bright mahogany tint. This plant pays for good cultivation, but any fair garden soil will produce excellent results.—T. W. W.

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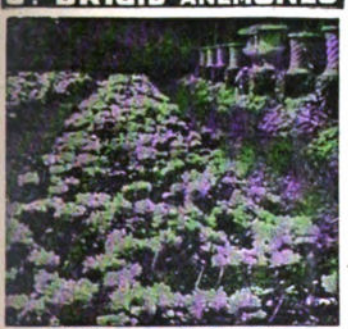

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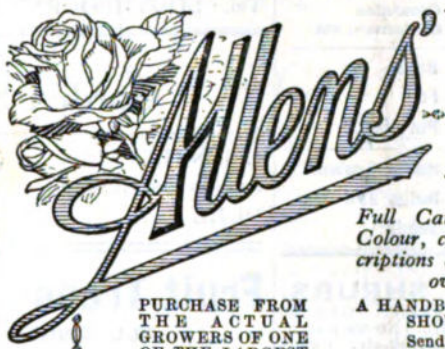

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FRUIT-GROWING

OUR contemporary, *Country Life*, has received from an expert fruit-grower a letter anent fruit-growing in this country from which I must take some extracts. The first point he brings to notice is that whereas Australia, owing to the skill in which its fruit exhibit was staged at Wembley, was able to sell 1,500 tons of apples during the exhibition and take orders for another 50,000 cases or (at around 40lb. per case) 890 tons, this country was entirely unrepresented in fruit. He says:

"The Australian fruit merchants did well at Wembley. They might have done much better had their prices been more reasonable. A shilling for four not over large apples is a high price and works out at about 50s. per bushel. Still, I am not writing to complain of this, but to point out the remarkable circumstance that this Old Country had no such exhibit, and a visitor, while he might obtain Colonial fruit, could not sample our native product. It does seem a pity that our fruit-growing industry did not put up an exhibit, commencing with strawberries, and continuing with cherries, plums, pears and apples. The fruit would doubtless have sold as readily as did the Australian apples, and there would have been no difficulty in getting any quantity sent in daily, with prices ruling proportionately half what the Australian apples fetched."

This proves more than any other statement the lack of co-operation between our fruit-growers. It is no use crying over spilt milk and lamenting the lack of an exhibit of fruit grown in the British Isles; one can only hope that if Wembley materialises in 1925 there will at least be an exhibit of home-grown apples. The correspondent goes on to say that the fruit-grower at home philosophically allows imported fruit to take the foremost place in our markets and agrees to take a lower price for his produce. What an admission! He follows with the remark that grading apples is no more difficult in this country than abroad, which is also true, if you have a central authority, but it is little use individual growers grading apples according to their own ideas, for grading is essentially a method to be used in mass production instead of by individual orchards.

What is of importance, however, is the correspondent's frank statement that a glut year is a bane to the producer of home-grown apples. He says:

"The heavy crops of fruit experienced in what are termed 'glut' years are a bane to the grower. Prices generally drop to a level which necessitates a good deal of fruit being wasted. Growers generally declare that a half crop is more profitable to them than a full crop, and it seems curious to observe growers cultivating, spraying and otherwise treating their trees in the effort to get the best crop possible from them, while in the light of past experience they realise that if their efforts are seconded by a favourable season their crop will fail to compensate them. Yet the overseas grower never fears a glut. If his crop is greater he exports more. Here, then, is the solution of the problem of gluts. Why should we not export? At the time our fruit begins to ripen we have the markets of Australia, South Africa and New Zealand open to us. All the year round India, Ceylon, Egypt and the Farther East would take English fruit and be glad of it. The writer has spent time enough in the Eastern Tropics to know how an English apple would be regarded. South Africa sends us, in perfect condition, such fragile fruit as peaches. She has successfully landed cherries here. It is therefore quite feasible for us to export not only apples and pears, but also cherries and plums, which glut our markets more frequently than do apples."

This appears to me to be the crux of the whole problem. Growers in this country, as well as elsewhere, must work on some kind of an average market. Abroad in an average year a certain amount is allotted to home consumption and the rest to export; if the crop is larger than the average, the additional amount is added to export. In this country the export trade is so small that any additional crop has to be sold in the home market with a consequent glut and drop in prices. This is an eventuality against which home growers as individuals cannot compete. It is certainly a case for a combined society of fruit-growers. Owing to special conditions it is only a combined body of growers who could hope to establish a recognised export trade.

The last extract is as follows:

"Our fruit is said to possess a softer and more tender skin than Colonial fruit and to be consequently less suitable for export. Is this really so? The writer last year sent a box of apples by ordinary parcel post to tropical Africa, with a request that it be opened, the contents examined and reported on, and then repacked and returned. Three kinds of apples were sent. The parcel arrived back with a report after seven weeks. One apple reached its destination in a faulty condition. The remainder did the return journey and were kept by me for weeks in perfect condition. This was by ordinary parcel post method of sending."

This is fairly good proof that the fable, so far practically universal, that home-grown fruit is unsatisfactory for export purposes, is proved to be untrue. More exacting conditions than the despatch of fruit to tropical Africa and its return to this country could hardly be imagined. And yet two apples out of three stood this exacting test. E. H. M. C.

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LATE AUTUMN IN THE ROCK GARDEN

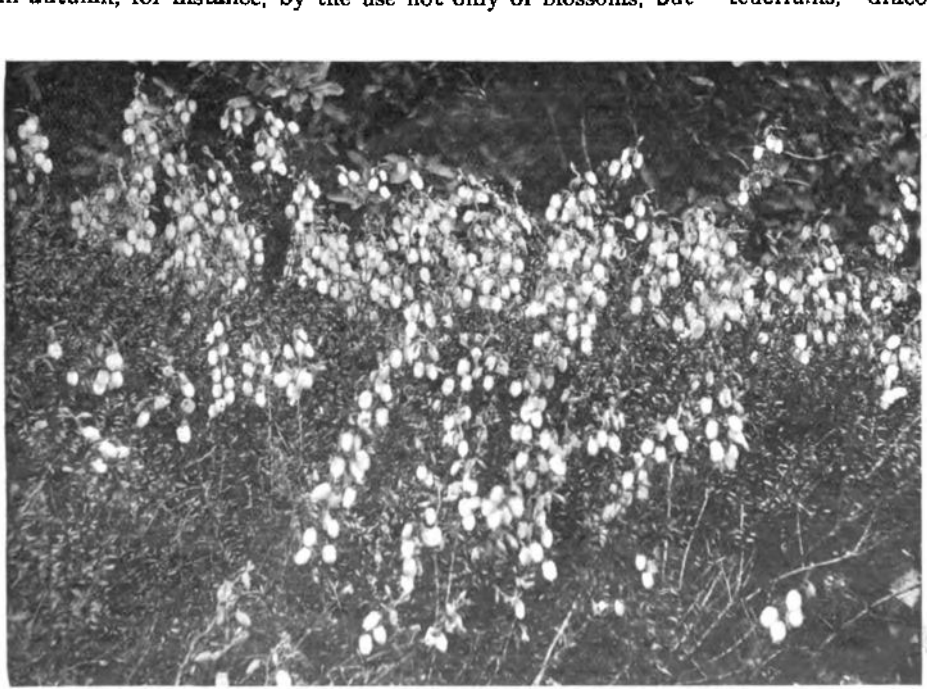
BY DR. R. LLOYD PRAEGER

SEDUM EWERSII WHICH MAKES A BRAVE SHOW WELL ON INTO THE AUTUMN.

SOME twelve months ago in a gardening contemporary Mr. Clarence Elliott wrote under the above title, and he wrote wisely and well. He pointed out that we should not mourn the absence of a blaze of flowers in the rock garden when the year is dying; those facile triumphs of spring are easily attained; but the autumn and winter are the periods which supply the true test of the rock gardener's skill. Then the general lay-out, the placing of rocks, dwarf shrubs, and evergreen cushions and carpets (things much more difficult to carry out satisfactorily than the mere planting of masses of aubrietias and campanulas) come to the front and attain primary importance; it is only when the rock garden retains its effectiveness and interest throughout the short days that we have a right to indulge in self-congratulation over the winter fire.

With what Mr. Elliott says about the rocks, with their mosses and lichens, and the dwarf shrubs and evergreens, all rock gardeners will agree—or ought to. But later on there occurs a sentence which merits discussion, and which, indeed, has inspired these random notes. "It is neither right nor natural," he says, "that there should be many flowers in the rock garden in late autumn or winter." That comparatively few plants bloom at the season mentioned is, of course, true; but the sentence seems to contain a hint that there is something improper about the flowering of plants in autumn, and that propriety should forbid any attempt on our part to brighten the rock garden at that season. Mr. Elliott does not intend to convey that impression, of course, but nevertheless the sentence will serve as text for a short homily on the subject. It will be admitted that it is not desirable to import into the rock garden things that are not rock plants because they are autumn bloomers; that would not be cricket. But, on the other hand, it is highly commendable to brighten and decorate the place at all seasons of the year by the wise employment of all available rock plants: in autumn, for instance, by the use not only of blossoms, but of berries and other fruits, the bright tints of fading leaves, and so on.

There is, as a matter of fact, a considerable amount of material available to help us at least as far as the beginning of November. After that a period almost hopeless as regards bright colours, stretche still February, when the first kabschias come to our assistance. In September there are a good many distinctive things available, in addition to the many late summer plants which linger long in bloom, and the earlier summer treasures which have such a cheerful way of bursting forth for a second display. The later sedums, for instance, such as S. Telephium, S. Ewersii, S. populifolium and S. spurium splendens, make a brave show, while S. spectabile and S. Sieboldii—two most valuable plants—run away into October. There are a good many quiet little labiates, too, mostly agreeably scented, which are late bloomers and are not seen as often as they might be—scutillarias, satureias, teucriums, dracocephalums, micromerias and origanums. Among the most pleasing of these are Satureia pygmæa, Scutellaria baicalensis, Micromeria piperella and Origanum pulchellum. But many flowers run on much later than these, especially in a mild place. The following, as well as others, may often be seen in full bloom in October should the season be favourable: Parochetus communis with its beautiful blue pea flowers, Erigeron mucronatus covered with white and pink daisies, the dainty Fuchsia thymifolia and other dwarf fuchsias, Œnothera macrocarpa and other prostrate big-flowered evening primroses, Teucrium Chamædrys, St. Dabeoc's heath (Dabœcia polifolia), red, white and parti-coloured, has a way of flowering abundantly in late autumn. Then there are several knotweeds that are most valuable in autumn—Polygonum Brunonis, P. vaccinifolium, P. Emodi. And Senecio lobata is still a mass of little yellow stars in October, even though it may be killed by frost in November. Crassula sarcocaulis is quite hardy in the milder parts of the British Isles, and makes a sturdy little bush covered with pink bloom in autumn. Among the grasses Apera arundinacea should not be forgotten, with its misty



THE ST. DABEOC S OR IRISH HEATH, WHICH FLOWERS ABUNDANTLY IN LATE AUTUMN.

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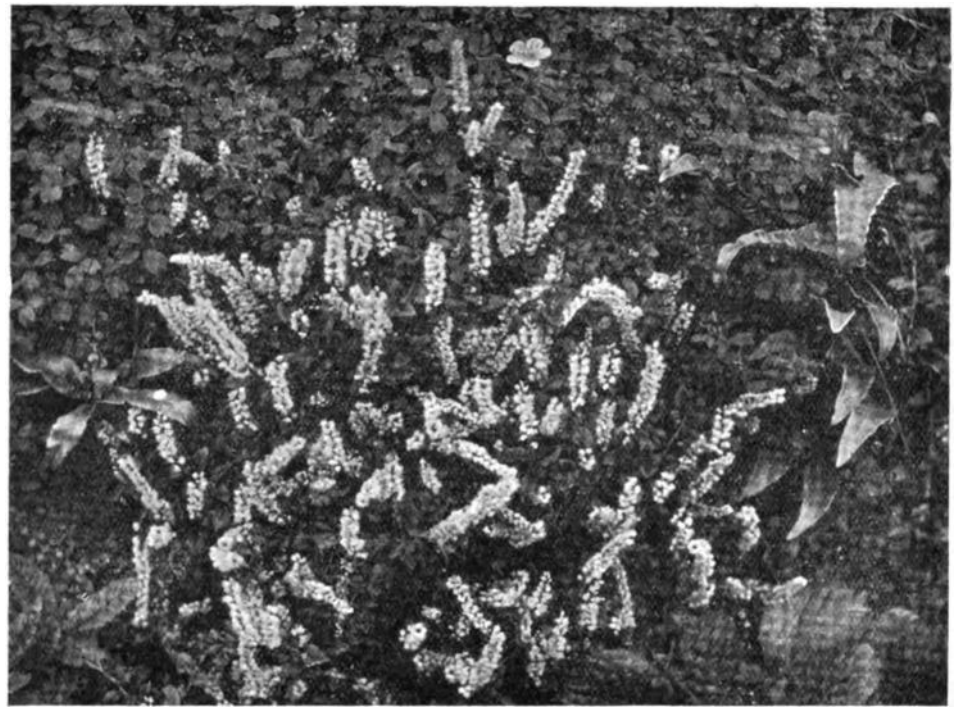
waterfall of threadlike stems and its leaves turning redder as the season advances. Euphorbia biglandulosa is a valuable winter ally with prostrate stems bearing glaucous leaves and golden flower-heads. Ceratostigma plumbaginoides is a gem, very late blooming, so that the delicate blue flowers synchronise with the bright tints of its fading leaves. Erica carnea is a frank winter flowerer, and in its many varieties it is a host in itself; and we must not forget the periwinkles, though they are a bit too rampant save for rough places. In the scarlet-flowered Zauschneria californica, again, we have a plant which continues blooming till frost interferes. Finally, there are two saxifrages which must rank among the best of all October flowers—S. Fortunei and its near ally S. cortusæfolia, lovely things with sprays of white bloom. But though these two plants are quite hardy, liking a damp place, the flowers are easily ruined by frost, so we must exercise care in discovering a spot for them where some protecting canopy will shield them.



AUTUMN FLOWERING KNOTWEED FOR THE ROCK GARDEN, P. VACCINIFOLIUM.

A due attention to foliage will greatly enhance the effect of colour in the garden. There are, for instance, a number of dwarf ericaceous things whose leaves turn to beautiful shades of red as winter comes on—Leucothoë axillaris and Oxycoccus macrocarpus, for example. The dwarf cotoneasters are invaluable in the same way, producing really vivid effects—C. adpressa, C. humilis, C. horizontalis and so on, and the scarlet of their leaves is only outshone by their scarlet berries.

There are many other plants whose leaves assume decorative colouring in winter. Some of the heuchera species turn deep red; there is also a form of London pride whose old leaves blaze an unexpected crimson. In contrast to the reds we can work in many beautiful grey and silvery tints by the judicious placing of dwarf species of achillea, helichrysum, pyrethrum and so on. When to these is added the fresh green cushions of the mossy saxifrages, etc., and the darker green of dwarf conifers and other evergreen rock garden shrubs, we may feel that even in November the rock garden may be a place of beauty, an inspiring, not a depressing spot.

GARDEN DESIGN

EVERYONE has his or her own favourite plants, and such personal tastes should be studied and provision made for their gratification in the general design of the garden. The exigencies of any site must be considered, and there are many factors—the architectural character of the house, aspect, the nature of the soil, and particularly the beauty or otherwise of the surroundings—that will have much influence on the general treatment.

To the plant lover there is something very appealing in being able to plant and tend his or her own favourite plants, to watch their habits, to give them better conditions if they show signs of ill health or unsuitable environment, and to group them with a nicety of arrangement that might be impossible with the masses in the larger gardens and borders, where work must necessarily be left very much to the gardeners.

To be able to do this one may have a garden in miniature of whatever character one likes best, set accessibly in the gardens proper, or, where space is very limited, the whole garden will necessarily be rather in the nature of a miniature garden.

Good proportion is always the basis of successful design, and the smaller the

A SMALL TOWN GARDEN OF EXCELLENT DESIGN.

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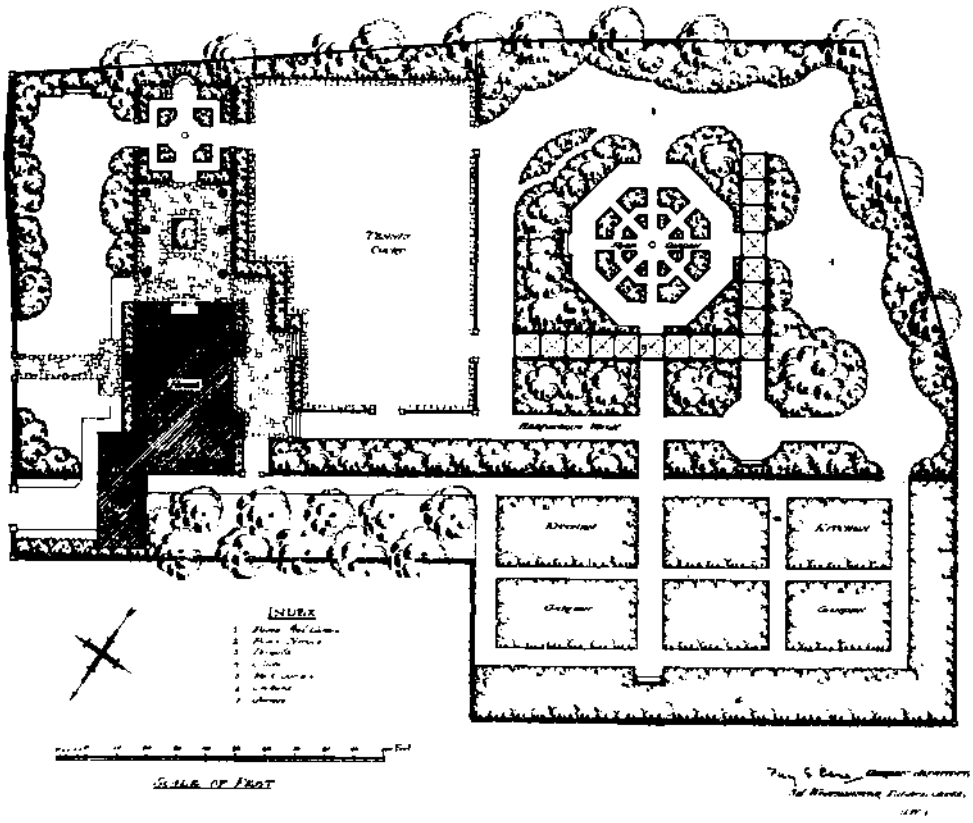
garden the smaller must be its component parts. This applies not only to the different gardens but equally to the masses of trees, shrubs and plants that furnish the beds and borders. In extensive grounds it is difficult to give that close care and attention to detail that can make the quite small garden so interesting and so beautiful. For, like a painting, the



miniature garden must be perfect in its tininess or much of its attraction is gone.

One will like to have such a garden near the house and with dry paths so that one can get to it easily at all times and in all weathers. Although it is a pleasure there has been little opportunity to enjoy this year, there is something delightful in the scent of newly rained-on soil and grateful foliage, after a spell of dry weather; and flagged and other paths that dry quickly allow one, if one cares, to be out even while it is raining.

The whole of a town garden is often so small as to be nothing but a miniature garden; but where there is more room this small intimate garden should be so related to its surroundings and so much a separate unit that its tininess does not suffer by contrast with the bigger surrounding spaces. It must always be something in the nature of a toy, but it can be a very beautiful and a very interesting toy.

A sense of proportion and fitness will prevent one from making mistakes in the small garden. One may have a tiny rock garden and make it very beautiful, while it is more difficult to reduce a herbaceous border or walk. The size and habit of growth of the many rock plants are particularly suitable for small spaces, and one may have so many more sorts without getting a spotty effect. Plant lovers like to have many varieties and to notice the difference in their habits.

Stones also must be carefully chosen and carefully placed and, I might say, sparingly used. However carelessly the stones in any rock garden might appear to be arranged—and they should seem to have come naturally, not to be placed at all—there must be a definite rhythm of line in their arrangement. Nothing can quite rectify the want of this beauty of line if it is not the controlling factor in everything that is done, and its absence, to persons of taste, must always cause unsatisfying results.

From their size, many of the herbaceous plants need to be used in groups; but in the small borders one may have the larger plants singly or in clusters of two or three, with rather more of the smaller ones. In such a garden as I am describing the coarser-growing plants would be eliminated altogether, one stately delphinium can be seen in all its loveliness, and singly one can have the choicest varieties of plants, reserving less expensive sorts for massing in the mixed borders.

Next in importance to the design of the garden—and, indeed, interwoven with it—is the question as to what colours shall be introduced, and of these, as to which shall be the keynote or principal. Choice of colours will be influenced by the surroundings and by personal taste. If there is warmth of colour in walls or paving those flowers of softer shades may be used; but if your garden has a green setting of trees and shrubs you may have more of flowers warm in tone, such as reds, oranges and yellows.

Strong colours must be used with discretion; blues are, as a rule, safe, as also are violets and purples. Reds need more care, for while ruby and wine reds may be very beautiful and used most effectively, some of the harder shades—for instance Geum Mrs. Bradshaw and some of the geranium reds—if they are used at all, need very careful placing.

Nature herself helps us wonderfully with regard to colours. Her families of plants nearly always possess a clear affinity, the tones of the different varieties of one plant generally blending so harmoniously that they may be mixed almost anyhow and beautiful results may be obtained by planting largely the different varieties of favourite plants.

With restraint in the choice of plants and grouping of their colours it is easily possible to have colour schemes very beautiful and full of character and far more expressive of individual taste than the two freely mixed borders can ever be. And it is nicer to have character in your colour effects and to vary it from year to year, and have two, or perhaps three, definite successive colour schemes in the same year, than to have an uninteresting succession of mixture succeeding mixture. No one would do this in their rooms, and why should it be done in gardens? Once the keynote of the rooms is struck by wall paper, floor covering or curtains, it is carried out with good contrast or harmonious blending; and this can equally as well be done with plants and flowers.

In small perhaps even more than in larger gardens there can be very distinct changes in the course of the year. A cream and yellow garden of daffodils and narcissi, or a garden in which pink and red tulips predominate in spring, may change to a garden of blue or blue and lavender and grey in the summer.

Then again, in autumn one likes colouring that in the stronger lights of midsummer would seem crude. Autumn lights are softer and in themselves tone strong colours into pleasing harmonies. The yellows and bronzes of sunflowers and heleniums, and the scarlets and ambers, mauves and heliotropes, and many other shades of dahlias resplend against the reds and bronzes, oranges and yellows of dying foliage are welcome to the very last.

No such strong-growing plants as verbascums, sunflowers, rudbeckias, heleniums, etc., will be allowed in this tiny garden of choice things, the pattern of which will everywhere be close and rich like that of Chinese porcelain or Persian rugs. Dwarf-growing campanulas, thymes, menthas and mossy saxifrages will be planted in their many varieties, as will also many of the dwarfer bulbous plants, Iris reticulata, I. Histrio, I. Histrioides, Chionodoxa Luciliæ, Muscari Heavenly Blue, Erythroniums, Fritillaria, Narcissus triandrus, etc.

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In the plan given is illustrated a design for a garden with sufficient space for a tennis court and several gardens of distinct character. The pergola partly encloses a small rose garden, each bed of which is planted with bushes of one variety only.

Tennis may be watched from the flagged terrace, which is two or three steps higher than the tennis court, from which it is divided by a low flat stone-coped wall. As in so many town houses, the garage is at the side, with a short straight drive to the road. There is no forecourt, a flagged way leading from the gate to the principal entrance. This is more convenient and effective than trying to make a forecourt or drive for a car where there is not the proper amount of space. A small kitchen garden and an orchard enable the choicer vegetables and fruit to be grown, and the surrounding glade, itself a interesting and beautiful walk for the greater part of the year, gives with its taller planting of trees and shrubs enclosure and privacy to the gardens.

PERCY S. CANE.

ARISTOLOCHIA ELEGANS

THIS SPECIES IS ONE OF THE PRETTIEST IN THIS GENUS OF CHOICE PERENNIAL HERBS OR SHRUBS, MANY OF WHICH ARE CLIMBING AND REMARKABLE FOR THEIR VERY ODD SHAPED FLOWERS.

ARISTOLOCHIA ELEGANS is one of a numerous class —tropical plants that do *not* need "stove" conditions. This is emphasised, because the usual relegation of this charming plant to the category of stove climbers may well have deterred many with limited accommodation from attempting its cultivation. Here it is quite at home trained over the roof of the warmer end of a 20ft. span-roofed house with a minimum temperature of about 50° Fahr.

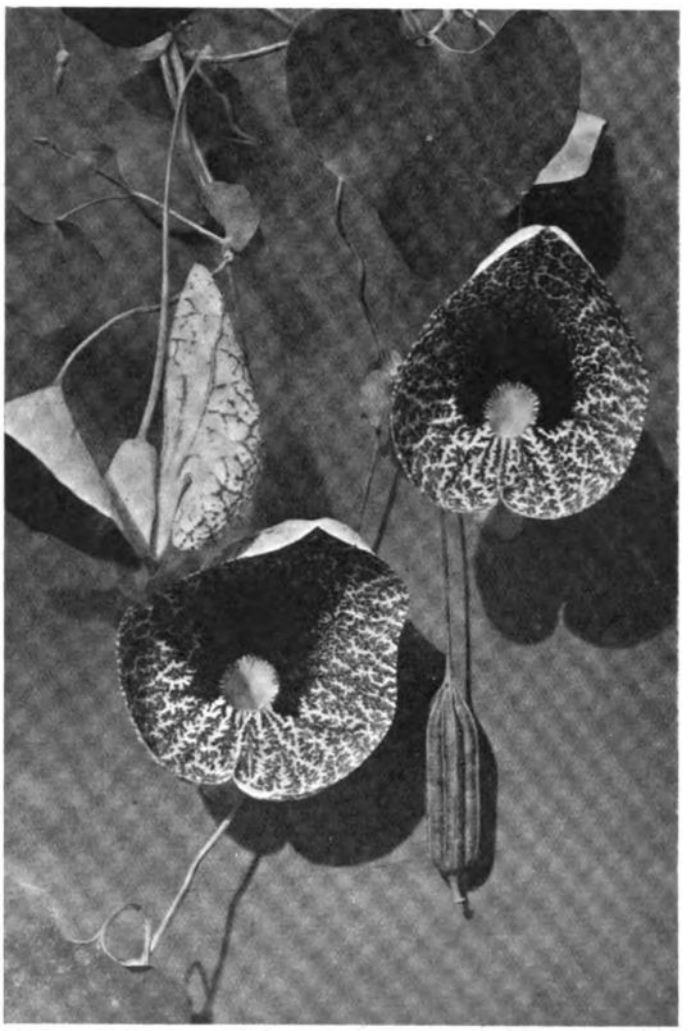
Aristolochia elegans is a rampant climber. Success with it in a confined space depends upon drastic pruning, which treatment is facilitated by the fortunate circumstance that the plant blooms on the current year's growth.

The writer's specimen is planted out in the border of the house, the soil being a light loam, very well drained, and containing a considerable admixture of mortar rubble—there is no evidence that this is necessary. Annual top-dressings of well rotted manure have been found to encourage profusion of bloom.

The plant was raised from seed some eight years ago. The seeds germinate well. Seedlings potted on in a rich soil and trained up light canes have bloomed in 6in. pots during their second season. It is best, however, to plant out in the border.

The plant is of shrubby growth, the old main shoot, which is retained from year to year, being covered with a corky bark, deeply and curiously cut. This shoot has been allowed to grow some 10ft. long. From it new growth comes each spring, twining along the wires and soon covering the roof, obviating the necessity for shading. As winter approaches the season's growth is cut back right up to the main shoot. Thus the plant is kept within bounds; while scale, which at one time gave considerable trouble, is prevented—for the scale insect attacks only the ripened wood as yet without bark, both young shoots and the bark-covered old stem being immune.

The young growth is of palest green. The heart-shaped leaves, from 2ins. to 3ins. in diameter on strong shoots, are produced with internodes varying from a few inches to a foot or more. We usually have the first blooms in July, flowering then being continuous through the summer and early autumn.



A MOST DESIRABLE DECORATIVE CLIMBER FOR A WARM GREENHOUSE.

The strangely shaped flowers, and buds perhaps even more strange, besides provoking the curious, have a very real charm for the plant lover. The colour on the outside is very pale green, on the inside of the flower cream heavily marked with deep velvety chocolate-purple. The intense pale green of the throat contrasts with the deep surrounding colour, while the purple markings extend in fern-like reticulate pattern over the inside of the flower, the deeper veins showing through and relieving the pale green of the buds. The flowers, which are from 3ins. to 4ins. across in the perpendicular direction, are pendent, the buds being produced near the ends of the new growth; though the growing point may have advanced a foot or more before the flowers expand. With us, Aristolochia elegans is a prolific bloomer, producing hundreds of flowers during the summer months. The flowers are without appreciable scent. If any part of the plant is crushed a rather disagreeable odour is apparent; this, however, is not normally noticeable.

Owing to the peculiar shape of the flowers they can be placed in water only in an inverted position. When cut flowers are required, this difficulty may be overcome by introducing a few spots of water into the throat of the flower. The blooms will then keep fresh for a day or more.

It is illustrative of the comparative hardiness of the plant that shoots, forcing their way between a badly fitted glass at the top of the roof, have escaped into the open air and there produced flowers and even seeds.

Comparatively few seeds set. This may help to prolong the flowering season. The six-celled inferior ovaries are apparent only on careful inspection until the fertilised flowers fall. The stem then swells rapidly to a green pod some 2½ins. long, which finally becomes brown and, splitting from the top, reveals the flat scaly seeds.

Should this note inspire in any reader more than a passing interest in Aristolochia elegans, the writer would be happy to further this interest to the extent of supplying a few freshly gathered seeds, of which he has this year some dozen pods.

J. BERTRAM WARD.

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GENTIANA GENTILIS

A CURIOUS ANNUAL GENTIAN WHICH, UNLIKE MOST MEMBERS OF THE GENUS, IS PRACTICALLY UNAFFECTED BY LIGHT; ON THE OTHER HAND IT IS EXTREMELY SUSCEPTIBLE TO CHANGES IN TEMPERATURE. SO FAR IT IS RARE IN CULTIVATION, BUT IT IS HOPED THAT IN A YEAR OR TWO IT WILL BECOME BETTER KNOWN.

AMONG the many fine plants which have enriched the horticultural world by the botanical exploration of the Chinese province of Yunnan by Mr. George Forrest in 1910 was Gentiana gentilis—a plant first collected by the Abbé Delavay about the years 1884-85, and was named and described by Franchet in Vol. XLIII of the Bulletin Societée Botanique France, published in 1896.

This beautiful gentian is an annual and has, according to Franchet, much in common with the one he named primulæflora, and which was also collected by the Abbé Delavay as early as 1882. Franchet's name and description have been published in Vol. XXXI of the Bulletin.

Now in Vol. IV of Notes from the Royal Botanic Garden, Edinburgh, we find among a list of new gentians, described by Professor Bayley Balfour and Mr. George Forrest, one called G. leptoclada, which, as the authors remark, has resemblances to G. primulæflora of Franchet.

Dried material of both gentilis and leptoclada are uncommonly like varieties of a common type, and may it not be possible that were more material available for comparison, both would resolve into the earliest found plant—the primulæflora of Franchet.

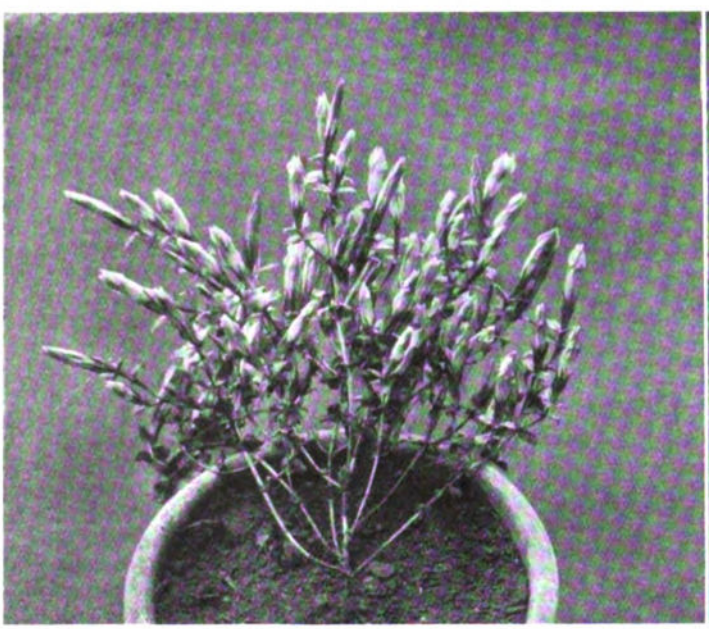
The first record of G. gentilis in flower in Britain was in the summer of 1912, when specimens were to be seen in the garden of Mr. Bulley in Cheshire, and in the Botanic Garden at Edinburgh. These plants were raised from seed gathered by Mr. Forrest the previous year in the Lichiang Valley at elevations between 7,000ft. and 8,000ft.

Fate however was against the efforts of the growers to establish a race in cultivation at that time, and shortly thereafter the plant disappeared. Thanks, however, to the redoubtable Forrest, who was out again in the same region in the interests of Mr. J. C. Williams during the years 1921-22, a further supply of good seed was secured and once more re-established the gentian in cultivation. From this supply of seed several fine plants were raised last year in the Edinburgh Botanic Garden at first indoors, then later planted out in the rock garden when they grew and formed neat compact plants 4ins. or 5ins. in height and some 10ins. in circumference.

As the plants were coming into flower at the end of October, 1923, one was lifted and potted, and thereaft[illegible]ade to complete its life cycle under glass. To this treatm[illegible]t responded, yielding in due season fruit and seed, and as the plate testifies, a plant of exceptional beauty.

Those plants which remained out of doors did well, enjoying as they did the extraordinary fine autumn days of last season bore flowers until the end of November. The colour of this gentian in cultivation is of a distinct pale prussian blue, and in no degree approaches the gentian blue hue of so many flowers of its genus.

While the flowers possessed a colour charm they had in addition a most entertaining habit of closing up on the slightest exposure to changes of temperature. An instance of this susceptibility occurred during the process of carrying a specimen in full flower across a distance of some 100yds. The plant in question had been growing in a cold frame, exposed to the north, and without direct access to the sun. The difference between the air temperature outside and inside of the frame was 10° Fahr. Within three minutes after exposure to the outside air, all the fully expanded flowers had closed up. The plant was thereafter taken to a room where the temperature was 52° Fahr. The effect of this change was not apparent for some time, but gradually the flowers expanded, and ultimately, after an interval of one hour, all were fully opened as before.



GENTIANA GENTILIS WITH CLOSED FLOWERS.

THE SAME FULLY EXPANDED

A second exposure to the outside air temperature—this time 15° Fahr, below the room heat, witnessed a repetition of the movement. During the first minute and half no visible change was observable. There then followed a gradual infolding movement of the corolla lobes, which continued to increase in speed rapidly until a few quick jerking movements signalled the final stage in the movement. The whole operation was completed in three minutes.

The behaviour of the plant was so fascinating that this cruel treatment was meted out to it several times daily for some days. And only as the flowers appeared in turn to be fertilised did their response to the temperature stimulus cease.

A test of the effect of light met with slight response. A fully expanded plant in full flower after eighteen hours in complete darkness at room temperature had no flowers so tightly closed as when exposed to outside conditions as described.

One would infer from the foregoing that this delightful addition to the already known gentians is a highly specialised plant and one tuned to withstand frequent fluctuations of

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temperature. Arctic cold the one minute to be succeeded by summer heat the next. The plant's native habitat suggests no such extremes—only between 7,000ft. and 8,000ft.—really a sub-tropical zone. It is therefore surprising to find, and difficult to suggest a reason for this plant's remarkable and efficient mechanism for self-protection against heat and cold: a device more to be expected from plants accustomed to dwell away up on the borderland of the eternal snows and at heights ranging up to 14,000ft. Some other explanation, however, may be forthcoming once the plant has become more familiar. The plant is easy to cultivate and thrives in a compost of good loam with plenty of moisture.

It is advisable to sow early and plant out in May. This procedure ensures that the plants will come into bloom in early autumn when the conditions are most favourable and the chances of failure to secure ripe fruit and seed are lessened. R. M. ADAM.

CURIOUS ORCHIDS

BY GURNEY WILSON.

[The orchids as a genus are one of the most outstanding in the plant kingdom, largely owing to their curious forms, which Mr. Gurney Wilson so well describes. The nature of the floral parts of an orchid, with all their modification and their method of insertion on the axis, is one of the clearest evidences nature gives of the intimate relation which exists between the plant and the insect worlds. One of the basic laws of botany and zoology is the apparent correlation which exists in all organisms between form and function; such is exemplified especially in the more highly evolved races of our flowering plants, and none more so than in the case of the orchid.—ED.]

IF the orchid family is rightly noted for the elegance and beauty of its flowers, it is equally remarkable for the many floral curiosities distributed throughout the various genera. Under the title of Curious Orchids it is the species that come more especially under our consideration; plants that not only proved of considerable interest to our forefathers, but which will always be associated with the early-day struggles of orchid collecting and its accompanying dangers.

The Masdevallia genus of South America contains many species whose flowers are noted as much for their grotesque shape as for their extraordinary colouring. An examination of the flowers of M. Chimæra, and its several allies, will indicate why this generic name was selected, for the Chimæra of mythology was a monster that had the head of a lion, the body of a goat, and the tail of a dragon. The three sepals of this flower are oftentimes prolonged into slender tails 4ins. in length. M. Gargantua produces flowers having the hairy lip tongue-shaped and which emit a strong fetid odour, while M. velifera bears flowers that resemble the gaping mouth of an animal, and equally malodorous.

M. fenestrata, now included in the genus Cryptophoranthus, was one of the many orchids that interested Darwin. It is often referred to as the Window Orchid, for the three sepals cohere together and never open. There are, however, two minute oval windows opposite each other, and these afford the only entrance to the flower. Without these windows it would be impossible for insects to reach the reproductive organs, and thereby effect fertilisation. M. simula may be included here on account of its gem-like flowers, which are surprisingly beautiful when seen through a small lens scattered among the grass-like foliage. It is commonly described as the Partridge in the Grass.

The genus Oncidium affords several remarkable species. In O. Papilio the large flowers are carried on straw-like stems 2ft. in length, that bend gracefully to and fro with the forest breeze, the gorgeous gold and reddish-crimson colouring of the butterfly-like flowers producing a realistic effect. Another member of the genus of almost similar characters exists in O. Kramerianum.

Passing on from butterflies to birds, the well known Peristeria elata, a native of Central America, yields scapes that often grow to a height of 6ft., the uppermost part bearing wax-like flowers whose central organs closely resemble the form of a dove, hence the descriptive name Dove Orchid. A specially attractive object to children are the Punch and Judy Orchids, botanically known as Gongora species. In these fantastic floral structures, the labellum resembles the form of Punch, while the column and two petals take the form of Judy waiting to embrace him with outstretched arms. Gongoras are from somewhat tropical localities in Central America and on that account require a warm greenhouse for their successful cultivation.

In the earliest days of orchid history, the treatment of the genus Stanhopea was not fully understood, for although the plants flourished well, the flowers rarely presented themselves. By chance a pot containing one of these plants was broken, when, strange to relate, the flower spike was noticed among the crocks, endeavouring to find its way through the base. The secret was thus discovered, and ever afterwards this genus of plants has been cultivated in light baskets, or in shallow pans having several large holes in the base, so that no impediment may be placed in the progress of the flowers, for it is now fully recognised that they are produced on pendulous stems that hang vertically from beneath the plant. S. Tigrina, a Mexican species, is the most noteworthy representative of the genus. Its large flowers, of thick, wax-like formation, have tiger-looking markings of reddish-crimson colour, while the middle portion of the lip bears two sickle-shaped horns

From the Philippines the charming little Platyclinis filiformis is received. Although the pseudo bulbs are scarcely an inch in height, the slender, almost thread-like racemes bear countless flowers of bright canary-yellow colour, as evenly arranged as the links of a long chain in pendulous condition. Amateurs often refer to it as the Golden Chain Orchid. It requires a hot-house for its cultivation during the growing season in summer, a period when the delicate and fragrant flowers are also produced. Another elegant species whose flowers are arranged on long pendulous stems can be easily grown in Cœlogyne Dayana. It is a native of Borneo, and when in vigorous condition the pendent scapes extend to a length of 3ft., bearing hundreds of yellowish flowers striped with chocolate and brown. It is commonly known as the Necklace Orchid.

The genus Coryanthes, closely allied to Stanhopea, but very much rarer, is truly an orchid wonder. The name is derived from korys, a helmet, and anthos, a flower, in allusion to the helmet-like appendage to the labellum. The flower, sometimes a pair, is borne at the end of a pendulous scape, and is indeed a floral curiosity. The sepals soon wither and take the formation of bat's wings at rest. The fleshy labellum has its lower part converted into a bucket, above which two horn-like appendages secrete sufficient nectar to keep the same about half full of this attraction to insect life. When insects visit the flower they become immersed in the liquid nectar and are only able to escape by crawling through a spout-like aperture in the side, and close to which the male organ of the flower is situated. The bees, or other insects, thus unconsciously remove the pollen when leaving the flower and carry it to the next one visited, when it is placed on the female portion, and fertilisation duly effected. Dr. Crüger, formerly Director of the Botanic Garden at Trinidad, has recorded that some times there are so many of these humble bees assembled that there is a continual procession of them through the passage specified.

While on the subject of insects, we will return to the genus Masdevallia, for in M. muscosa there exists a species possessing peculiar irritability or sensitiveness of the labellum. A small insect alighting on the labellum causes it to fly up with a snap and imprison the same for a period of about fifteen minutes, when it slowly descends and sets free the thief who sought the precious nectar. The point of irritability is only in the yellow ridge of labellum, and the whole process of movement is doubtless one of nature's wonderful contrivances to ensure fertilisation of the flower through insect agency. The excessive hairiness of the stalk and ovary, exceptional among cultivated Masdevallias, is probably intended to prevent insects from crawling up, or otherwise entering the flower by any other means than the spring-trap entrance.

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A WILD GARDEN

MANY READERS MAY HAVE A PIECE OF WASTE GROUND WHICH CAN BE UTILISED FOR A WILD GARDEN. IN THIS ARTICLE A READER GIVES HIS OWN PERSONAL EXPERINCES OF THIS TYPE OF GARDENING

AS a beginner may I give fellow beginners a list of plants which I find do well in a wild garden. In my own wild garden, which consists of an acre or so on the Dorset coast, there is a small chalk brook which is a great help. The soil near the brook is damp, but as the ground rises steeply on both sides it becomes lighter and drier. As far as possible I make use of plants which require the minimum of attention, need no staking or division, are slug free, and not particularly attractive to the occasional rabbit which is sure to get into the enclosure. Large plants for the damper and shadier portions include any of the following:

Gunnera manicata.—To grow this 10ft. to 12ft. high it requires space and a good mulch of leaves and a little bone meal in winter. After a few years the plant develops several crowns, which should be hacked out and reduced to one or two.

Rheums in variety.—These are handsome plants in their early stages of growth, but get untidy after flowering.

Aralia Sieboldii.—These plants like moderate damp and shade and plenty of space to develop.

Rodgersia.—These are splendid plants especially R. atro-rosea, R. pinnata alba and R. tabularis. The last-named must be placed where it is sheltered from rough winds otherwise the peat leaves become torn and unsightly.

Saxifraga peltata, Kirengeshoma palmata, Artemisia lactiflora, Primula Bulleyana and P. japonica, Myosotidium nobile and Meconopsis Wallichii are desirable plants, but expensive to buy and apparently short-lived. The last named plant yields abundant seed which quickly germinates in a cold greenhouse.

A few of the ferns I like best are the common hart's-tongue, Woodwardia radicans, lomaria, a rapidly spreading fern, and Osmunda regalis.

Petasites japonicum is a tropical-looking plant and must be placed in a very sheltered position. Unfortunately, slugs are partial to it; this applies also to all the senecios, except possibly S. pulcher, which thrives well in a sunny situation.

THE IMPOSING HYACINTHUS CANDICANS WHICH GROWS SPLENDIDLY IN ANY SOIL WHICH IS NOT TOO HEAVY.

Astilbes retain their flowers longer in partial shade, but give trouble as they require frequent division.

Eryngium bromeliæfolium and E. pandanifolium have a tropical appearance and do not like too much shade or damp.

Polygonum sachalinense and P. cuspidatum are dangerous plants. They spread everywhere and are difficult to eradicate.

For covering stones and rocks Arenaria balearica is excellent. It requires shade and damp otherwise it becomes yellow and unsightly.

Shrubs and trees are rather too wide a subject to deal with, but I think if limited to eight varieties I should choose, for partial shade, Tricuspidaria lanceolata and Hydrangea Mariesii. As foliage plants on drier and sunnier ground, Azara microphylla, Pittosporum Mayii, P. Tobira, Arundinaria nobilis, A. nitida and Dracæna indivisa, are all good. For flowering shrubs in sun Helichrysum rosmarinifolium, Senecio Grayi or Ceratostigma Willmottiæ, could be chosen. These last few shrubs are easily raised from cuttings.

In wild gardens where the soil is suitable for rhododendrons, kalmias or camellias, most of the above-named shrubs could be eliminated, with the exception of tricuspidaria.

On sunny and fairly good ground Phormiums should do well, and I especially recommend the golden, wide-leaved variety. Quite good combinations can be made with Kniphofia Lord Roberts and montbretias and Sutton's orange calendula. On damper ground Monarda Cambridge Scarlet mixed with Achillea The Pearl, gives a good effect; both these plants require frequent division.

Two very easy plants to grow are Telekia speciosa and Thalictrum dipterocarpum; they are long-lived,

GUNNERA MANICATA GIVES EXCELLENT EFFECTS IN DAMP AND SHADY POSITIONS.

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never require dividing and are most easily raised from seed. A handful of thalictrum seed scattered on a finely dug seed bed at any time during the summer will yield hundreds of plants which can be left undisturbed until required for their permanent quarters. If the seed of T. dipterocarpum ripens this year I will gladly give some to any reader of THE GARDEN who will send me a stamped and addressed envelope.

On the higher and steeper slopes of my wild garden, where the soil consists of chalky earth, Japanese cherries seem to be doing well, also some clumps of Yucca recurva and Beschorneria yuccoides. Where the grass has been cleared away, orange calendula, nasturtium and the dark red valerian seed themselves freely. In places where the ground is well dug Spanish irises and common red tulips make fine patches of colour for a week or so.

I suppose that every wild garden worthy of the name should contain several varieties of lilies. Lily bulbs, besides being expensive not only need most careful planting, but often yield very disappointing results. I think that I have spent more time and back-aching labours in trying to establish Lilium giganteum and the white L. Martagon than any other plant in the garden, and with absolute failure as the result.

L. croceum and L. umbellatum will grow practically anywhere in fairly sunny, well dug ground and L. Roezlii and L. pardalinum do well in damp, shady places. Possibly the cheapest of all lilies is L. regale. Even one flowering plant of this will yield countless seeds which are easily and quickly raised in a frame or cold greenhouse. Of the imported bulbs I find L. tigrinum splendens and L. auratum platyphyllum do very well for two years.

SUITABLE FOR PLANTING IN PARTIAL SHADE, TRICUSPIDARIA LANCEOLATA.

HARDINESS OF SHRUBS ON TYNESIDE

NOW that the planting time for trees and shrubs has come round again a few notes on the hardiness of some of the less common in a small Northumbrian garden may not be out of place. In Northumberland, as a whole, the summers are cool and the springs cold, but the frosts in winter are no more severe than they are in the southern counties north of London. The garden in question is situated on the northern slope of a hill at about the 500ft. level, and about twenty-five miles from the North Sea. In such a garden, vegetation, although slow in starting into growth in spring, is less liable to be checked by late frosts, or cut by early ones in autumn. During still frosts the temperature is never so low as in the valley, but it is always lower on the higher ground if the frost is accompanied by wind. Within recent years the winters of 1912 and 1917 have been the most severe. In 1912 the thermometer was as low as 4° below zero in the valley—the lowest reading for a great number of years. Last winter, though nothing like so severe as 1912 or 1917, was very trying to vegetation on the hill, as the coldest weather was accompanied by a strong northerly wind, and the garden referred to is very much exposed to winds from the north-west, north and north-east. The garden's principal shelter from these winds is given by a low boundary wall on the north, which, owing to its southern aspect, has been utilised for the growing of some less hardy shrubs. The dates after the names indicate the years of planting.

AZARA MICROPHYLLA, spring 1922, against south wall, has grown well and suffered no damage. Its neat evergreen leaves make it a very effective wall shrub where foliage alone is wanted.

BERBERIS SARGENTIANA, 1922.—Though the wood was entirely uninjured the leaves were very much damaged last winter, which gave it a shabby appearance till new growth started.

BUDDLEIA VARIABILIS, spring 1911, has only once suffered more than slight damage by frost, and that was in 1912, when it was cut to the ground—no disadvantage in the case of a shrub of such vigorous growth. B. variabilis var. nanhœnsis, 1923, appears to be just as hardy, and besides its neater growth has the great advantage for cutting purposes of having a sweet scent in place of the disagreeable one of the type.

CAMELLIA LATIFOLIA, spring 1916, in open, was killed 1917. C. japonica C. M. Hovey, 1921, in open, has grown well but not flowered. Probably rather far north for a camellia, for, if it escapes being killed by frost, the summers are rarely warm enough for any flower buds to be formed.

CARPENTERIA CALIFORNICA, spring 1922, at base of south wall, has grown well and passed through last winter all right; flowered this year for the first time. Well worth a little extra care to get it to succeed.

CEANOTHUS "BRILLIANT" 1914, against south wall. This is an evergreen and flowers in June. It has done well and flowers regularly, and last winter the part 3ft. above the shelter of the wall was entirely uninjured by the cold winds. C. azureus Gloire de Versailles, 1912, on south wall, has been a great success.

CHOISYA TERNATA, spring 1911, in open, but sheltered place, has done well and flowered freely every year. Stood the winters of 1912 and 1917 with only very slight damage.

CISTUS LAURIFOLIUS, 1912.—Nothing so far in the way of weather has done this the slightest harm, even in an exposed position, and no shrub flowers more freely and regularly. C. cyprius, 1922, at base of south wall, has not yet had any frost hard enough to damage it. It is a lovely thing, even finer than C. laurifolius. C. rosmarinifolius, 1922, in exposed position, was entirely undamaged last winter. The same cannot be said of C. crispus and C. florentinus, as they both suffered, especially C. crispus.

CLIANTHUS PUNICEUS, 1923, on south wall, despite being covered with a mat during the coldest spell was damaged last winter.

COROKIA COTONEASTER, 1914, has never been hurt. It is more curious than beautiful, and its starry yellow flowers have never been borne in sufficient quantity to make a show.

CUPRESSUS MACROCARPA, 1914, has grown very rapidly and escaped damage by frost, but the first one planted, after getting to a fair size, was blown down owing to its being a pot-grown plant, and so getting its roots twisted.

DESFONTAINEA SPINOSA, 1922, in peaty soil in a rather shady position, has grown well but not yet flowered.

ERICA ARBOREA ALPINA, 1922, in exposed place, was just as fresh and green last April as the autumn before. E. australis, 1915, in open, has done well and though sometimes the tips of its new shoots have been caught, has never suffered much damage, probably owing to its often being covered by snow before a really hard frost. A very fine heath. E. lusitanica, 1914, and E. Veitchii, 1919, have only been slightly damaged.

ESCALLONIA MACRANTHA VAR. INGRAMI, 1908, in open, after being killed to the ground in 1912, was moved to the south wall. Since then has never been seriously damaged and even the exposed part 3ft. to 4ft. above the wall was scarcely affected last winter. E. langleyensis, 1914, on south wall and above is a fine sight every year, with its innumerable red flowers, and its leaves in December, when they turn golden, are quite attractive. E. Edinburgh, 1922, on west wall, does not look like rivalling E. langleyensis for colour effect.

EUCRYPHIA PINNATIFOLIA, 1922, in open, has grown well, but not yet flowered. A few late leaves were retained all through last winter undamaged.

FEIJOA SELLOWIANA, spring 1921, against south wall, has grown slowly, though satisfactorily, and flowered sparingly in 1922 and

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1923. A mat during hard frost has so far been sufficient protection.

GARRYA ELLIPTICA, 1913, against south wall, has grown or flowered well, and last winter the leaves on the exposed branches 2ft. above the wall were none the worse for their trying ordeal.

HAMAMELIS MOLLIS, 1916, and H. JAPONICA var. ZUCCARINIANA, 1912.—It is wonderful what the flowers of these two will stand in the way of weather. For effect it is hard to say which is the better.

HYPERICUM HOOKERIANUM, 1915, has not grown well. It seems to be slow in recovering from the check of having the new growth that it often produces in February cut back in March.

LEPTOSPERMUM SCOPARIUM NICHOLII, 1921, on south wall, has not done well despite being covered with a mat during all cold weather. Perhaps the position, or the heavy soil in which it is growing, does not suit it.

MAGNOLIA CONSPICUA, 1912, on south wall, has grown well and flowered regularly, but generally loses a number of its flower buds each winter. The same applies to M. stellata, 1913, in open. M. Kobus, spring 1923, in open, is growing vigorously. M. parviflora 1922, is only growing slowly.

MUEHLENBECKIA COMPLEXA, 1918, was a little damaged last winter, but looking at it now no one would think so.

OLEARIA NUMMULARIÆFOLIA, 1921, and O. macrodonta, 1922, in open, have grown well, and were entirely unaffected by the bad weather last winter. O. Haastii, 1902, was slightly damaged in 1912, but lower down the hill this species was then cut to the ground, but so also was the wild gorse and broom.

OSMANTHUS DELAVAYI, 1922, in open, has only grown slowly though apparently unaffected by the cold winds.

PHILESIA BUXIFOLIA, 1921.—Despite still being only a small plant, this and last year, has had three or four of its large striking red flowers. A very desirable shrub for a sheltered shady spot in the rock garden in lime-free soil.

PHYGELIUS CAPENSIS, 1922, at base of south wall, did not lose a leaf last winter and is now flowering.

PITTOSPORUM TENUIFOLIUM, in open, 1923, stood last winter all right.

QUERCUS ILEX, 1913, in a very exposed position, was uninjured last winter while wild gorse near was browned.

RHODODENDRON CILIATUM, 1912, in open, has never been much damaged, and some years has been a very beautiful sight in April when in full bloom, but last year all the flower buds were killed in March owing to being rather far advanced with the previous mild weather. R. rubiginosum, 1916, is also liable to have its buds killed, but not so much so as R. ciliatum. All the following dwarf rhododendrons were uninjured last winter: calostrotum, chryseum, fastigiatum, intricatum, ledoides, primulinum, rupicolum, scintillans and Williamsianum. Of these calostrotum, fastigiatum, ledoides and primulinum are especially fine, and are gems for the rock garden. Chryseum and Williamsianum have not yet flowered. R. moupinense, spring 1922, has lost its flower buds the last two winters just as they were about to open.

ROMNEYA COULTERI, 1920, at base of south wall, has done splendidly.

TRICUSPIDARIA HOOKERI, 1921, on east wall. Uninjured last winter, but was covered with sacking on two or three of the coldest nights.

VERONICA SALICIFOLIA, 1910, in open, has proved hardy and though exposed bushes have had all their leaves browned they soon recovered. A fine thing when in bloom, but has one drawback, viz., that it reproduces itself too readily from seed. V. parviflora, 1913, at base of south wall, has also done well.

VIBURNUM CARLESII, spring 1922, at base of south wall, has grown and flowered splendidly. The flower buds which started growing last February were unaffected by the cold of March. V. fragrans, 1923, the same cannot be said of a small plant of this, as it did not survive, having its new leaves killed in March. V. Tinus, 1904, has never suffered much damage. Instead of making its principal show in autumn as farther south, the main display is in spring.

YUCCA FILAMENTOSA, 1903, has done well and one clump this autumn has four flower spikes, the two tallest of which are about 6ft.

Bamboos, such as Bambusa palmata, Arundinaria japonica, A. nitida, Phyllostachys aurea and P. virida-glaucescens, all passed through last winter very well, and were not really unsightly in April as might have been expected.

R. B. COOKE.

Kilbryde, Corbridge-on-Tyne.

LATE AUTUMN FLOWERS AT VINCENT SQUARE

THE fact that the season is now fast drawing to a close was clearly in evidence at the third from the last show of the year of the Royal Horticultural Society at Vincent Square on November 18th last. The attendance was not large and the exhibits were more or less of a conglomerate nature. The principal features of the Show were the chrysanthemums and carnations, supported by small exhibits of evergreen and hardy shrubs and two exhibits of vegetables. Fruit was represented in a small but well arranged collection of apples by Messrs. G. Bunyard and Co. The other exhibits consisted of paintings, drawings and designs and various sundries of a miscellaneous nature. A few of the drawings were particularly well done and merit the attention of all lovers of wild and garden flowers. In general the floral exhibits are beginning to show the ill-effects of the weather conditions which we are at present experiencing and it reflects credit on the growers who are able to stage a collection of blooms at this time.

The many varieties of chrysanthemums which are robust in habit and which have been seen of even size, form and colour all through the season must surely be more worthy of growing than those which were perfect at the chief show and at other times very much inferior. The time, labour and money spent on the enormous exhibition Japanese chrysanthemums cannot make them of real practical use, their chief appeal being to the exhibitor. The average person wants chrysanthemums of strong vitality, good in colour and form, and which will flower freely with a moderate amount of attention. All the chrysanthemums exhibited by Messrs. Cragg, Harrison and Cragg possessed these qualities and have shown a uniformity of excellence throughout the season. The sturdy growth and good condition of the flowers were particularly noticeable. There was a good collection of varieties of recent and past introduction. The new ones selected were superior to the similar old varieties: it was not a case of another added just because it was new when the old varieties were as good, if not better. Aldyth, a bright rich crimson of the Japanese type, which received an award of merit at this show, thoroughly deserves the attention of every grower. The two best incurved Japanese varieties were A. Brooker, a large red with the reverse side yellow, and P. Dore, an excellent white. Three colours which were somewhat out of the ordinary were the lilac pink of A. Lionet, the deep velvet crimson of Black Prince and the pinkish bronze of Rosalind. The flowers of Black Prince were small and borne on erect stems. Rosalind had large, well-shaped flowers which have the advantage of blooming late in the season. December Gold made a good effect and is still one of the best market yellows. Among the singles the glowing red blooms of Sandown Radiance and the vivid flowers of Yellow Jewel were outstanding.

A complete change and a great contrast are always appreciated. One becomes tired of even the choicest flowers if used for decoration regularly, and anything which is entirely different is given a hearty welcome. It was with these feelings and with surprise that many people regarded the unique exhibit of ornamental grasses and everlasting flowers shown by the French Intensive Gardens, Croydon. The stand was splendidly arranged and it made one realise the value of grasses for decorative purposes and the variety of form from which to choose. Everlasting flowers and grasses remain fresh and look cheerful the whole winter when other flowers are scarce and dear. They are inexpensive and give no trouble, as they need no water. There are only a few which are in general use, for instance, pampas grass (Gynerium argenteum), Physalis Francheti (the Chinese lantern), Helichrysum monstrosum (the old-fashioned everlasting flower), sea lavender, (Statice sinuata) and Echinops in variety. All these were represented in this exhibit, and yet there were many others shown which should be more widely known.

The feathery nature of the grasses and their slight movement in the breeze makes them particularly graceful. The types shown varied in form from the dainty sprays of Agrostis pulchella to the beautiful plumes of pampas grass. Some were pinkish brown in colour, others shaded with green and some white. One of the most attractive was Hordeum jubatum, the squirrel tail grass with its long hairy spikes tinged with green. Lagurus ovatus had soft downy heads known as hare's tail. Briza maxima and B. minima gracilis, two of the quaking grasses, were most graceful. The genera agrostis and bromus were well represented. There were many shapes and colours in the flowers also. Two large bunches of pink flowers were most conspicuous, one being Acroclinum roseum and Rhodanthe maculata. The latter had a yellow eye and a deep crimson ring encircling the eye. The mauve spikes of Statice Suworowi, which were curiously twisted, were noticeable. The well known Helichrysum monstrosum was exhibited in a variety of shades ranging from yellow to deep orange. It is a native of the Cape of Good Hope, and Helichrysum orientale is the much-used immortelle of France. Two good specimens were Ammobium alatum, a small white flower, and Gomphrena globosa, seen in bright orange and magenta. The bluish colour of Echinops Rito was very good and would make striking decoration.

Other exhibits were as follows:

Apples.—Bunyard and Co.

Begonias.—Stuart Low and Co.

Carnations.—Allwood Brothers, C. Engelmann and Stuart Low and Co.

Chrysanthemums.—K. Luxford, Stuart Low and Co., Mr. A. J. Vinten, W. Wells and Co. and K. Wood.

Cyclamen.—Stuart Low and Co.

Gentiana and Schizostylis. — Clarence Elliott.

Kale.—Sutton and Sons.

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Orchids.—Stuart Low and Co.
Potatoes.—Carter and Co.
Shrubs.—G. Whitelegg.
Violets.—B. Binney, Miss E. Heathcote and J. Kettle.
Landscape.—P. S. Cane and K. and E. Hopkins.
Artists.—Edith A. Andrews, Lady Proctor-Beauchamp, Edith Fisher, Agnes Foreman, Eva Francis, Eva Kirk Patrick, Mrs. Henny Spenser, M. Townsend, Mrs. Russell Walker, Winifred Walker, Ellen Warrington and A. E. Wilkinson.

NEW AND RARE PLANTS.

AWARDS OF MERIT.

CHRYSANTHEMUM ENVY.—This is a fine single variety with dark reddish reflected florets with a yellow base leading into rather a small and inconspicuous eye. Many of the blooms were showing the ill-effects of the weather. Foliage is of a dark bluey green colour. Shown by Mr. J. Barrell.

C. SPORTSMAN.—Another large single variety with blooms made up of tiers of recurved florets of a light red in colour, shading off at the base to a light yellow. The eye is prominent and upraised, setting off the florets to advantage. Shown by Mr. H. Shoesmith, Woodbridge Nurseries, Guildford.

C. CHALLENGER.—Another excellent single variety of a most graceful habit. The flowers are set well on the stems save for a slight twisting. The florets are raised and upstanding from a fairly prominent eye. In colour they are a shade of bronze red shading off to a yellow base. Shown by Mr. J. Barrell, Bridgwater.

C. MRS. J. BARRELL.—This is another single variety somewhat similar to Envy. The foliage, however, is of a lighter colour, also the florets are decidedly lighter in shade. The flowers of this variety have a much more prominent yellow eye raised like a cushion. Shown by Mr. J. Barrell.

C. ANNETTE.—This is an excellent single variety. The blooms are of good shape, composed of many rows of stiffly arranged florets. In colour they are a shade of yellow tinged with bronze round the outer margins. The flowers are borne on stiff stems which carry neat and small foliage.

C. ALDYTH.—A beautiful market variety of a rich dark crimson to maroon in colour, with a bright glow over the flowers. The blooms are of almost perfect shape, very full and are set off to advantage on the erect stems and small neat foliage. The shape is apt to be lost once the blooms are past their prime.

C. LYNETTE.—A really good variety of distinction at this time of the year, with large blooms, 6ins. to 8ins. across, of a beautiful soft white, made up of numerous straight, reflexed and twisted florets. Unfortunately the whiteness gives way to a yellow greenish centre, but otherwise the blooms are perfect. The last three were shown by Messrs. Cragg, Harrison and Cragg, Heston.

C. MRS. R. JINKS.—This single variety is of a unique colour—rather dull buff or fawn—giving way to yellow at the base of the florets. The cushion eye is prominent. The habit appears good although the stems are rather long and leggy—at least, when seen as a spray. Shown by Mr. R. Jinks, Upper Tooting.

CARNATION ANNE CORRY.—A very fine variety with well formed blooms of a dark maroon shade of a delicate and pleasing fragrance. The calyx does not appear to burst. The flowers are carried well on stiff, erect stems and the plant appears to be floriferous. It is undoubtedly a good variety and one which to all intents and purposes will give good results. Shown by Mr. G. Carpenter, Byfleet.

ORCHIDS.

MILTONIA WILLIAM PITT VAR. ATROPURPUREA (Isabel Sander × Bleuana var. Reine Elizabeth).—This beautiful hybrid carried a spike of two large flowers of typical vexillaria formation, but very much deeper in colour; sepals and petals intense crimson-purple, labellum of similar colour, except at the base, which is whitish and rayed with brown lines. The extreme tips of the sepals and petals are whitish, as also is the narrow border to the labellum. From Messrs. Charlesworth and Co., Haywards Heath. First-class certificate.

ODONTONIA REGALIS (Miltonia vexillaria var. Queen Alexandra × Odontoglossum Aquitania).—An uncommon result in which the spike carried three flowers with elongated segments, white, with rose-flushed areas, and slightly marked with blackish spotting. From Messrs. Charlesworth and Co., Haywards Heath. Award of merit.

MILTONIODA BOADICEA (Miltonioda Harwoodii × Miltonia vexillaria).—Although of poor formation, the two flowers borne by this young seedling were remarkable in point of colour, the sepals and petals being intense crimson, the labellum a little lighter. From Messrs. Charlesworth and Co., Haywards Heath. Award of merit.

CHRYSANTHEMUM ENVY, A CHARMING MEDIUM-SIZED SINGLE.

NEW CHRYSANTHEMUMS.

A CONSIDERABLE number of novelties were submitted to the Floral Committee of the National Chrysanthemum Society on November 17th, when awards were made.

CHALLENGER.—A medium sized single chrysanthemum of considerable beauty. The substantial florets are of rich chestnut colour which is enhanced by a yellow zone. First-class certificate. Shown by Mr. J. Barrell.

ELEANOR.—A small single of orange red colouring and a bright yellow zone. The colour is very desirable but the flowers seemed to lack substance. First-class certificate. Shown by Mr. J. Barrell.

ENVY.—A medium sized single of great charm. It is of chestnut red colouring with a narrow zone and a very small eye. First-class certificate. Shown by Mr. J. Barrell.

MRS. R. JINKS.—A lovely single chrysanthemum of medium size, perfect form and dull fawn colouring, with a pale golden zone. Shown by Mr. R. Jinks.

NOVEMBER SUN.—The award to this variety was subject to comparison with British Empire, a variety raised some years ago by Mr. Norman Davis. It is a very useful incurved Japanese variety of medium size and, in habit, inclining much more towards the incurved than the Japanese type. The colour is a bright canary yellow. First-class certificate. Shown by Messrs. W. Wells and Co.

R. HOOPER PEARSON.—This exceedingly richly coloured yellow variety received an award a long time ago as a show flower and now was submitted as a market variety. It is a flattish and very substantial bloom of medium size. Shown by Messrs. W. Wells and Co.

SHEILA.—A medium sized single chrysanthemum of great charm. The colour is a rich ruby crimson and the florets have a delicate "bloom." First-class certificate. Shown by Messrs. Keith Luxford and Co.

SPORTSMAN.—A large well formed single of reddish colour shaded with rose towards the centre, which gives way to a clear yellow. The eye is large, prominent and raised like a cushion, the florets standing out well and showing the individuality of the flower to advantage. First-class certificate. Shown by Mr. H. Shoesmith.

WINTER PINK.—The committee wished to "see again" this market sized Japanese variety. It is a bright flower made up of stiffish florets which are heavily lined with deep pink except at the tips which are paler. The blooms are of fine form and are well carried on the stiff erect stems. Shown by Mr. H. Shoesmith.

ZULU.—The reason for the name is not readily apparent, but the colour is very uncommon; it may best be described as being a purplish magenta, lightly flushed with maroon. Perhaps the committee considered the flowers to have too many florets to be a good single, but its substance and unusual colour will commend it to many private growers. Shown by Mr. Edward Jones

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GARDENING IN THE MIDDLE AGES

"Mediæval Gardens," by the late Sir Frank Crisp, Bt. Edited by his daughter, Catherine Childs Paterson, with illustrations from original sources collected by the author. Two vols., 4to. (John Lane, £6 6s. net; limited to 1,000 copies).

"The Old English Gardening Books," by Eleanour Sinclair Rohde, with facsimile illustrations. Demy 8vo. (Martin Hopkinson, 15s. net.)

IN these days, when everyone is attacking the science of gardening with a kind of ferocious zeal, it is sometimes pleasant to look back on days when there was little science in gardening. Then it was a means to an end; the end was repose, a soothing pleasaunce; the means were flowers and herbs mostly collected from the countryside and transferred to a garden. Apart from culinary vegetables, practically every denizen therein was sweetly scented. Did not a Dutchman write in 1560 "their chambers and their parlours strawed over with sweet herbes refreshed mee; their nosegays finely intermingled with sundry sorts of fragraunte floures, in their bedchambers and privy rooms, with comfortable smell cheered me up, and entirely delyghted all my senses."

Although the two books reviewed in this article differ in date and in treatment, yet they both run together in that they delve into the foundations of the modern garden. Perhaps it is unfair to write about them in the same article because "Mediæval Gardens" consists of short notes by the late Sir Frank Crisp with a fine collection of illustrations taken from contemporary manuscripts and books, while Miss Rohde's volume is a finished work written with a sympathetic charm. "Mediæval Gardens" deals with the subject of early gardens from the point of view of contemporary artists. The late Sir Frank Crisp rightly judged that in a subject about which so little is known perhaps a certain amount of knowledge could be gleaned from contemporary art. He collected illustrations of every picture which had even the smallest aroma of a garden even in the background or as a subsidiary subject. His devotion to this collection is worthy of all praise. It is a pity that "Mediæval Gardens" was not handed over to an expert for completion, for it is so obviously an incomplete work. It is sumptuously produced, one of the best that I have ever seen, and the illustrations on the whole are singularly complete, although more descriptive titles could have been given. The notes, however, are unworthy of the book. There is no mention, for instance, of the singular symbolical significance which almost all plants had for our ancestors. It was the heyday of the "doctrine of signatures" when plants were given a medicinal value according to their supposed resemblance to various parts of the human anatomy, and yet this important point is not touched upon. There is a chapter on "Beds and their Sparse Planting," a curious point in all illustrations of mediæval gardens, but there is not the slightest suggestion of a reason for this phenomenon. Why should that title be given to the chapter? Even the editing of the illustrations is occasionally careless. Three plates are duplicated in the second volume alone. On the whole "Mediæval Gardens" is a disappointing book. The illustrations form a marvellous peg on which to hang an enchanting treatise on the beginnings of gardens.

Miss Rohde's book, on the other hand, is full of ripe wisdom. She starts off with Thomas Hyll, who wrote the first book devoted to gardening in England, "A most Briefe and pleasaunt treatyse, teachynge howe to dress, sowe and set a Garden." She then touches on "Tusser's Five hundred pointes of Good Husbandrie," which I think she praises unduly. He used a particularly annoying metre and had little real feeling; in fact, he was a good literary hack. The next author Miss Rohde mentions, one Richard Gardiner, a linen-draper of "Shrewsberie," is much more worthy of attention. He published a book in 1597 dealing entirely with vegetables. There is a particularly charming quotation given about carrots: "Carrets are good to be eaten with salt fish. Therefore sowe Carrets in your Gardens, and humbly praise God for them, as for a singular and great blessing; so thus much for the use and benefit had in the commonwealth by Carrets."

Miss Rohde has an intense and deserving admiration for William Lawson, with whom she begins the next chapter, for he was a particularly charming writer. Here is a sample from his "A New Orchard and Garden": "Store of Bees, in a dry and warm Bee-house, comely made of Fir-boards, to sing, and sit, and feede upon your flowers and sprouts, make a pleasant noyse and sight. For cleanly and innocent Bees, of all other things, love and become, and thrive in your Orchard." Markham, who is mentioned next, was a worse hack than Tusser, and except for a certain picturesqueness of language is of little account; then comes the greatest figure, John Parkinson, who, apart from being a sympathetic man and a charming writer, was also a great botanist. His famous "Paradisus" was founded on the plants he grew in his own garden, and his collection must have been exceedingly large. Nearly a thousand plants are mentioned, most of them exotic. He was also a hybridiser, and I was glad to see Miss Rohde quote his remark about Parkinson's Daffodil: "None ever had this kinde before my selfe, nor did I my selfe see it before the year 1618, for it is of mine own raising and flowering first in my Garden."

And so Miss Rohde wanders through the gardening writers of the sixteenth and seventeenth centuries. From the sympathy with which she treats each individual author and the care with which she selects her quotations I imagine that in these books lies her garden and the rounded quotations are plucked from their pages as others pick a valued flower.

E. H. M. C.

CORRESPONDENCE

BORDER CARNATIONS.

SIR,—On page 746, November 1st issue, Mr. Norman Lambert states: "Gracefulness . . . this is a fine variety for growing under glass, when, with the calyx eased and helped occasionally, it can be grown to a very large size."

What does he (Mr. Lambert) mean by "the calyx eased and helped occasionally"? I have asked other carnation lovers and growers, but they do not know.—LINKMAN.

FRIENDS AND FOES OF THE GARDEN.

SIR,—Among gardeners there must be many who hold divergent views as to the worth of birds of any kind in the garden. Some, indeed, have nothing to say in their favour; rather do they look upon them as a trial which has to be endured; while others, if they do not regard them in the light of enemies, shut their eyes to the help they are, especially in the summer and autumn, in the extermination of numerous pests which would make greater inroads on crops were it not for certain members of the feathered tribe. And they are prejudiced against birds, inasmuch as, like some of us, they have suffered through their depredations in strawberry beds and cherry trees and, possibly, bush fruits in general.

Mr. Clifford W. Greatorex, however, makes a very good defence in the case of the birds referred to in his informative and interesting article in THE GARDEN for November 8th.

Wrens and robins, as well as thrushes, are very busy in the garden in these late autumnal days, and if statistics could be furnished of only one day's menu of these "children of the air," we should, I submit, be very much surprised as to the composition of the bill of fare and the amount consumed.

We have to confess that thrushes and blackbrids have given us anxious moments this year, and we have caught more than one entangled under the netting; but even when we had our prisoners safe we could not find in our heart to do any other than let the frightened birds go, as we count them among the most gifted of our singers. There is no bird, perhaps, more faithful than the thrush, and surely he is the chiefest of musicians. Maybe these lines will catch the eye of someone in a distant land, who conjures up thoughts of home, and with it the garden that he loves and the minstrel that kept company, on the topmost bough of trees in the orchard! What would his views be now as to our lovely songsters? Would he not think that the good they do far outweighs the harm? Would he not be inclined to say:

The cherries that they eat
Are not so sweet
As are the songs, these uninvited guests,
Sing at their feasts, with comfortable breasts"?

We think so.—W. LINDERS LEA.

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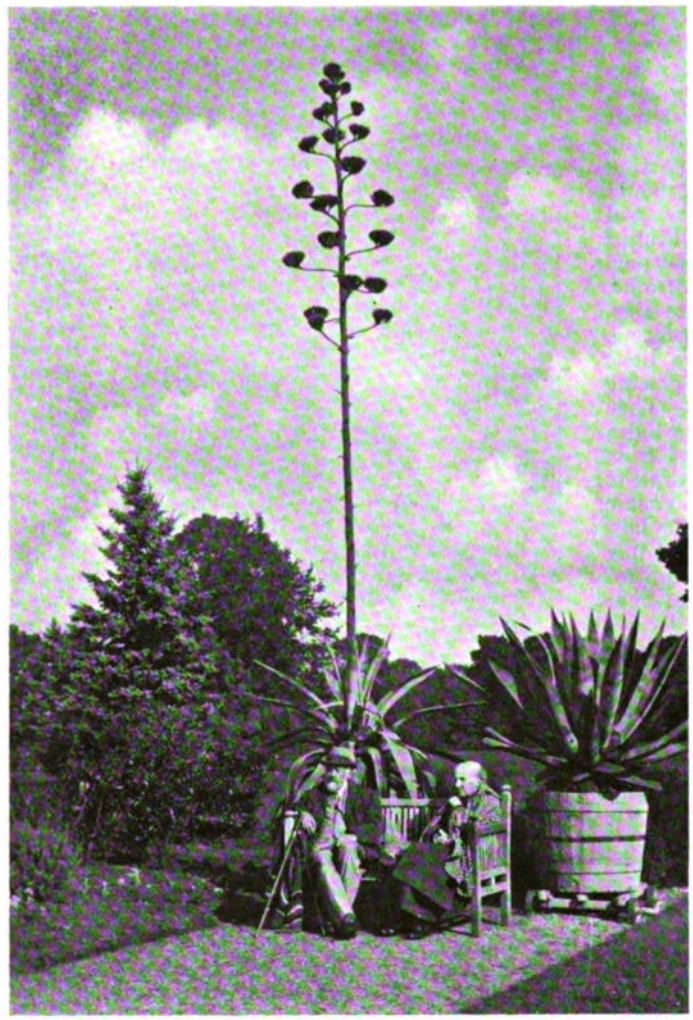
LILIUM AURATUM.

SIR,—In your issue of THE GARDEN, November 1st, page 752, under the heading "Lilium auratum," G. Dell Clarke, Bournemouth, draws attention to the photograph of L. auratum grown by him out of doors and represents what he thinks is a record, with twenty-seven flowers on one stem. I have a Lilium auratum, grown in an 8in. pot, with two flower spikes, one spike with forty-two, the other with forty-four flowers, eighty-six altogether. This is only one out of a batch of two dozen bulbs grown in pots, the smallest having a flower spike of forty-eight flowers.—G. S. LONDON, *Forfarshire*.

A FLOWERING ALOE.

SIR,—The enclosed photograph may be of interest to your readers. It is one of two aloes that were brought by a friend from Madeira in the year 1851. They have never shown any sign of blossoming during the seventy-three years that have elapsed since, until this year when one of them has rather suddenly thrown up this spike of bloom. It measures 19ft. in height from the top of the tub in which it is grown. You will notice how much the leaves of the plant that is in flower have shrivelled up as compared with its fellow plant. When the bud first appeared there was no difference between them in this respect. I fear this means that the plant will die when it has done flowering, as is generally supposed to be the case. Can you or any of your readers tell me if there is any way to prevent this? It seems a pity to lose a plant that has been so long in the family.—WILLIAM S. CLARK, *Somerset*.



A MAGNIFICENT ALOE SEVENTY-THREE YEARS OLD.

CATALOGUE DESCRIPTIONS.

SIR,—In my opinion, the omission to give the height of the plants is one of the most annoying, as well as the commonest, defects in nurserymen's catalogues. In that issued by a leading grower of herbaceous plants the height of only one or two in every hundred is given; consequently, I find it necessary to "work" the catalogue with the aid of half a dozen books on horticulture, which is a great nuisance. I agree, too, with your correspondent, Mr. Humphrey Swann, that to describe a thing simply as "dwarf" is absolutely useless; why should not the maximum height be given? It would be a great advantage, also, if all catalogues were arranged *strictly* alphabetically. This plan would save an infinite amount of trouble in searching for a plant.—R. E. H.

MAGENTA AND COLOUR COMBINATIONS.

SIR,—On returning home after a somewhat prolonged absence it was most interesting to pick up THE GARDEN once more and to find that the subject of colour combination and the right placing of magenta were still to the fore. In April and May, 1923, I pointed out that Cheiranthus Allionii appears to have been sent to restore to us the balance which the magenta of the aubrietia so vigorously disturbs. It was mentioned, also, that although Lunaria biennis is excluded from some gardens, the use of honesty is the best policy, when it can be associated with the rich brown wallflower—a colour combination which we find on the wings of the peacock butterfly.

"Colour mixtures are certainly popular with artists," as your correspondent, writing from St. Briac, in your issue of September 27th states, but he treats us to some of the most irritating examples that it is possible to find. The first selection he gives consists of marigolds, polyanthus, in what he terms "shades" of red, yellow and blue, mauve single stocks, pansies, woodruff and Virginian stock. In this country, marigolds are not easy to obtain in flower at the same time as polyanthus. The strong true orange of the marigold gives a dominating colour note that kills that of the weaker yellow primrose, and which, to use a musical phrase, is a tone above. The red, that he advocates the use of, is a tone below. This has precisely the same effect on the eye as three consecutive musical tones have on the ear when sounded together. To this horrible discord your correspondent adds blue, the mauve of the single stock and pansies. The colour of the single stock is about as raw as it is possible to find, which requires a strong complementary colour to render it tolerable, yet he places it with pansies (presumably purple) and blue—both semitones! Virginia stock is not a pleasing colour. It is what your other correspondent, "H. P. M.," would, I think, curiously term a blue-pink. Few would consider it worthy of a place in any decorative scheme, though it may still be found in some cottage gardens. Later in the summer, your correspondent suggests, a combination of love-in-a-mist with annual larkspurs. Here again, *blue* larkspurs must be rigidly excluded as they are on the violet side of the true blue and therefore form a discord with the Nigella. White larkspurs and pale pink ones might be used with Nigella, but pale lemon yellow such as the carnation would be better. The use of snapdragons and sweet williams is suggested, but no colours are mentioned. Their habits of growth and colourings are remote from the nigella and delphinium.

The combination suggested for the autumn is golden rod, rudbeckia, montbretia and the brown seed-spikes of the stock. I am not familiar with the last-named, but if the montbretia be an orange one, it is about a tone below the colour of the golden rod, and far better used by itself. Should a colour mixture be required, rich warm purple Michaelmas daisies provide the complementary tone; but *one* of the two colours should act as the *principal*, and dominate the whole of the decoration in the room or on the table, as advocated in your article on page 594.

When combining colours, it is useful to remember that the sensation of extreme violet, at one end of the spectrum, is caused by vibrations having double the frequency of those which give the sensation of red. These two colours roughly give us the first and closing notes of the octave. We find them combined in one flower in the fuchsia and Tulip Gesneriana spathulata. The colouring of the Babiana rubrocyanea may be likened to the musical "diminished seventh." Just as the musical intervals known as the third and the fifth produce a pleasing chord, the like intervals produce one in the colour scale. In each case the vibrations causing the sensation follow one another with a sufficient interval of time between them to prevent interference. If the interval is short, the vibrations clash with each other, and before the effect of the first on the retina is exhausted it receives another impulse, thus producing physical fatigue and a sense of great irritation and discomfort.

The complementary colours are any two which when combined give the sensation of white light. When seeing one of these the eye craves for the other, and the introduction of it in the garden or in an arrangement of cut flowers is always safe and pleasing. It is much to be hoped that the days of the barbaric jazz and Futurist horrors, and the indiscriminate mixing of various tints without reference to the laws of colour harmony, are now numbered, and that we may speedily be relieved of what is a nightmare to many of us—H. H. WARNER, *East Herts*.

FORTHCOMING EVENTS.

December 2.—Royal Horticultural Society's Fortnightly Meeting.

December 3.—Glasgow and West of Scotland Horticultural Society's Meeting.

December 6.—Blackburn Horticultural Society's Meeting.

December 8.—United Horticultural Benevolent and Provident Society's Meeting.

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SIMPLE GARDENING

THE TREATMENT OF BULBS WHEN TAKEN FROM THE ASHES.

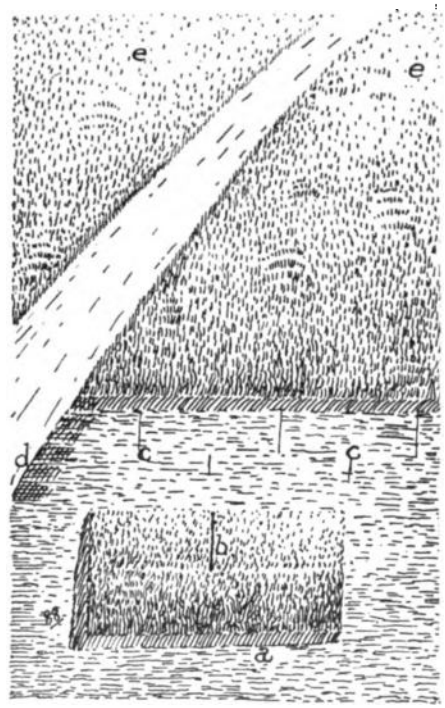
THERE are three very interesting stages in the care of bulbs grown in pots which always appeal to me very strongly, namely, the first handling of them when they are potted, when taken from the covering of ashes or sand and when engaged in arranging the plants on the stages and in bowls when the flowers are developing. I daresay all lovers of bulbs feel similarly. Nearly all the ordinary bulbs, such as those of hyacinths, tulips and narcissi, are buried under ashes, soil or sand after they are potted and, generally, kept in the open air. Empty inverted flower-pots placed in position to keep the covering material from interfering with the new growths are to be preferred to the placing of ashes directly on the pots. About one month after the potting has been done the cultivator should carefully examine the buried pots, and if the new growths of hyacinths and tulips are a little more than 1in. high the pots should be removed to a cold frame. Narcissi should have growths quite 2ins. high before they are taken to the frame. The latter should be ventilated a little at the top but kept darkened by placing mats on the glass for one week. Then gradually expose the bulbs to the light, admit more air and only protect from frosts. Take a few plants at a time to the greenhouse or conservatory to ensure a regular display of flowers. The best way to feed the plants is by standing the pots in saucers of liquid manure for a few hours weekly as the flower-buds form.

PREPARING GROUND FOR ANNUALS.

To some readers it may seem premature seriously to think of preparing the soil for annuals to be grown next year. But it is not a bit too soon. Many cultivators know, through sad experience, how disease and insect pests will work havoc among the plants in some parts of the country. When the young plants are growing in their flowering quarters it is too late to apply any drastic remedies. But lime and soil fumigants may be used while the ground is vacant, and thus destroy pests, their eggs, etc., and the spores and mycelium of fungi. To a limited extent these measures may be taken where the positions for the annuals are near the front of a herbaceous or similar border. Where it is convenient the borders for the annuals should be selected now and the soil deeply dug. There are several common mistakes made by cultivators every year, and it is mainly through these errors that unsatisfactory displays of flowers result—lack of manure, deep digging and timely thinning out of the seedlings. The deep digging should be done now, the top spit being turned over on subsoil that has been well loosened with the garden fork to a depth of at least 2oins. Then the lime should be applied to the newly dug surface at the rate of 6oz. per square yard of ground. The ground should be left in this condition throughout the winter.

LAYING DOWN NEW TURVES.

There will be many thousands of new turves laid down in readers' gardens during the coming winter months. Some lovers of nice lawns will be fortunate in securing good turves, others less fortunate, but all should lay the turves as carefully as possible. The best turves are those cut from old pastures or downs where fibre is abundant and weeds scarce. The 3ft. long turves are generally sought for. I, personally, like those cut 1ft. square or 1ft. by 1oins. The small turves are easily placed in a wooden frame 2½ins. deep, turned over grass side downwards, the soil part pared off quite level and the roots of coarse weeds removed. The soil should be neatly levelled after careful preparation.



The joining of two turves should be opposite the centre of another as shown at *a* and *b* and *c*, *c*. Near the border or path the soil must be freed from stones and made very firm, shown at *d*; then the edge remains level and stones do not interfere with the annual edging and cutting. The finished lawn is shown at *e*, *e*. Fine, sifted, heavy loam is useful for filling up openings between turves. Heavy planks are useful for beating down the lawn at first.

PROPAGATING WINTER-FLOWERING CARNATIONS.

A few years ago amateur cultivators were content to begin the propagation of slips early in March, but they are, rightly, not content to do so now. The first flowers were not available from the March propagation early in the following autumn. But from December and January propagation blooms were open for the October and November shows, and the plants continued to bloom throughout the winter, producing a rich harvest in the spring. As with chrysanthemums so it is in the case of carnations strong artificial manure is neither necessary nor desirable. But I would use the heating apparatus where such is available to prevent the temperature falling below 35° in bad weather. There are two ways to propagate, namely, in boxes and in tiny pots. Where convenient use the pots, as there is no check to progress when the cuttings are rooted and moved from one receptacle to another. First, with regard to the boxes. These should be about 1oins. deep, any size, and covered with loose squares of glass in the absence of a propagating frame. First, again, place a thin layer of half-rotted tree leaves in the box or frame, then a layer of washed and dried sand. The best cuttings are those taken from midway up the stem; the base of each cutting should be slit upwards half an inch. Insert them 2ins. apart each way, water and close the frame. The glass should be dried twice daily. Unlike the chrysanthemums, a rather dry state of the sand proves harmful to carnations. When the cuttings are rooted the leaf-soil adheres to the roots and prevents a check when first potted.

FORCING STRAWBERRIES.

The first ripe strawberries are always highly appreciated. The owner of a greenhouse may have these ripe fruits at an early date if the plants are treated in the right way. It is right to start the new growth very gently and wrong to subject the plants to a strong heat at the first. Frost will not harm the crowns of the plants, but it will, when the thaw comes, crack the pots. If there is a heap of tree leaves available, they should be used to pack between the pots; others, a little later on, should be formed into a mild hotbed either in the open air or in a frame; for preference, in the latter. Plunge the first batch of strawberry plants in this hot-bed, burying the pots to their rims. In this bed allow the plants to remain about twenty days; the gentle heat will induce early root-action and this means strong growth from the crowns when the plants are placed in the greenhouse. Watering is not necessary, as there is sufficient moisture arising from the leaves at first. Before the plants are taken to the house place the pots on the surface of the leaf-bed for three or four days to avoid a big check to the roots. A shelf about 3ft. from the roof glass is a good one for the plants, but cold draughts should be guarded against. Water judiciously, never allow the soil to get very dry; turn the flower trusses to the sunny side of the shelf when sufficiently grown, syringe in fine weather to keep down red spider and feed with liquid manure when the fruits are formed. Bring on the plants in small batches.

GEORGE GARNER.

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BOOK REVIEWS

THE gardens of Europe, and of more recent date, those of the New World have formed the subject of several exhaustive treatises dealing in general with the cultivation of plants both indigenous and exotic in that particular part of the world, but those of South Africa, unless treated from a more scientific standpoint, have been comparatively little known or noticed until the present time, when an interesting volume in the shape of "The Gardens of South Africa," by Dorothea Fairbridge (A. and C. Black, Limited, 4, 5 and 6, Soho Square, London, W.1, price 10s. 6d.), has come to our hands. South African plants in past years were little known in this country, and it is only recently with the added stimulus of an excellent exhibit of native plants at the South African building at Wembley that the beauty and value of the indigenous flora of that great Union have been recognised. The book in question should do much to further and foster this newly awakened interest in plant wealth in these southern lands, as graphic descriptions are given of a few of the gardens existing in the Cape, Natal and the Transvaal, in addition to several useful chapters dealing with the native flora and its cultivation, which the beginner will find extremely serviceable in overcoming all the intricacies and pitfalls which beset his path. The volume is full of useful suggestions and hints, many the outcome of personal experience, and they are clearly set forth in simple language which will be readily understood by all. Lists of useful plants and a short monthly gardening calendar should be of great assistance to all those engaged in the pleasant pastime of gardening south of the Equator. The fore part of the book is more in the form of a story, treating lucidly yet instructively of the history of the rise of gardening in that country with the advent of the Dutch East India Company. It is to the pioneers of that Company that South Africa owes much of her exotic flora, especially those plants from the East which so brighten their gardens at the present day.

Numerous coloured illustrations appear throughout the book, and to our English eyes these may seem overdrawn, but very probably give a fairly accurate representation of the wealth of colour which is to be met with in these sunny climes.

The author has a graphic and easy style, indicating a thorough knowledge of her subject, although in parts the matter is somewhat sketchy, and it is a book which we should recommend to our readers in South Africa and to those in this country who devote any of their energies and time to the culture of South African plants. G. C. T.

IN these days of the great popularity of all sports, notably tennis and golf, and with the enormous amount of literature which is already devoted to these games and how to play them, it seems passing strange that no further practical manual has been compiled to aid the general public in carrying out an scheme of lawn making on their own account and also to teach and assist those who are already initiated into the art of greens and how to maintain them save that of "Lawns, Links and Sportsfields," by James Macdonald. That longfelt want (and how long it is we are in a position to judge by the numerous letters we receive from readers asking for advice in the remaking, etc., of a lawn), however, has now been filled by the excellent manual, "Lawns for Sports," by Reginald Beale (Simpkin, Marshall, Hamilton, Kent and Co., Limited, London, E.C.4, price 12s. 6d. net), which enters more fully into the subject than the aforementioned publication. Mr. Beale is well qualified to write such a book and give advice on all matters relating to general lawn management and the reader will not be disappointed, as the book is full of good, sound, practical advice, taken out of a vast store of knowledge gained from a personal experience over a considerable number of years as the manager of the Golf and Sports Department of Messrs. James Carter and Co. To all who are interested in the lawn, its formation and management and the general upkeep of golf courses, tennis courts, bowling greens and other sports grounds, the manual will prove invaluable. The advice is set forth in a clear and concise manner and in the simplest style. Although the title of the manual, is "Lawns for Sports," to the amateur, many chapters will be of the utmost service, such as producing turf from seed; turfing; weeds, a most necessary chapter, adequately treated; fertilisers and quantities to use, and purposes for which they should be employed; methods of dealing with pests, such as worms; drainage; and those four excellent chapters on mowing, rolling and the machines necessary, together with descriptions and prices. In short, it is a perfect practical treatise on the lawn in an exceedingly handy form and is one which we recommend to all our readers in the interests of beauty and economy in the upkeep of the lawn.

"Gardening in Sunny Lands," by Mrs. Philip Martineau. (Richard Cobden-Sanderson, 17, Thavies Inn, London; price 15s. net.) A book of great practical interest dealing with gardening in its many aspects in relation to the climatic conditions found in the Riviera, California and Australia. It is charmingly written by one who is an authority on the subject.

"The Four Gardens," by Handasyde. (G. T. Foulis and Co., Limited, 91, Great Russell Street, London.) The story of four gardens—the haunted, the old-fashioned, the poor man's and the rich man's. It is excellently written in a most natural style. The pictures drawn in the little book are very realistic and somewhat quaint and amusing. It is beautifully printed and the colour illustrations are good. It is a little book which any lover of the garden will enjoy.

BOURNEMOUTH HORTICULTURAL SOCIETY.

THE annual autumn exhibition was arranged to be held in the last week in October, but on account of the General Election taking place then, it was postponed to November 12th and 13th, and almost in every way it proved a success. The number of entries was large and competition keen.

In the open division, Mr. A. E. Usher, gardener to Sir R. Baker, Bt., Blandford, won three silver challenge cups for a display of chrysanthemums, six vases of blooms and four vases, respectively. He was also successful in the classes for collections of vegetables; collection of six distinct kinds of fruit, twelve dishes of apples and two bunches of black grapes. Mr. Lewis Smith, gardener to Captain M. Drummond, Cadland, Southampton, was also very successful in the classes for single dishes of apples. Mr. W. Weaver, gardener to Lieutenant-Colonel Tinker, Chewton Glen, Highcliffe, won the challenge cup for a collection of twelve distinct kinds of vegetables, and for three begonias in small pots. Mr. G. Garner, Delamere Lodge, Highcliffe, was first in the class for a decorated table of fruits, flowers and vegetables in keen competition. He won the silver challenge cup for fifteen chrysanthemum blooms on long stems in vases, staging Mrs. G. Drabble, W. Rigby and Mrs. J. Gibson, large and very fresh. The N.C.S. certificate of merit was also awarded to these blooms. He also won in the classes for nine blooms, for black grapes and salads. Captain Stebbing, Mr. E. J. Wilkins and Dr. Ramsay of Bournemouth were prominent prize winners in the single dish classes for apples and pears. Mr. R. Shave, Wilkford, Christchurch, won two silver challenge cups in the amateurs' division for a collection of vegetables and "points," respectively.

NON-COMPETITIVE EXHIBITS.

Large Gold Medal.—Messrs. Stuart Low and Co., Enfield (orchids and carnations).

Small Gold Medals.—Leonards, Bournemouth (floral designs), Toogood and Sons, Southampton (vegetables and chrysanthemums), Butler Bros., Bournemouth (floral designs).

Silver Medals.—Skelton and Kirby, Pirbright (rock plants and shrubs), Stacey and Staddon, Bournemouth (rockery), Hillier and Sons, Winchester (hardy shrubs), Grainger and Co., Bournemouth (bulbs and plants), Jeans and Trowbridge, Bournemouth (hardy shrubs), Ingram and Son, Parkstone (chrysanthemums and lilies).

Bronze Medals.—Messrs. G. Watts and Sons, Bournemouth (chrysanthemums), H. T. Sessons, Parkstone (roses), J. J. Kettle, Corfe Mullen (violets).

In Messrs. Stuart Low's collection, charmingly arranged, there were splendidly grown carnations and orchids which made a fine display. G. G.

LIST OF FRUITS SUITABLE FOR YORKSHIRE.

Apples, Cooking.—Early Victoria, Potts' Seedling, Cellini, Lord Derby, Lane's Prince Albert and Bramley's Seedling.

Apples, Dessert.—Worcester Pearmain, Jas. Grieve, Allington Pippin, Cox's Orange Pippin (in warm districts only), Chas. Ross and Newton Wonder.

Pears, Cooking.—Catillac.

Pears, Dessert.—Hessle (for standards), Fondante d'Automne, Fertility (for pollen-bearing), Pitmaston Duchess, Emile d'Heyst and Doyenne du Cornice.

Damsons.—Merryweather.

Plums, Cooking.—Early Prolific, Czar, Monarch and Victoria.

Plums, Dessert.—Early Transparent Gage, Kirke's and Coe's Golden Drop.

Red Currants.—Red La Versailles, Red Dutch and Comet.

White Currants.—White La Versailles and White Dutch.

Black Currants.—Seabrook's Black and Boskoop Giant.

Gooseberries.—Whinham's Industry, Red Warrington, Crown Bob, Green Ocean and Whitesmith.

Raspberries.—Pyne's Royal, The Devon and Balmforth's Seedling.

CATALOGUES RECEIVED.

Messrs. Morse Brothers, Melton, Woodbridge, Suffolk.—Roses.

The Four Oaks Spraying Machine Co., Sutton Coldfield, Birmingham.—Spraying and Lime-Washing Machines.

Messrs. James Vert and Sons, Saffron Walden, Essex.—Hollyhocks in all Varieties and Shades.

ANSWER TO CORRESPONDENT

Plants for Australia.—(E. M. C.)—The most suitable case for your requirements is a Wardian Case, if it can be obtained. It is the ideal way to send growing plants long distances. Bottom should be filled with fibre and the roots of the plants rammed in as hard as possible to keep them from shifting. Ventilation is supplied by two holes at the top of the case. A batten should be nailed down between each row on top of the fibre.

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NOTES FROM CONTRIBUTORS

NANDINA DOMESTICA.

IN several parts of Gloucestershire this plant has proved hardy for a number of years, and this fact should encourage others in more favoured localities to try it. There was a beautiful plant in the garden of the late Canon Ellacombe's, Bitton, Gloucestershire, and Miss Jekyll in her book, "Wood and Garden," states that it struck her as one of the most beautiful growing things she had ever seen, the beauty being mostly in the form and colouring of the leaves. A short time ago it was in flower. Individually they are small and white with yellow anthers, but the glory of the plant is its brightly coloured foliage. In the full blaze of the sun it is almost scarlet, especially the younger leaves, which are well displayed on bamboo-like stems. N. domestica is often grown as a greenhouse plant, but in a pot its full beauty is never seen, and where any starved specimens still linger in the corner of a greenhouse just plant them out in a sheltered spot of the garden. It is a native of China and Japan, from whence it was introduced in 1804. In China it is known as the sacred bamboo, but it really belongs to the Natural Order Berberidaceæ. This plant is one that ought not to be planted in great quantity in every part of the country, but it will be quite safe in many counties.—T. W. B.

POLYGONUM POLYSTACHYUM.

MANY of the knotweeds are quite unsuited for the garden and must perforce find their way to the outlying portions of the grounds, the wild garden, and by streams and lakes, where there is ample room for their free development and where their beauty may be seen and enjoyed.

The above Himalayan plant, however, is an exception to this rule and may with advantage be introduced into borders containing other hardy flowers, as, unlike many of this family, it is easily kept within bounds.

Growing about 4ft. in height, this charming plant commences to bloom early in September, when large loose plume-like sprays of pale pink and white flowers appear in profusion, having the scent of honey and retaining their beauty over many weeks. Groups of it look remarkably well in the foreground of trees and shrubs, especially in full sunshine, and even when not in bloom are attractive by reason of their red-veined, olive green leaves.—E. MARKHAM.

TRAINED FRUIT TREES FOR SMALL GARDENS.

IT is a comparatively easy matter to arrange the space to be allotted to flowers and vegetables in a garden. When it is desired to have a supply of home-grown fruit in addition, it is a matter of consideration how best to use the space available, which is often more or less limited. Trees and bushes in the form in which they are planted in orchards are not always the best suited for garden planting. It is possible to obtain a supply of fruit with very little loss of space. In the case of apples, pears and plums, the trees will need to be in the form of espaliers or cordons, and in order that as little space as possible may be used, they should be planted as path or lawn borders. Bush fruits also may be grown in the two forms suggested for apples and pears, and although care and time will be necessary to train them to these forms, a considerable amount of space will be saved if this system is adopted. Bush fruits may also be trained as standards, and currants and gooseberries so trained possess a big advantage as regards space saving over the more general form in which they are grown. If planted between strawberry rows or other ground crops, they will take up no extra land, but if grown as bushes and planted in the same position it will be found that after a year or two one or more rows of strawberries will have to be dug up to make room for the spreading bushes.

Bushes grown as standards will need staking, but apart from this they are no more trouble than those grown in the more general form, and the fruit is certainly much more easily picked when it is on branches 4ft. from the ground than when it is necessary to stoop the whole time that the fruit is being gathered. Just as roses are budded on to briars, so it is often the practice to bud a drooping variety of gooseberry on to an upright variety, the result being somewhat similar to the umbrella rose. This method has certain advantages, but it is not as useful where space is valuable as is the simpler method of training cuttings of upright-growing varietise to the standard form.

Gooseberry and currant cuttings to be trained as standards are prepared in the usual way, with the exception that they may be much longer than cuttings intended to be grown to the bush form. When they have become well rooted they should be encouraged to make growth upwards until they have reached the desired height. The upward-growing bud should then be nipped off to encourage the young trees to send branches outwards to form a head, Any branches beginning to grow from lower down the stem should always be stopped as soon as they start into growth.

Wall-trained fruits are also useful in small gardens, and trees trained in this manner occupy no extra space. Unfortunately, however, suitable walls are not always available to grow enough fruit for household purposes. It is in gardens in which little wall space is available that tree and bush fruits trained as suggested will be found to furnish a welcome addition to the fruit stores, with a minimum allowance of garden room —T. W. MORTON.

CEPHALARIA TARTARICA.

THE cephalarias are tall, scabiosa-like flowers of commanding stature, as a rule, and generally well adapted for the back or near the rear of the border. They have flowers of various shades of pale yellow, with the general appearance of the scabiouses, which are so well known, either in the form of the annual scabious or the popular S. caucasica and its varieties. The general habit is quite good with their ornamental foliage and their flowers, which are not held erect, but face one, thus adding to their effectiveness in a border. They are, generally, tall plants with sturdy stems and rarely require support unless in very exposed positions. Their only failing is a distinct tendency to run at the roots, but this is not too pronounced, and they are easily kept in bounds. The cephalarias are perfectly hardy and grow in ordinary soil. Most of the few species in cultivation are about 5ft. or more in height. Propagation is effected by division in spring or autumn or by seeds sown under glass in spring, in the ordinary way for hardy perennials. Of the moderate number of species known to botanists, only a few are in commerce; but none of the other cephalarias surpasses or even equals that known as C. tartarica. Many years ago I had an opportunity of studying a collection of these plants in a botanic garden—the only real collection I have ever seen grown for comparison, and among the numerous species none there equalled C tartarica, a plant of which I then acquired, through the courtesy of the Curator, and which I have not been without since that time. It was the boldest, the largest-flowered and the most effective of all, and I have had opportunities since that of seeing various cephalarias in nurseries and elsewhere.—S. ARNOTT.

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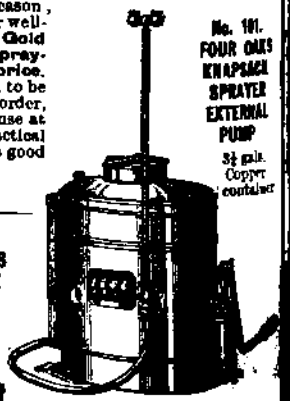

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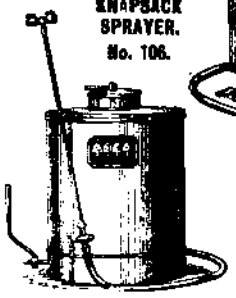

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THE GARDEN

VOL. LXXXVIII.—No. 2768. DECEMBER 6, 1924

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RHODODENDRON NOTES

I HAVE just returned from Scotland, where I have been examining the progress made by my rhododendrons. In practically every case the growth made this year has been above the normal; even such tricky doers as R. hæmalium, hæmatodes and dichroanthum have added 4–6ins. to their stature, which for the dry and rather unfavourable east coast is remarkable. I have a number of the neriiflorum-sanguineum-hæmatodes group, and the only member which refuses to move is R. citriniflorum. It is planted in precisely the same conditions as others of the series, but there it sulks and, I am afraid, will ultimately disappear. I have a gully which appears to be particularly suited for Alpine rhododendrons, and yet here are two inexplicable failures, one R. calostrotum, the other R. scintillans. They are both perfectly hardy and are flourishing in many parts of the country, and yet with me they are steadily declining. I have one firm rule and that is never to coddle a rhododendron. I have had a fair amount of experience with them and give them every chance. These two will have one more year's trial: if they do, well and good; if not, out they go to make room for something else.

There has rarely been such a promise of flower in some parts of the country as there is this autumn. In the south and west many plants have been deceived by the mildness of the autumn and have tried to break into flower. I have seen R. Thomsoni with half-expanded flowers within twenty miles of London. Luckily, I have escaped this premature forcing so far, and the plants appear to have gone to rest definitely for the winter. From Cornwall and the South I hear a very different tale. Apparently, in those favoured climates rhododendron buds have been bursting right and left, a bad lookout for the spring.

A curious fact, noted all over the country this year, is that rhododendrons are to a great extent losing all their old leaves, thus making the plant rather ragged and open in appearance. The reason for this phenomenon is still obscure, but a possible explanation seems to me to be that the growth this year has been exceptionally vigorous, so much so that the root system has been unable to supply the whole of the plant, with the consequent starvation of the weakest members, namely the old leaves. This possibly accounts for another strange fact, that rhododendrons apparently in the best of health will either die outright or will shed a limb or portion of the plant. The more luxuriant a rhododendron is, the more liable it is to this sudden loss: it is curious that starved or unhealthy rhododendrons will never die with the same suddenness. It has been pointed out to me that when a limb dies off it either consists of or is topped by a second growth, but whether the second growth is the cause of death or the effect of weakness is not known.

Some rhododendrons, particularly of the Fortunei series, are liable to swelling of the stem, with consequent bark-splitting and sometimes death. It will be noticed that the stem below the swelling is constricted and tight. Little is known of the circulation system of rhododendrons, but a possible reason for this swelling might be that in a plant of strong growth the circulation system in the main stem is not large enough to carry the return flow of sugar-filled sap. The cells above the constriction which store this sugar become congested, with consequent swelling and splitting of the bark. The only cure is to cut the bark longitudinally below the swelling, but this should be done in July or August.

It is as well to point out again the value of examining the ball of rhododendrons which have been lifted. If they come from a heavy soil and are planted in a light soil without having their roots freed of some of the clay or heavy loam, progress for some years will be slow. The roots are so clogged by the heavy soil that they have little chance of expansion. It must be remembered that clay will never mix with loam and that the clay will be found on the roots many years hence. This does not mean that the roots must be cleaned, because they are so fine that this is impossible without serious damage, but the ends can be freed to some extent and carefully teased out. This applies to all sorts and conditions of rhododendrons.

A correspondent has written to ask when is the best time to collect the seeds of rhododendrons. The capsules should always be left on the bush until they have begun to split at the apex. At home it is easy to wait for the exact moment, which is usually after heavy frost, but in the wilds it is often impossible to catch them at the right moment, and the capsules have to be gathered before they are completely ripe. They are then either allowed to open by exposure or are artifically ripened in front of the fire. This is a mistake and may account for the poor germination of an occasional packet of recently introduced seed. E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

THE CLASSIFICATION OF ROSES, by H. R. Darlington.
THE SOUTHERN BEECHES, by W. J. Bean.
GARDEN DESIGN, by Percy S. Cane.
MADRE DE LORO, by Dr. R. Lloyd Praeger.

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AUTUMN COLOUR in the GARDEN

BY MARK FENWICK.

NOW that the autumn garden is over and most of the leaves have fallen, it is worth while looking back and making a note of those trees and shrubs which have given the best display of autumn colour this year.

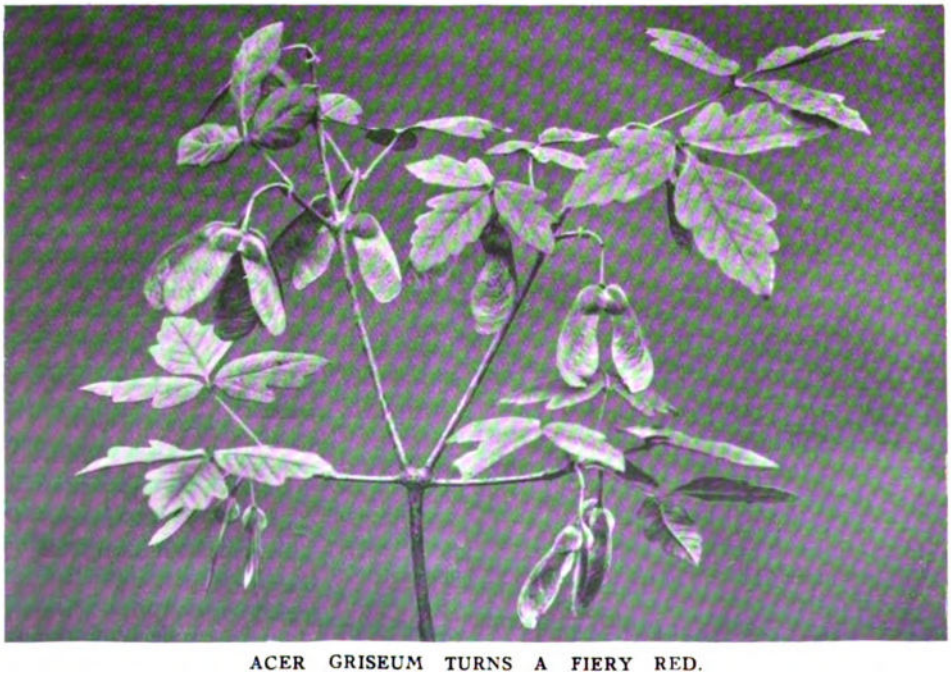
It may be said at once that, on the whole, it has been a good year, certainly much better than we had any right to expect after such a wretchedly cold and wet summer. It is nearly always the case that some shrubs fail to colour for some reason or another which no one seems quite to understand, and this year it has been the berberis family which have been very disappointing, even B. Thunbergii, which invariably turns scarlet here as early as the end of August or beginning of September, was quite poor. Almost the only one to colour was B. aggregata, though B. Polyantha is now making an eleventh hour attempt to do its duty, and is succeeding fairly well. BB. virescens, dictyophylla and yunnanense, which can generally be relied on to colour well, have been very poor, but on the other hand some of the family, such as Prattii, Wilsonæ and Stapfiana, have produced most magnificent crops of fruit.

Cercidiphyllum japonicum is always a first shrub to turn colour here and in my opinion is *facile princeps*, as no other shrub can produce such dazzling effects of crimson, scarlet, orange, pale yellow, pale pink, purple and green at the same time. This year it was extra good and lasted from the first week of September to the middle of October.

Acer tataricum Ginnala is always early and good, so is Nyssa aquatica, though the leaves of the latter fall all too soon. The Japanese maples were rather disappointing on the whole, although the palmatifidum divisum forms gave a brilliant pyrotechnic display for four or five days, and then shed every leaf, and the only other two varieties which have been good here were Polymorphum atropurpureum and one called by the Japanese name of Osakasuki. This is a magnificent variety with green and rather uninteresting leaves in the summer, but which never fail to turn the most brilliant scarlet in late autumn, generally about October 18th.

I think Vaccinium corymbosum, Enkianthus japonicus and Euonymus alatus were all extra good this year; the last-named turns a kind of Rose du Barri pink, quite distinct from any other coloured shrub in the garden and is certainly one of the very best; moreover, it has the advantage of holding its leaves longer than anything else and even now (November 15th), is still almost in full leaf and looks very well with pampas grass and Cotoneaster horizontalis against a background of yew and holly. Euonymus latifolius atropurpureus is also a most reliable autumn colourer. It becomes crimson about the beginning of September and retains its leaves till the middle of November. Of the Acers, dasycarpum and lætum are, as usual, good, but A. rubrum was only moderate. My plants of nikoense, griseum and rufinerve are too small to colour really well, but the variety rufinerve albo-limbatum turned a brilliant colour though only a small plant.

A RELIABLE AUTUMN COLOURER E. LATIFOLIUS ATROPURPUREUS.



ACER GRISEUM TURNS A FIERY RED.

When at Batsford Park a few weeks ago, I was lucky enough to catch at its very best a tree of Acer nikoense, which had been planted by the late Lord Redesdale about twenty-five years ago, and the shrimp-pink leaves seen against a blue sky made one of the most entrancing pictures I have ever seen. To return to my garden, Parrotia persica, so fine in some places with its scarlet and yellow leaves has never done itself justice here, but I have hopes of a young plant sent me two years ago by Sir George Holford from Westonbirt, which is growing in full sun and which made a gallant attempt to colour this year and may do better next.

Liquidambar has always been a failure here, but some of my trees were rather better than usual and are still holding their leaves, as are Quercus palustris and Q. marylandica and

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Waterer's Scarlet Oak, though these all lost their brilliancy after 9 degrees of frost.

Rhus Cotinus has not coloured at all, but one of my purple-leaved forms has turned a very pretty red. R. cotinoides also failed, but R. typhina laciniata was brilliant, so was R. sinica, a little known but very pretty and graceful shrub which carries scarlet as well as green leaves at the same time.

Azalea Vaseyi was good and the common A. pontica better than I have ever seen it. Fothergilla major was almost the only shrub to turn a good clear yellow in early October, as the Gingko and tulip trees do not colour till later in the month; the latter, by the by, never turns a really good colour and is always rather rusty. F. monticola does not appear to be well known in gardens, it is of dwarf habit and its leaves turn red and yellow, and is altogether a desirable plant for lime-free soils.

Photinia villosa is quite one of the best colourers and is very largely used in conjunction with Amelanchier canadensis and Pyrus discolor for autumn effect at Sheffield Park where Mr. Soames has a splendid collection of autumn-colouring trees and shrubs. It was here I saw a beautifully coloured specimen of the rare Disanthus cercidifolius, which as far as I know is unobtainable anywhere, as I have tried all the English and the principal Continental nurserymen, and I am now trying Japan, of which country it is a native. There is a plant at Kew, but I believe it does not colour. A tree which had turned a fine, clear yellow at Sheffield Park was Davidia involucrata which I did not know was any good in autumn. My form of amelanchier which came here under the name of A. Botryapium has much larger leaves than the Sheffield Park tree, and they turn scarlet and orange.

Ribes aureum coloured well here, but R. americanum, of which Messrs. Cheal showed some finely coloured branches at one of the autumn shows, was quite a failure. Other shrubs which coloured well were Gaylussacia dumosa, Rhodora canadensis, Sorbaria arborea, Pyrus Sorbus japonicus, Stachyurus Willmottiæ, Pyrus arbutifolia, Aronia atropurpureum, Prunus pumila and P. Sargenti, Viburnum tomentosum Mariesii, V. plicatum and V. Opulus, Rosa nitida and R. lucida and Cratægus coccifera. C. prunifolia, though generally a fine colour, failed this year.

My cornus trees are only small but C. Kousa coloured quite well and CC. florida and Nuttallii a little.

The vines, except the claret vine (Vitis purpurea) were poor, Andromeda arborea (oxydendron), fair, and last, but not least, Eucryphia pinnatifida is now a glorious sheet of orange and scarlet. This about finishes my list (and high time, too, I think I hear the Editor say), but Stephanandra Tanakæ and Celastrus articulatus have still time to turn yellow if severe frost keeps away.

I am aware than many owners of good gardens take very little interest in autumn colour and say it presages the fall of the leaf and the approach of winter, but surely no one who has seen Westonbirt or Sheffield Park about the third week in October could fail to be struck by the lovely picture displayed there. For my part I get as much pleasure out of my October garden as from any month of the year, because the tints vary every day and one hardly knows what fresh picture the next day will bring forth, and if these pictures last till the second or third week in November, as they have this year, it must surely be worth while growing some of the shrubs I have enumerated.

VERONICAS

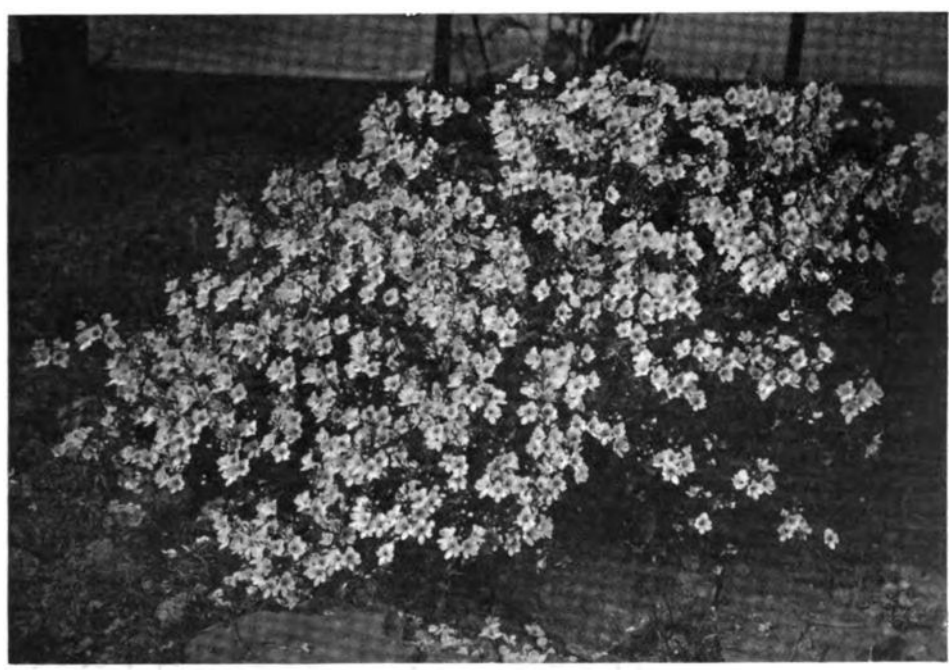
VERONICAS are among the most useful and most beautiful of flowering shrubs and plants. The genus veronica is an extensive one, consisting of over sixty varieties to my knowledge, and there is a good number with which I am not yet acquainted.

The various species differ considerably, from tiny gems for the rock garden to the handsome shrubby species which, according to their variety, are useful for greenhouse decoration, herbaceous borders, shrubberies, for planting in woodlands as single specimens in bush form or as standards. With such a huge and varied list for selection, there is no trouble to suit the requirements of the owner of a large or small garden.

Their value in gardens situated near the sea is well known, as they readily adapt themselves to the strong sea air and are not distressed by the rough winds. They are not particular regarding soil and seem to thrive in anything from sand to chalk.

In exposed districts some of the shrubby species are not quite hardy, but in the South and West of England they need practically no protection. Sometimes a very severe spell of cold weather will kill the existing growth, but the plants will come away freely in the following spring.

The propagation of veronicas is quite simple. The herbaceous varieties can easily be divided and replanted; this should be done in early autumn. Cuttings are the best means of increasing the shrubby varieties. These should be made from the young growth in September or October and rooted in a cold frame. Afterwards they should be potted into 3in. pots and grown on and kept as hardy as possible with covering at hand to protect them in very severe weather. It is best to keep the plants in pots through the winter and plant them out in the spring; they will then get well established before the next winter. This treatment only applies to the shrubby varieties, which are rather tender in the young state.



ONE OF THE SUBSHRUBBY SPECIES, VERONICA LYALLII, WITH PALE MAUVE FLOWERS.

In the following list I have selected some of the best varieties worth growing and a brief description of each. The majority of veronicas flower from June till August, and some varieties, according to atmospheric conditions, will continue to flower well into November.

VERONICA ALLIONII.—A rare species for the rock garden with flower-spikes of sapphire blue; 3 ins. high.

V. AMARANTH.—This is a handsome plant of the hybrid shrubby variety with fine crimson spikes of flowers. A good plant for the herbaceous or shrubbery border or as a specimen trained as a standard.

V. AUTUMN GLORY.—One of the finest shrubby veronicas for free flowering; produces small spikes of blue flowers which continue to appear from summer till late autumn. A fine plant for

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massing on a large rockery; height about 2ft.

V. ANDERSONI.—Another shrubby variety with blue flowers which are paler toward the base of the spike.

V. ANDERSONI VARIEGATA.—A variegated form of the above—fine for greenhouse decoration—makes a fine standard.

V. BALFOURIANA.—Fine for the rockery; only 3ins. high with bright blue flowers.

V. BIDWILLII.—The true form is rare, quite a miniature of tiny leaves and white flowers. The false V. Bidwillii is a small sub-shrubby variety with white flowers. There is also a similar form called V. Bidwillii Lilacina.

V. BLUE GEM is a fine shrub growing 6ft. high with fine blue flowers. It is useful for making a hedge.

V. BUXIFOLIA.—The box-leaved veronica, very uniform in shape; extremely useful for bedding out. Produces white flowers, but not very freely. It is quite hardy.

V. COOKIANA.—A beautiful shrub with blue and white flowers on the same spike. It is very effective as a specimen; height from 3ft. to 4ft.

V. CUPRESSOIDES.—Resembles a dwarf cypress tree and gives off a smell like pencil cedar. It is rather rare, but very interesting, with purple flowers.

V. EDANTANTE.—A very free-flowering shrub with carmine flowers; height about 4ft.

V. GAUNTLETTE.—A grand shrub with flower-spikes of rich salmon pink, 6ins. long.

V. GENTIANOIDES.—A herbaceous variety; fine for the border, with spikes of pale blue flowers. Produced on stems 18ins. high. There is a variegated form,

V. GENTIANOIDES VARIEGATA, which makes an excellent border plant.

V. GUTHRIANA.—A small-leaved sub-shrubby variety, best grown with effect in the crevices of rocks or as a wall plant. Pale blue flowers.

V. HECTORI is quite a distinct variety; the foliage has a cord-like appearance. It looks very effective hanging over a rock; it is also quite hardy.

V. HULKEANA.—A gem for the cool greenhouse, where it will flower early in the year. The lilac flowers are borne on graceful stems which look very effective grouped with some graceful foliage, plants or ferns. It is also a fine addition to the alpine house. In some favoured districts it will thrive in the open, but it is not very reliable.

V. INCANA is very useful for the front of the herbaceous border or as a rock plant. The flower-spikes are of a very pleasing blue, produced from a mass of grey foliage. It is a very distinctive plant and much admired when in flower.

V. GLOIRE DE LORRAINE.—A shrubby species with lavender and white flowers on the same spike.

V. KOTSCHYANA.—A dwarf shrub with a loose, flopping habit with pink flowers;

THE STATELY SPIRES OF VERONICA VIRGINICA.

only 3ins. high. Excellent for the rockery.

V. LAVAUDIANA is a very rare shrub and very beautiful. The leaves are rather fleshy, with a red margin and short spikes of pink wax-like flowers. A grand addition for the rockery in a prominent position with shelter from the cold winds.

V. LONGIFOLIA is a herbaceous variety, very effective used in a stream garden with its upright spikes of blue flowers. It can also be used as a border plant, especially V. longifolia alba and rosea.

V. LYALLII.—A sub-shrubby species rather tender in most districts. A good plant for the alpine house. If grown in the open it is advisable to have plants in a cold frame through the winter in case those planted out are killed by the frost; they can then be replaced in the spring.

V. MME. DELEAUX.—A shrubby species with bright red flowers. Can be grown as a standard.

V. ORNAMENT is rather a distinct shrub with round leaves and pretty lavender flowers; about 2ft. high.

V. PECTINATA ROSEA.—A hardy variety for the rockery with grey woolly foliage and bright pink flowers. It makes an excellent wall plant.

V. PIMELIOIDES.—A dwarf shrub with purple flowers and glaucous foliage.

V. PINGUIFOLIA is very similar to the above in foliage, but it has white flowers and more erect growth. Both varieties are very ornamental as foliage plants in the rockery.

V. PURPLE QUEEN is a fine shrub for massing, as the large purple flower-spikes look very effective in a group.

V. REINE DE BLANCHE.—A white-flowering shrubby variety; very free flowering.

V. REPENS is a useful little plant for planting in paved walks or as a wall plant. It is very fast growing and smothers itself with white flowers, shaded with lilac.

V. ROTUNDIFOLIA forms a very thick bush, about 3ft. high, with fine blue flowers.

V. SALICIFOLIA.—The willow-leaved veronica makes a fine wall plant and is quite hardy as such. It is also valuable as a late-flowering shrub. It will flower well into November. The flowers are white with a blue tint.

V. SAXATILIS is not often seen in gardens, but it is a very pretty plant for the rockery, rather on the shrubby side, with a trailing habit, with rich blue flowers.

V. SPICATA, another herbaceous variety with blue flowers; very similar in growth to V. longifolia.

V. TRAVERSII is a handsome shrub with box-leaved foliage and pale lavender flowers. It forms a fine specimen plant and will grow anywhere, even under trees. It attains a height of 5ft. and is hardy.

V. VIRGINICA.—One of the tallest herbaceous varieties. It will with good treatment attain a height of 4ft. with bright blue flowers. An excellent plant for the border.

V. VEITCHIANA is a shrubby species with large handsome foliage and royal blue flowers; height 2ft. to 3ft. Rather late flowering; will make a good standard.

R. C. JOLLIFFE.

FASHIONS IN GARDENING

IT is difficult to speak of fashions without rousing some feeling of opposition, for the word calls up the idea of following passively, even unwillingly, someone else's lead. Yet it is really rather doubtful whether people accept the prevailing fashion quite as passively as they suppose. The fashion makers, who should know, insist that the public only accept what they really want, though they may not know what they want until they see it. This point of view, whether it be right or wrong, at least gives an interest to any striking change of fashion, and may even provide a self-satisfactory excuse for following it should one be needed. On the garden, more than elsewhere, it must be difficult to impose a fashion from without, for sooner or later the gardener's real preferences make themselves felt in that struggle for existence of which every garden is the theatre, and schemes which do not quite coincide with the owner's personal taste are gradually, perhaps unconsciously, modified. If we look at garden fashions from this angle it seems worth trying to discover the factors that lie behind the various changes of taste that occur from time to time. It will seem significant,

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for example, that the rise of the informal, or natural, garden and the revolt against carpet bedding coincided with a growing tendency to admire the wilder kind of scenery, a tendency that was beginning to drive people farther and farther afield on their holidays, and it will be noticed that this coincided with the spread of urban conditions of life and with the drift of the population towards the towns.

With the informal garden came the rock garden, which soon acquired so strong an independent life and popularity that it may be taken as the most marked development of the general movement, just as the attraction of the high Alps is the most extreme reaction against the town. The rock garden, in its most austere form, has perhaps a special attraction for us because of its contrast with the lush exuberance of much of the English countryside. This contrast has led, quite reasonably, to adverse criticism of the rock garden as a thing inevitably incongruous with our landscape, yet the contrast seems to be part of its *raison d'être*, seeing that we naturally desire what we feel to be lacking in our surroundings. That this last motive counts for something seemed to be borne out by a little garden on a rock promontory in Dalmatia, where a keen gardener had removed at great expense a natural rock garden planted with cistus, Convolvulus Cneorum, Putoria Calabrica, Orchis pallens and other treasures of that coast in order to replace it with geometrical beds of geraniums and lobelia. And it seemed a very reasonable thing for him to do, seeing that he was surrounded by several hundred square miles of rock garden and he, naturally, wanted something different—as different as possible. His great desire, he said, was to possess a bed of sweet-scented violets, and the story of his solicitude and inevitable failure on that sun-baked rock would not have seemed strange to any gardener who had tried to reconcile, let us say, Calochortus or Oncocyclus iris with the English climate.

It is interesting to find in a late development of rock gardening that the almost hopeless attempt to bring the high alpines into harmony with the landscape has been frankly abandoned by growing them in stone sinks and troughs, so that each one with its square foot or so of alpine lawn or flowered scree becomes a tiny excerpt of mountain scenery rather than an imitation of it. This way of gardening, and the miniature rock gardens in general, may be looked upon as an attempt to bring the wild and natural element in gardening within the limitations of space and income that circumscribe so many gardens of the post-war period. These limitations may also account for the revived interest in the dwarf conifers, which had a short vogue about the middle of last century, and are now being used not only in the rock garden but also as specimen trees in the small grass plot and even for making a miniature pinetum. For the same reason dwarf shrubs, such as Osmanthus Delavayi, Cydonia Maulei, Buddleia Nanhœnsis, etc., are being more and more appreciated.

Perhaps the smallness of many modern gardens accounts for the return of certain old formal fashions, the knot garden and the paved and Dutch garden, since their full effect can be obtained in a small space; but there must be other reasons as well, for many of the old-fashioned florists' flowers have also returned to a popularity that is quite evidently independent.

To some people the old quilled daisies, flamed tulips and striped roses may not seem to come quite within the category of flowers, any more than do the tight little Victorian nosegays whose vogue immediately preceded them, yet many of us admit their charm, though, it may be, a little self-excusingly. Perhaps their artificiality and their association with the past suggest an aloofness from reality and its conflicts that may appeal to something in the mood of the times. These old florists' flowers (and we may add to the list the double primroses, gold-leaved polyanthus and double wallflowers) do not belong to the Victorian era, whose fashions, a little faded and sentimentalised, have lately re-emerged, for tropical flowers against a background of sombre shrubbery were more typical of Victorian gardening. They seem to belong rather to the time of Parkinson and his "Paradisus," a period, as one imagines it, of flamboyant vigour and individuality.

Most of our open admiration goes out nowadays to the single flowers, and especially to the wild species, with their balance of design and their perfect adaptation to the conditions that begot them, yet for all that an edging of double daisies and scallop shells has, somehow, a certain charm and fascination.

F. A. HAMPTON.

THE CHARM OF GARDENS

EVERYONE recognises the pleasures that arise from gardens. And not pleasures merely. Gardens give mental and physical relaxation. Away from the public gaze the garden yields a peace which is unknown amid the busy haunts of men. It is secluded, enclosed, fenced in. The word itself is suggestive of tranquillity and retirement, It is "a temple of Nature, where the goddess is enshrined, and where a devoted worshipper seeks to do her honour by delicately imagined devices." Nature cares not for novelty: she loves the old ways. She never assumes that she is not. Vulgarity is unknown to her. Disliking artificiality, she endeavours to remedy mistakes, and grows in her own wild and winsome ways. She frequently avenges herself on man's desire for the abnormal by not yielding her best, and though she has the power to adapt herself to her environment, the struggle is sometimes long and tedious. Foreign methods have from time to time influenced the character of our English gardens, but, generally speaking, the national traditions have been upheld, and though artificial developments form special features of the gardener's art, we still recognise the claims of "the old red daisies, the primroses, the polyanthuses, the simpler tulips and crown imperials that had their only homes in cottage gardens." Nowhere are beauty and utility so charmingly combined as in a cottage garden. Nine months out of the twelve you may have flowers, and some kind of edibles may be obtained during the greater part of the year. About such a garden there is nothing pretentious; there is no affectation. It is characterised by simplicity, which is the offspring of the highest taste and a prime element in pure beauty. There are no patterns; the form and colour are there, and both blend harmoniously, for Nature is a good colourist, and her sense of form is highly developed. Nor is fragrance wanting —"the fragrance of eternity," as Oliver Wendell Holmes puts it. The back garden may indeed be an avenue of regions transfigured by imagination to a veritable fairyland. Thus scent and form and colour gratify the senses; and, at times, when one would least expect it, there is a delightful pleasurable feeling as the gentle showers fall like "a patter of voices, quick, eager, multitudinous, full of hopes and projects."

In modern gardens we endeavour to obtain what Lord Bacon suggested in *his* day—"gardens for all the months of the year, in which, severally, things of beauty may be then in season." He enumerates the various plants that, in his opinion, should be cultivated in succession, and remarks: "thus, if you will, you may have the golden age again, and a Spring all the year long." And he proceeds to expatiate on "the breath of flowers," which, he says, "is far sweeter in the air than in the hand." He cares little for the ordinary rose, in which he finds "nothing of sweetness." He goes to the violet and musk rose to yield the finest perfume, and then enumerates a host of those old-fashioned flowers of the herbaceous type that, happily, are now prized for their simplicity and grace.

We do not care to follow him when he describes "the ordering of the ground," beyond this, that he divides his garden—be it remembered its size is some thirty acres —into three parts: "a green in the entrance; a heath and desert in the going forth; and the main garden in the midst," this "main garden" being the largest. His reason for this arrangement is obvious, his intention being to provide shelter alike in the heat of summer and a moderate temperature during the winter months.

We have come to recognise that a garden should have some affinity to the field whence it comes. It has gone through many transformations, but amid all changes it still possesses the homely flowers of past days. A garden is, indeed, "a filter to filter the grossness out of us." And may we not add that it reminds us of the Source of all life and teaches us patience and hope.

J. C. WRIGHT.

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SOME INTERESTING PLANTS

HYBRID ARGEMONES.

TOO few gardeners know of argemones. Although several species exist that are well worth cultivating, including A. mexicana, deep yellow; ochroleuca, pale yellow; grandiflora, white; platyceras, white; platyceras rosea, reddish; etc., it is particularly the hybrid forms, a comparatively new strain, that are worthy of attention.

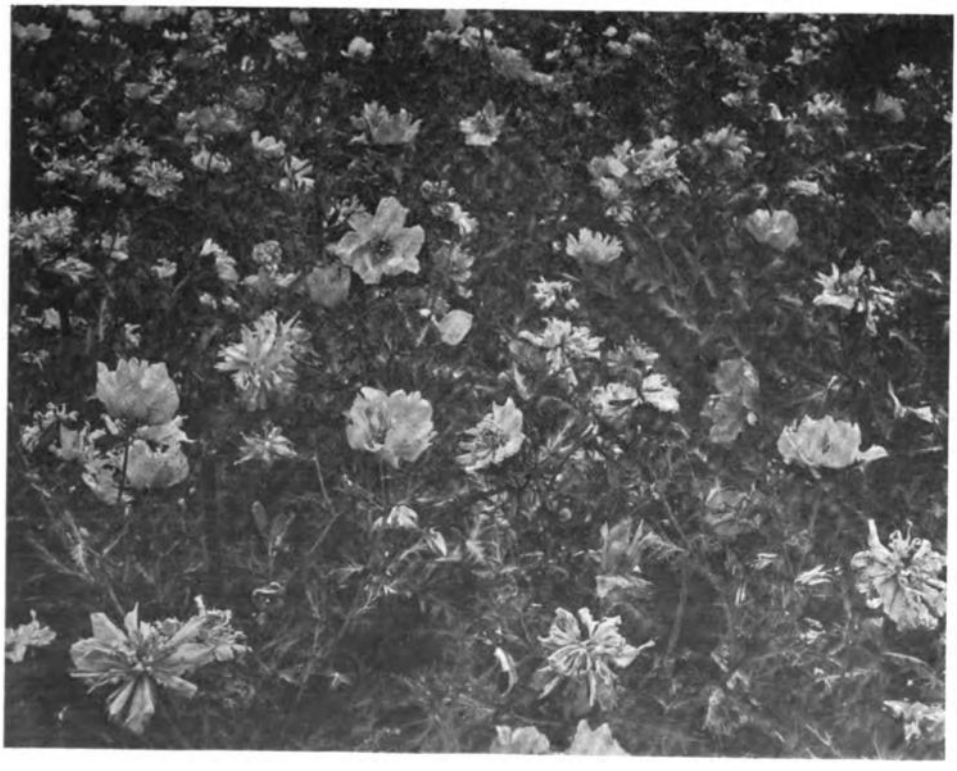
The origin of these hybrid argemones is curious. Twelve or fifteen years ago, while studying the laws of heredity for purely scientific purposes, Messrs. Vilmorin and Meunissier of Paris crossed the yellow single A. mexicana with the equally single, white A. platyceras. The first generation gave plants of a uniform yellowish tint. In the second came, besides whites and yellows and intermediate forms, a number of other shades and, what was most unexpected, several double flowers. In the generations that followed these double and differently coloured flowers, through selection, became more and more numerous, so that now strains exist that are perfectly double and range in colour from white and white shaded pink to pale yellow, deep yellow and yellow tinted red. All these plants are of striking beauty and, being of comparatively easy culture, are worthy of being grown in our gardens.

The argemones are members of the Papaveraceæ. They are perennial in warm countries but must be treated as annuals in our northern climate. Most of them are natives of tropical America. The best way to grow them in a warm garden is to sow them directly on the spot they are to occupy in deep, rich ground and very open situation, late in the season, that is, in May, when the soil has become warm. In cold gardens or in wet seasons it is better to sow them in pans or pots at the end of April in a house or frame and to transplant the seedlings, while very small, singly into small thumb pots. The transplanting in a very small stage is important, for the plants resent disturbing at the roots, and stand this best while in a very young condition. The young plants are then kept in a frame with plenty of sun and ventilation till big enough to plant in their permanent quarters. At that time it is very important again not to disturb the roots, a comparatively easy task with plants established in pots. Once the plants are fully established they do not give the least trouble and grow luxuriantly to a height of 2ft. to 2½ft., flowering abundantly from June till the frosts come. They should be planted 1ft. to 1½ft. apart. When the end of the season approaches the flowers of the double strains have a tendency to become single. The foliage of argemones is of a beautiful glaucous tint, but having the disadvantage of being prickly, the plant can be of little use for indoor decoration.

They are best kept, as a rule, on the dry side, especially in the young state, although during the hot season copious watering always benefits them.

Other beautiful hybrids of argemone have been obtained at times from crosses between other types; for instance, A. grandiflora × platyceras rosea, but unfortunately these have, so far, proved sterile. For the amateur who likes unusual plants another pretty plant to grow is A. platyceras rosea, already named, a dwarf kind with large, almost red flowers that is most effective through its unusual colouring. CHARLES LERAY.

A NOVELTY IN HYDRANGEAS, H. DOMOTOI.



HYBRID ARGEMONES ARE BEAUTIFUL ANNUALS.

A NEW HYDRANGEA

From Japan, through America, there comes a novelty in hydrangeas called H. Domotoi, which is likely to create a certain amount of interest. It is a double form (so it is claimed, at least) of Hydrangea Otaksa, which is said to have all the advantages of this species, in addition to doubling of the flowers, an interesting point that adds greatly to the duration of flowering and to the general showiness of the plant.

It was on the occasion of the Pan-American Exhibition in San Francisco in 1915, that the plant became known. A Japanese firm exhibited it there, where it was secured by a Japanese-American concern, the Domoto Brothers, of Oakland, California. The name of "Domotoi" was then given. In 1920, Dreer of Philadelphia, a most modern

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establishment always on the look-out for any new and meritorious plants, got hold of some stock and began intense propagation at their Riverton nurseries. Of late, the plant has crossed the Atlantic, and several nurserymen, such as Lemoine of Nancy and Barbier of Orléans in France, are already listing it.

The new hydrangea, which the writer saw growing luxuriantly at Mr. Barbier's private garden at Orléans, is really a fine and interesting plant. It has the general appearance of H. Otaksa, but the flowers are of a fine pale pink and their double nature makes them quite conspicuous. This attractive doubling is, in reality, as is the case with Arabis albida flore pleno, only a proliferation of the external floral envelopes, although, in some cases, stamens are produced at the end of flowering, a peculiarity which is valuable for the hybridist and which never happens in arabis.

The plant is well adapted for pot culture, but it is rather as a hardy outside shrub that it is particularly valuable. In this last case, it stands the cold of the winter very well and is very free-flowering. All nurserymen who have handled it lay stress on this point.

Several hydrangeas with double flowers have already been offered to the public, such as H. stellata, H. s. rubra, etc., but these have never met with much attention. Hydrangea Domotoi, however, being far superior to these, will certainly soon make a place for itself in gardens, owing to its great decorative and other qualities. CHARLES LERAY.

THE CHINQUAPIN.

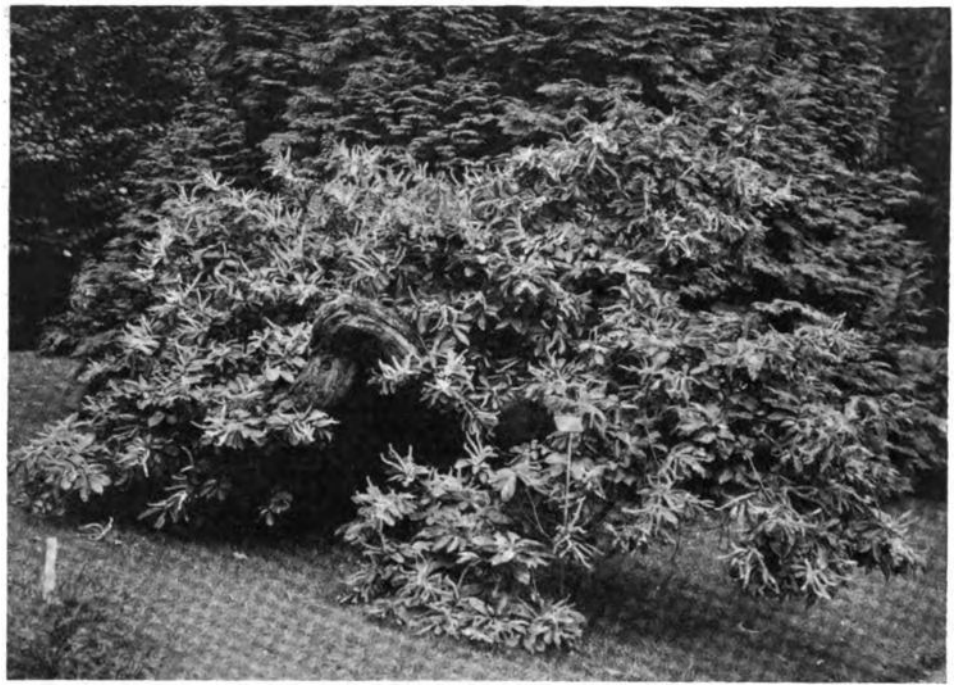
When, years ago, I visited for the first time the famous dendrological collection of M. Philippe de Vilmorin at Verrières, near Paris, I was surprised by the striking appearance of a fine flowering specimen of the North American dwarf chestnut or chinquapin, Castanea pumila, which is such a rare plant on the Continent and even in Great Britain. I was fortunate to get a picture of it which shows well the picturesque habit of an old plant. In its native country where it is found, according to Britton, from New Jersey to Indiana and southward to Florida, Missouri and Texas, it not infrequently becomes a small tree, attaining a maximum height of about 50ft. with a trunk diameter of about 3 ft. I have never seen a tree, for in our collections there are usually only small shrubs that do not grow too well. It likes a warm Continental climate to flower well and to develop its egg-shaped thin-shelled nuts, of which the seeds have a good flavour. The spiny fruit usually contains only one nut.

The firm leaves, which are rather light green and smooth above, are coated beneath with a fine rather persistent felt, and look almost evergreen. They are, however, deciduous, and form a pleasant background for the whitish male catkins appearing towards the end of May or during the first week of June. They form very graceful clusters, and make the plant unusually attractive. Through its habit of spreading by suckers the chinquapin often forms real thickets, and it ought to be planted more freely in warm situations there to become a conspicuous feature of our parks or large gardens.

We do not have too many plants of the habit of this dwarf chestnut. Most of our shrubs and smaller trees are rather stiff. Castanea pumila is of a different shape. Like its congeners it thrives without difficulty in any loamy and well drained soil. It seems to abhor limestone or, at least, too much lime in the soil, and it can be raised by seed or by suckers. CAMILLO SCHNEIDER.

THE BUTTONBUSH.

Among the rubiaceæ there are a great many fine flowering trees and shrubs, but very few of them can, even in England, be planted in the open air. On the Continent there is just one species that can really be regarded as hardy: the North American buttonbush, Cephalanthus occidentalis. Other plants of this family, like Serissa fœtida, Damnacanthus indicus and several species of coprosma from New Zealand, may be seen occasionally in



A FINE NORTH AMERICAN CHESTNUT, THE CHINQUAPIN.

A WARM GROWING PLACE IS NECESSARY FOR THE BUTTONBUSH.

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small collections of rare plants—for instance, in the Botanic Garden at Darmstadt, Germany.

The buttonbush, however, is hardy in most parts of western and central Europe; but it is by no means a common garden plant. One of the finest pieces I met with was in the garden of the late Philippe de Vilmorin at Verrières. I took a picture of it years ago when it was in full bloom. It is a rather ornamental plant with its glossy green foliage and its uncommonly shaped yellowish-white flower-heads that appear late in August and usually last until almost the end of September. A well grown flowering bush is quite attractive.

In its native home the buttonbush grows in very wet or even swampy places. I collected it myself several times on the borders of swamps. On the Continent it thrives well in any good garden soil, and does not need any excessive water supply. I do not think it would be quite hardy with us in a really wet place. It seems to do best in a rather sandy but by no means dry soil, and in a warm sunny place where the wood ripens well. In such a situation it flowers very freely, but the seeds do not ripen in Central Europe, so far as my knowledge goes, except in very warm sheltered places.

After all, the buttonbush can be highly recommended as one of the more attractive late-flowering shrubs for small gardens as well as for the park.

CAMILLO SCHNEIDER.

CHRYSANTHEMUMS AT NORWICH

THE Norwich Chrysanthemum Show was held in St. Andrew's Hall on Thursday, Friday and Saturday, November 20th, 21st and 22nd. It proved to be one of the best in the records of the Norfolk and Norwich Horticultural Society, which goes back for nearly 100 years. The entries totalled 797. The exhibition chrysanthemums, both of the Japanese and single-flowered varieties, were staged in splendid condition. There were five entries in the class for thirty-six Japanese blooms, first place for these being secured by the Lowestoft Corporation (gardener, Mr. G. H. Smart). They also took premier position in the class for six vases three blooms with long stems in each. The premier positions for the singles were taken by Brig.-General Dale. There were three competitors in the circular group class of chrysanthemums and foliage plants in pots. Here Miss McLentock of Catton Grove took first place with a beautifully arranged group. Mrs. Barker-Hahlo of Langley Park, who was second, had perhaps better individual blooms on her plants, but the arrangement looked too heavy. Decorative hall vases and baskets were responsible for some very artistic displays Major Bruce was first for the vase with a combination of single pink chrysanthemums and golden privet foliage. Mr. Gordon Lang, Plumstead Hall, was first for a basket with light terra cotta flowers and beech foliage.

There was a goodly array of miscellaneous cut flowers, including some well grown carnations from Lord Ailwyn's gardens.

Of pot plants primulas made the largest show, but for a blaze of colour the salvias stood out pre-eminent, the best of these coming from Sir Edward Mann. Begonias of the Lorraine and the hybrid winter-flowering kinds were excellently shown by Mrs. Herbert Smith of Dealington Hall. Fruit was a very strong feature. It really did one good to see what splendid apples can be grown in the county of Norfolk. The nine dishes of distinct dessert kinds from the Earl of Stradbroke's garden staged by Mr. T. Simpson were ideal. This and the many other classes for dessert kinds were keenly contested. Of cooking apples one knows hardly how to express the magnificence of the exhibits, so superb were the huge quantity staged. The Rev. T. D. Chute, Moulton Rectory, who is quite an enthusiast upon apples, had the best nine dishes, clean and nicely finished; he also staged a dish of the new variety Monarch. The veteran William Allan, Gunton Park Gardens, surpassed all comers in the classes for pears and grapes, and won the challenge cup for grapes. His Muscats were indeed examples of good culture. Mr. S. High, gardener to J. A. Christie, Esq., M.P., had the best dish of Emile de Heyst pears. There was a profusion of vegetables. The best collection was staged by Mr. T. Bentley, gardener to Mrs. Barker-Hahlo. One was pleased to see that the classes for allotment-holders' produce were keenly contested and some extra well grown specimens staged.

The trade helped considerably in making the show a success. Messrs. Daniels Brothers, Limited, Norwich, had a great display of apples, and side by side with these were specimens of the fruit trees they are now supplying, healthy and vigorous in appearance. Suttons had a display of vegetables and a fine bank of potatoes. Allwood Brothers and Mr. C. Engelmann had carnation displays. Keith, Luxford and Co. had a fine show of chrysanthemums. Clibrans made a speciality of winter-flowering begonias. Messrs. A. Reeves and Co. had a good display of fruit and fruit trees. Mr. R. Winder had berried shrubs and roses. Reamsbottoms were there with their ever popular anemones. The East Norfolk Fruit Growers' Association displayed a great collection of apples grown by its members.

Captain Sandys-Winsch, the secretary, had carried out the arrangements exceptionally well.

AYTCH-PEA.

THE NATIONAL DAHLIA SOCIETY

ALTHOUGH there was a small attendance at the Annual General Meeting of the National Dahlia Society, those present made up in enthusiasm what was lacking in numbers. The Society seems to be in a prosperous condition, for there has been a good increase in membership during the past year and the balance of £54 is another cause for congratulation. But the Society has experienced a serious loss in the resignations of its Hon. Secretary and its Hon. Treasurer, both of whom have done so much towards the prosperous condition of the Society. Although Mr. W. Stephens has been Hon. Secretary for less than a year he has, during that short period done an immense amount of work for the Society. But most unfortunately his health broke down immediately after the show and compelled his resignation. Mr. W. J. Chittenden of 2, Dents Road, Wandsworth Common, S.W.11, is the new Hon. Secretary. Mr. John Green, who has been Hon. Treasurer for fourteen years, was also compelled to resign for reasons of health and he is succeeded by Mr. D. B. Crane. The President, Mr. Reginald Cory, and the Chairman of Committee, Mr. J. Cheal, were both re-elected as also was the Committee with the addition of Mr. J. Green and Mr. R. Findlay.

TREATMENT OF OLD ORCHARD TREES.

SOME of our old orchard trees are retained because they are old favourites, some on account of their bearing qualities—though, probably, the fruits may not be of really good quality—and many are retained because the owner neglects his fruit trees generally. Old, useless trees should be discarded and uprooted, the branches formed into faggot wood, the trunks and main limbs into fire-logs. "Very drastic," some reader may remark; maybe, but it is the only right way to deal with such specimens. A few fruits are borne, two years out of four, on the outer branches, the individual trees cover many square yards of valuable ground which would be better occupied by young stock of the newer varieties. There are, now, good selections in our nurseries; more fruits of higher quality would be produced on the same ground with a minimum cost as regards labour and a maximum amount of satisfaction as regards yield of fruits. The present is a suitable time for dealing with the matter, and the carrying out of all such renovation work.

SERVICE FOR READERS

Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

there is always information available from a staff of expert contributors and consultants; *and there is no charge for this.* It is one of the additional means of Service which THE GARDEN is glad to render to its readers.

Also, there is the further convenience which the Service Department affords of supplying readers with data about anything that is advertised in the pages of the paper. Thus, on receipt of an enquiry, particulars will be sent of, say, half a dozen things about which the reader seeks information. The only stipulation is that a stamped addressed envelope shall be sent with the enquiry.

All communications should be addressed to the Service Department, THE GARDEN, 20, Tavistock Street, Covent Garden, London, W.C.2.

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CORRESPONDENCE

FRUITING OF RHODODENDRON NOBLEANUM

SIR,—Your correspondent "P. D. W.," in THE GARDEN of November 1st, page 752, asks for the experience of others as to the natural seeding of this old hybrid. As I write I have before me a branch bearing seven capsules taken from a plant growing here in a large bed of this early-flowering plant. Fruiting branches were not by any means common on the plant, and only two out of about twenty specimen bushes bear capsules. These are well developed, about three-quarters of an inch long, and are now shedding a quantity of seed of a fat and heavy appearance, some of which we shall sow to test its germinating qualities. Seeds of this hybrid are never gathered, and it is undoubtedly a shy fruiter here. This may be due to the early-flowering habit, the flowers generally being subjected to the frosts usually occuring while the plant is in bloom.—R. L. H., *Edinburgh*.

CATALOGUE DESCRIPTIONS.

SIR,—If "Claremont's" letter (page 782) is intended seriously it implies that he considers that he knows the nurseryman's business better than those who live by it. That may or may not be so; but surely when he asks that a trade catalogue, besides furnishing cultural and other particulars about novelties, should also "enlarge upon the merits of older plants," he is demanding a handbook to be supplied gratis. Now the dictionaries explain a catalogue as "a list set down in order," and it is a great convenience to customers when they have such a list to refer to. I often marvel at the clearness and, in many cases, the beauty, of the catalogues distributed by nurserymen, especially having regard to the greatly increased cost of printing in recent years. Surely any tradesman may reasonably expect a customer to know the sort of goods he wants to purchase, be it grocery, whisky or what not, and considering the vast amount of literature upon every branch of horticulture at the disposal of all of us, there is not much excuse for anyone who, desiring to furnish his borders, chooses to continue in ignorance of the character and requirements of plants offered for sale.—HERBERT MAXWELL, *Monreith*.

SIR,—With regard to your most useful and interesting subject of catalogue descriptions, it strikes me that a practical, and at same time profitable, way out of the difficulty would be for a firm of horticultural printers to edit a complete set of descriptions, habits and instructions on each item as to soil, flowering time, position, etc., as in any of the best books published; arrange all in the same order (1, 2, 3, 4, etc.), set in small, clear type, electro them in quantities, catalogue them with distinctive numbers, and supply all firms with the ones they list for insertion after the names and prices. All growers issuing lists would pay willingly a reasonable all-round price (say 2s. 6d. or 3s.) each, and the saving in composition in printing would fully recompense them for the payment of, say, two or three hundred stock electros which would last for several years' lists of course. From the buyer's point it would be ideal and from the grower's point, as already shown, most advantageous. A word as to the point of view of the publisher of these "stock electros": The expense would be heavy and the work in compiling ditto, but if all nurserymen and growers were circularised their co-operation should be assured. It might even be taken in hand jointly by the issuers of catalogues to publish the set themselves and the printers to sell on commission. Of course, the matter would be copyrighted and responsibility for errors guarded against by a footnote explaining the source of the descriptions. Well, Mr. Editor, what do you think about it?—PRINTER-GARDENER.

COLVILLE BLANC APPLE.

SIR,—If Mr. W. Chamberlain, who refers to a former correspondence in these columns on the above apple, will send me his full address I will forward the apples and give the information for which he asks. The reply sent him has been returned from the Post Office "insufficiently addressed."—F. T. FOSTER-TREVILLE, *Liskeard, Cornwall*.

TROPICAL CORNWALL.

SIR,—This illustration, which may be of interest to readers of THE GARDEN, represents an Indian summer's night on Mount's Bay, Cornwall. The picture was taken by real moonlight from a hillside garden at Penzance on October 13th at 9 p.m. The moon in the picture is real.—T. E. CORIN, *Penzance*.

AN OCTOBER SCENE AT MOUNT'S BAY, CORNWALL, FROM A HILLSIDE GARDEN.

ON COLCHICUMS.

SIR,—I should like to make a suggestion to those who do not like to see the delicate blooms of colchicums—single or double—lying on the ground as a result of rough weather.

If any who grow them have also mahonia bushes which they can afford to plunder, I should advise them to break off 6ins. to 8ins. from the tips of the branches and push them in all over the clumps of bulbs so that the leaves cover the ground at a height of about 3ins.

I think it is advisable to do this when the white noses just break the surface. The blooms will then force their own way up through the leaves and will retain their erect position and keep their freshness in a way that will please the grower. It will be found, I think, that the glossy leaves lend an additional charm to the clump.—GARDEN.

EUPATORIUM WEINMANNIANUM.

SIR,—In THE GARDEN for November 22nd Sir Herbert Maxwell mentions this interesting shrub as being grown in a garden in the West of Scotland. One seldom finds it mentioned in gardening literature, and it is certainly not grown in many gardens where it would be appreciated were its attractions once discovered. It is evergreen and a rapid grower, so it soon forms a bush four to six feet high and as much in diameter. It bears cutting back well and is suitable for planting as an informal hedge in sheltered gardens. The flowers are borne in the greatest profusion in creamy white corymbs and are strongly and curiously scented. It is quite a pleasant scent, unlike anything else in the garden; it has been compared with coconut oil and bay rum, but does not suggest either of these to the writer. But the greatest charm of this eupatorium lies in the way butterflies crowd to its blossoms; it is delightful to watch numbers of Peacocks, Red Admirals and Tortoiseshells with an occasional Painted Lady or a Speckled Wood jostling one another to feast on the nectar. If one could plant a sunny corner of the garden with this fine South American eupatorium, the low-growing Buddleia variabilis nanhoensis, Aster Climax and Sedum spectabile atropurpureum in front, one would be certain of adding a great deal of interest to the autumn garden by the number of exquisite and perfectly harmless butterflies which would gather around the flowers.—N. G. HADDEN, *West Porlock, Somerset*.

SAXIFRAGA FORTUNEI.

SIR,—For many years I have attempted to grow this interesting and hardy plant in the open with very indifferent results. As a rule, its quaint late flowers, as well as the succulent foliage, are spoiled with the first touch of frost, and the only way to enjoy them is to protect with a small frame or bell-glass. I potted up a plant or two, but was not satisfied with the result, especially after seeing some potted plants grown by a friend. I then learned that this plant likes good rich soil to grow in, but even with this knowledge I had only poor flowers, so I turned out the plants this spring, and soon saw where I had been at fault. S. Fortunei is to a great extent a surface rooter, and as such wants the rich soil at the top of the pot and as a top-dressing; then, as in my case, this back-end one has massive foliage and a wealth of bloom like a white mist a foot or more high, and continuing in beauty for a month or more.—T. O. WALKER, *Carnforth*.

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ECONOMIC PROPERTIES OF THE OAK.

SIR,—Two great needs of the world at the present time are more food and more wood, the former a bodily, and the latter (as a basis of paper) a mental necessity. These needs would be largely supplied by the development of an oak bearing acorns fit for human food and producing wood which might either be used for pulp or timber that would set free other forms of wood to be used for pulping.

Acorns of various kinds of oak are habitually used in many parts of the world and have been often eaten in times of famine. The acorn of the Quercus ballota, a native of North Africa, is regularly brought to market in Algeria and southern Spain; that of Q. excula is eaten in Italy; the Q. Chinquapin of North America is especially recommended for esculent cultivation; and other American and Himalayan species produce edible acorns.

A food prepared from acorns in Turkey is, I believe, especially appreciated by Turkish ladies for its fattening properties. Oil, too, is made from acorns in considerable quantities in various parts of the world, and is used in cookery. Some trees of the common oaks are said to produce acorns that are as sweet as chestnuts, and even those that are bitter are stated to become sweet by being buried for a time.

These facts in regard to oaks and their acorns suggest that under modern horticultural plans of improving and evolving fruits, an acorn might be developed that should be thoroughly edible, adding immensely to the food resources of the world and especially of this country. I venture to suggest that the attempt to produce such a great benefit to humanity is worthy of the efforts of a society formed for that purpose.—H. RAYNER, *Hampstead*.

BORDER CARNATIONS.

SIR,—In the issue of THE GARDEN for November 22nd your correspondent, Mr. R. Morton, says, *re* Carnations, "I do not consider any yellow self in commerce an ideal outdoor plant." My experience is quite the reverse as regards Border Yellow, of which, last year and the year before, I had a wonderful show, the admiration of all my friends. This season none of my carnations has done so well, owing, I think, to the constant wet weather, which rotted the buds.—J. W. ROBERTS, *Bognor*.

A NOVEL METHOD IN GREENHOUSE HEATING.

SIR,—I have a greenhouse, from which I wished to exclude any frost, and I applied to our electric light company to supply me with a self-regulating plant that would switch on at about 34° Fahr. and switch off again at about 42° Fahr. They have done so, and apparently it acts perfectly. We have not had many frosts since it has been installed, but I have never found the temperature below 38°, and the other day I was watching and it switched off exactly at 42°. It takes up little room, a small instrument connected with the town current, regulated by a sort of thermometer, which switches the current off and on to two electric radiators, one at each end of the greenhouse. The saving in labour, burning of coke often uselessly, and anxiety as to fires, is very great. I have never seen this plant advocated previously, so think others may like to hear of it. The first instrument supplied to me switched on at 34° Fahr., but did not switch off till between 70° and 80° Fahr. This was much higher than I required, so they changed it; but others may prefer the higher temperature.—X.

NOTES FROM CONTRIBUTORS

NOTES FROM THE PYRENEES

THE summer session of the Société Botanique de France was held this year in the Pyrenees, and July 20th found us being received at Toulouse by the Faculté des Sciences of that old university. From there we went, under the direction of Professor Gaussen of Toulouse, to those scarcely visited mountains, where many interesting discoveries were made. At Foix was found the rare Æthionema pyrenaicum, while another day at the Quié de Lujat, above Ujat-les-Bains, we found the other rare Æthionema ovalifolium, which was thought to be Oriental. At the same place many curious forms of Sempervivum and the rare Alyssum diffusum (Tenore) were discovered. Fields of bright magenta snapdragons growing there under the woods and the darkest forests astonished me very much. The Genista Scorpius—very spiny and bushy—haunted the dry slopes everywhere with Astragalus monspessulanus, Centranthus angustifolius (sweet valerian), Lavandula pyrenaica (a Pyrenæan form of L. vera which differs by its longer white calyx and the diffuse ramified stems), Scabiosa pyrenaica, Sideritis pyrenaica, etc.

Another day we set out to the Port de Saleix (Port, from Porte=door, means in the Pyrenees a path or col) to find the rare Gentiana pyrenaica, which is a very curious species with its corolla, like a little cup, and its accrescent pistil. It forms dense tufts of deep green fine foliage and seems to be rather abundant in some places, growing just in the same manner as our G. bavarica. In the rocky walls of the "Port" were rare finds, such as Dethawia tenuifolia (a finely cut Umbellifer), Saxifragas media, cæsia, aretioides and the hybrids. Two interesting little shrubby forms of the Thymelæaceæ allied to the daphne are there: Passerinas calycina and dioica, which are rarely seen; the Passerina nivalis I found earlier at Gavarnie. These tiny shrubs are interesting and are very ornamental in the rock garden. Oxytropis pyrenaica is abundant there, too, along with Potentilla alchemilloides, with its pure white flowers and its beautiful leaves, mixed with the dwarf Columbine Aquilegia pyrenaica and the delicate-coloured Geranium cinereum, which adorns the rocks everywhere.

We then travelled on to Estours and the Port d'Aula (6,880ft. altitude) to find other treasures, such as Erodium petræum, Jasione humilis, Ranunculus Gouani (a big form of montanus), Potentilla nivalis with its silver white foliage, of which the natives make tea. We tasted the roots of Trifolium alpinum, which is here called "réglisse" because the root is very sweet and is utilised to sweeten drinks. It is, indeed, curious that the same root in the Alps is quite destitute of sweetness. Hypericum nummulariæfolium is everywhere in the shady and damp rocks hanging with its branches covered with bright yellow flowers in company with the delicate Reseda glauca, Myosotis pyrenaica, Brunella grandiflora, Betonica alopecuros, etc.

One day we paid a most interesting visit to a park at Siradan. There the trees, thanks to the damp atmosphere and the mild climate, attain very large dimensions, and the collection, made three-quarters of a century ago, is very complete. All the conifers known to me were there, with others which I have never seen elsewhere, and they attain such proportions that they are worth attention. A Cryptomeria elegans is nearly 40ft. high and the japonica still bigger. A magnificent group of three Thuyas gigantea (Lobbii) covers an area of 280 sq. ft. with their branches, some measuring 20ft. long. The collection of trees here contains conifers of the north (spruces) and of high altitudes, such as Pinus Cembra (Swiss pine) and those from Chili and California, the olive tree and laurus, Punica granatum, Buxus balearica (very high and strong), the rare and local growing Quercus Toza, the big Magnolia glauca, Maclura, Juglans nigra (bearing mistletoe), Libocedrus decurrens, a close ally of Araucaria, etc. In the neighbourhood we went to visit a Mediterranean station where the Quercus coccifera and Ilex, Pinus Laricio, Cytisus capitatus, Oxyria alba, Asparagus acutifolius, Coris monspeliensis and many other South European plants were mixed together. On a wild slope at the base of the hills we found here and there the beautiful pink-flowered Calystegia sylvestris rosea as figured and referred to in August 30th issue of THE GARDEN (page 607). It bears pink flowers (of a soft pink) much more delicate than those of Calystegia dahurica. I found this variety often in the Pyrenees, and must add that many plants have the tendency of darkening their colours. For instance, Saponaria officinalis and Dianthi monspessulanus, deltoides, barbatus and hirtus are deep pink.

We went to Frontignan to see the gigantic chestnut (Castanea vesca), its trunk measuring, as we found, nearly 30ft. in circumference at 3ft. from the base. From Luchon we went to Superbagnères, where we found the most luxuriant vegetation one can imagine—I would call it the "macroflore" of the Pyrenees. Hesperis matronalis alba, Lunaria rediviva, Lilium pyrenaicum, Lactuca Plumieri, Ranunculus platanifolius and R. aconitifolius, Valeriana pyrenaica, Myrrhis odorata, Geranium phæum and G. pratense attain large dimensions, together with Impatiens Noli Tangere (especially under the trees) and the rare Aspidium Braunii, which grows in the Vallée du Lys. The north facing walls are covered with ramondia, and the Welsh poppy adorns the slopes everywhere. The white form of Campanula latifolia is there a real beauty with its long pure white spikes of flowers, and the Gentiana Burseri with its yellow bells speckled with brown is exceedingly pretty. Hypericum Richeri I have never seen in such abundance and so bright, while Scrophularia pyrenaica was also at its best.

The session was brought to a close with a lecture by Professor Gaussen at the Laboratory of the University of Toulouse, which is at Jouéou (5,200ft. high). We found there many more interesting things, Scilla Lilio-Hyacinthus, Lilium pyrenaicum (of enormous dimensions, I measured one of 8ft.), Anarrhinum sempervirens, Dianthus barbatus very bright in colour, Fritillaria pyrenaica (as seeds), Senecio adonidifolius, Pedicularis pyrenaica, Cephalaria alpina, Angelica Razulii, etc.

I then left for Cerdagne, where I went alone to botanise in that real paradise of the botanist. From Perpignan to Mont Louis the slopes from the railway are adorned with a great collection of plants, such as Bupleurum fruticosum, Cistus albidus, C. laurifolius, C. umbellatus, Genista horrida, Capparis spinosa, the many pinks (Dianthi hirtus, pungens, Seguieri, Geranium pratense, etc.). From Mont Louis (you gave a view in THE GARDEN last spring of the town and environs) I went to the little Valley d'Eyne and there I found the *crême de la crême* fields of Fritillaria pyrenaica, of Genista anglica, Senecio adonidifolius, slopes of rhododendron with all their thick foliage,

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rimula graveolens (very large form), Adonis yrenaica, Delphinium elatum (shorter and ghter blue than the alpine one), Senecio ourneforti, Aconitum pyrenaicum, Aquigia pyrenaica, Saxifragas geranioides, aquaca (adscendens), umbrosa, Linum alpinum, mpetrum nigrum, Azalea procumbens, etc. the meadows the delicious Gentiana yrenaica and G. brachyphylla, Campanula ifolia, Molopospermum cicutarium, Trifoum alpinum, phyteuma and ranunculi. On gher situations—the way is climbing at ooft. to the Port de Nuria — Senecio icophyllus makes large carpets of elegant ver foliage with brilliant orange flowers—beauty—and Saxifraga oppositifolia grandiora or pyrenaica adorns the north side of e rocks. The curious Iberis spathulata ith light pink flowers, the very curious alium cometerhizon, which makes very ort and dwarf tufts with deep red flowers, e Jasione humilis (a beauty very dwarf too) d the Ranunculus parnassifolius, with its r. angustifolius, are the jewels of the errier. Erodium macradenum adorns the cks of the limestone part, and Papaver yrenaicum with its multitude of orange owers enriches the landscape.

ut, above all plants, the axifrages call for special dmiration. Here many botnists, such as Luizet, Soulie nd Sennen, made their best bservations and have made uite a collection of types. I ound at the Port and in the icinity Saxifragas capitata, ajugæfolia, adscendens, androsacea, entadactylis, varians, mosata, nervosa, intricata, Iratina, pubescens (in its best orm), obscura, media (anything igher up the limestone), enuifolia, planifolia, oppositiolia. The Jasione humilis is t the top a real beauty, very dwarf and bushy blue masses!

By returning to Eyne in he evening I found for the irst time in my life Potentilla ruticosa with its brilliant big yellow flowers, much better than in cultivation, and enormous tufts of Iberis Garrexiana. The Pyrenees Orientales are the richest part of the chain, and I long to return there, as I was in a great hurry the last time. Antirrhinum Asarina was everywhere over the walls near Mont Louis.—H. CORREVON. *Geneva.*

SOME PLANTS THAT NEED NOT BE STAKED.

THE rough and inclement weather experienced this past year has emphasised the worth of those plants which need little or no staking. When it can possibly be avoided, I am always much averse to staking, owing to the great expenditure of time and trouble entailed. Unless, too, it is carefully done, the true beauty of a plant is frequently spoiled.

Despite the succession of heavy rains and strong winds during the flowering season—and my garden is an exposed one—several plants in the border have demonstrated very well indeed their ability to withstand such adverse conditions without the assistance of staking of any sort.

For the last few weeks Rudbeckia Newmanii has presented a neat and attractive appearance, the bright yellow flowers of stellate form standing up well on their stiff, erect stems. A few clumps of this well known flower are most useful at this latter end of the season.

Plants of Anemone japonica have been no trouble at all despite day after day of rain and high wind. These graceful plants seem to come up smiling after each onslaught.

Helenium pumilum magnificum and the variety H. Crimson Beauty stand up well, the latter particularly. They cannot throw off a combined attack of wind and rain in the same easy way as do the two foregoing examples, but staking was not resorted to until it was seen that the rough weather might eventually spoil their beauty.

In the case of herbaceous phloxes comparatively large clumps of certain of the older varieties stood up against the rain and wind quite well with no support whatever, but most of the newer sorts seem to lack the constitution of the older varieties and had to be staked.

Earlier in the season the tall and graceful Thalictrum aquilegifolium needed no support, although it grows in my soil over 5ft. in height. Most of the lupins were not staked, but all varieties are not equally reliable in this respect. String tied round the lower part of each clump has, as a rule, however, been found quite effective in most instances. First year plants of sidalcea stood the strain well without being staked, but older plants had to be supported.—HOWARD H. CRANE, *Highmead, Cheney Lane, Eastcote, Middlesex.*

TALL AND ELEGANT FLOWER SPIKES OF PRIMULA LITTONIANA.

AMONG THE ASTERS.

THERE are certain charmingly coloured compositæ, which when the weather is not so severe as to destroy the blooms give a bright effect throughout November, especially the earlier part of the month, and among these most frequently seen are the asters, or Michaelmas daisies as they are usually called. No one should be without them on the hardy plant borders if they really desire to have a joyous coloured show in the late autumn. The flowers of asters range in size from tiny things to the giant-like and wonderful coloured blooms of Aster Amellus King George; this comparatively new variety, which has rich deep violet blooms gives one the impression that perennial aster flowers may one day rival in size those of the annual sinensis strains.

The fine foliage and shape of the florets with the early blooming qualities of Aster acris mark it out as one apart from the other members of the group; as in an ordinary season it gives a good display about the middle of September. Michaelmas daisies of the Amellus strain are usually well furnished with clean and healthy foliage of a pleasing green shade. No one would plant Aster ptarmicoides for a floral display, but its fine feathery appearance warrants it a place in the borders. A. cordifolius is a floriferous, graceful and very useful variety and exhibits, like A. multiflorus, a step towards the larger-bloomed kinds. A. cordifolius when left unstaked or untied spreads its long stems clad with dainty flowers o'er the grey green growths of the catmint and the silvery carpet of Stachys lanata. Those on the look-out for a compact-growing and very floriferous aster should feel elated over A. Amellus elegans; it has medium-sized blooms of a soft blue; but really the last portion of the name properly denotes its qualities. A. paniculatus is a taller-growing variety with fine free flowers of a lavender blue most suitable for cutting. No collection of these daisies would be complete without a light coloured or white form, and the variety Mrs. John Wood well maintains the floriferous qualities of the aster family. It is one of the tall-growing kinds although not a pure white. None, however, is more striking at this late date than the tall and stately variety known as Mrs. S. T. Wright, with its purple or rosy-purple flowers.—DAVID ARMSTRONG.

PRIMULA LITTONIANA.

THE enclosed photograph, showing Primula Littoniana, was taken at the beginning of August this year. These primulas were raised from seed in the spring of last year and the seedlings planted out in their position in July. I find this primula dies down in the winter and is the latest primula with me to show any signs of growth in the spring. It was the second week in May this year before it started to push up its oval foliage; but when it starts to grow it does so very quickly and begins to flower in two months from the time growth appears above ground.

Primula Littoniana is a most striking species with a tall powdered stem terminated with a bright red spike that is very attractive before the flowers expand. After a time the pendent little flowers begin to open, and vary in colour from lilac to deep purple.

The tallest stem shown in the photograph measured 33ins. high and the flower spike 9ins. long. These plants may be the species named Littoniana robusta.

This primula is growing in damp peaty soil facing north alongside of primula vincæflora, and has set plenty of seed this autumn. —A. H.

AUTUMNAL ROSES.

THE following have been picked here today, November 13th, in most cases in perfect condition. Lieut. Chauré, Capt. Hayward, Col. Oswald Fitzgerald, Padre, Capt. Ronald Clerk (hitherto marked down as worthless has given blooms quite worth having in November), Zépherine Drouhin, Mme. Pierre Cochet, A. R. Goodwin, Mme. Falcot, Souvenir de Georges Beckwith, St. Helena (especially good, a perfect little buttonhole rose of faultless shape), Commander Bartie, Etoile de Hollande, Macbeth, Serge, Bassett, G. Amadee, Hammond, Dr. Joseph Drew, Papa Gontier, Prince Charming and Socrates. Many others were blossoming on November 5th, such as Souvenir de Claudius Pernet, Safrano, L'Ideal, A. N. Mellersh, Raymond, Waltham Crimson, Gorgeous, Sovereign, Ariel and Rouge Angevine.—EDWARD SHOOSMITH, *Halland, Sussex.*

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GARDENING OF THE MONTH

FLOWER GARDEN.

HERBACEOUS BORDERS.—Cut down remaining flowers and tidy borders. Fork lightly in between the plants. Take care not to disturb any bulbs.

ROSES.—Finish planting soon in mild weather only. Just cover the union of the stock and scion. Spread out the roots. Plant firmly, but not deeply. Spray roses infested by black spot with copper sulphate solution. Use 1oz. of copper sulphate to 2 gallons of water and spray in mist form the bushes and the soil round the base. Gather up any fallen diseased leaves and burn. Finish pruning ramblers. Place straw or bracken round the roots of tea roses to prevent injury by frost. Draw up soil round stems of other roses, taking care not to remove any soil from the roots. In cold districts place bracken among the branches of standard roses.

RANUNCULUS.—Cover autumn-planted roots with leaves to protect from frost.

ST. BRIGID ANEMONES.—Cover with twiggy branches to give slight protection to the leaves and buds.

FRAMES.—Guard against damp and cold. Ventilate only on warm days and give very little water to the plants. Pick off dead leaves and clear away decayed cuttings. In frosty weather cover the sashes with mats at night. Feed violets occasionally and stir the surface soil. Give water only when quite dry and ventilate carefully according to the wind. If damp gets in sprinkle a mixture of powdered lime and charcoal round the plants.

HARDY FRUIT.

PLANTING.—Continue during suitable weather.

PESTS AND DISEASES.—Weave strands of cotton round gooseberry bushes to prevent bullfinches destroying the buds. Spray trees infected by American blight or scale with Woburn Wash. Ingredients: 1½lb. of copper sulphate, ½lb. of quicklime, 2lb. of caustic soda, 5 pints of paraffin, 9½ gallons of water. Dissolve copper sulphate in water in a wooden vessel, put lime in 1 gallon of water in another vessel. Leave for a few hours. Mix, add paraffin and remainder of water and shake in caustic soda. Stir well and apply in fine mist form. Cleanse old orchards and any fruit trees with caustic alkali to destroy lichen and moss. Only use once in three years. Spray with a solution of 1lb. of 70 per cent. caustic soda in 10 gallons of water.

PRUNING.—Can be done in any weather. Spur back laterals of apples and pears to within two eyes of the base. Cut off unripened wood from the leaders. Prune fruiting standards lightly and thin out branches. Train young trees carefully. Keep centre of young bush trees open. Spur back laterals of plums and sweet cherries and leave some well ripened shoots of the current year's wood. Cut out completely unfruitful whippy shoots of pears.

PROTECTION.—Cover roots of peaches, vines and apricots outside with litter.

RE-GRAFTING.—Cut back main branches of fruit trees intended to be re-grafted next April. Select strong, well ripened shoots of varieties to be used as grafts and insert in soil or sand to keep the sap dormant until required.

VEGETABLES.

ASPARAGUS.—Bastard trench any new beds. Add a liberal supply of well decayed manure between each spit and, on heavy soils, road grit and lime rubble.

BROAD BEANS AND PEAS.—Draw soil up round the young plants.

CAULIFLOWERS.—Lift the remainder and store in a dry shed until required.

CELERY.—Protect by covering the ridges with litter.

PARSLEY.—Cover with a hand-light to prolong the supply.

POTATOES.—Set up a few tubers in boxes and place in a frost-proof shed for early spring supplies.

GENERAL.—Continue digging and bastard trenching and consider the question of rotation of crops. Add farm manure to heavy soils and cow or pig to light soils. Give a dressing of road grit, wood ashes or burnt soil.

SHRUBS AND TREES.

PLANTING.—Complete as soon as possible during mild weather the planting of deciduous and evergreen shrubs except hollies and rhododendrons. Prepare the ground well and allow to settle before planting.

PROTECTION.—Draw soil up round the stems of tender shrubs and wrap remainder of stem round with haybands. Cover tender climbers facing east with thin canvas sheets. Do not remove covering each day until the plants have thawed, as bright early morning sunshine on frozen plants is most harmful. Protect tender shrubs with mats supported on a light framework during very severe weather. Shake off snow from conifers to prevent the branches from being broken.

PRUNING.—Finish pruning Ceanothus azureus, Buddleia variabilis, Hydrangea paniculata, Cornus sibirica, Rubus biflorus, etc.

GENERAL WORK.

CONSTRUCT new borders, rockeries, rose-beds, walks, pergolas, etc. Wheel manure on to ground in frosty weather.

FRUIT STORE.—Examine, pick out decaying fruit. Damp down the floor to prevent the fruit shrivelling.

LAWNS.—Continue renovation and prepare ground for new lawns. Most soils need drainage. Place drainpipes 15ft. apart and 3ft. deep. Cover cracks at the joints with clinkers. Make the pipes slope very gradually to a pit filled with broken bricks. Level site and leave to settle.

PESTS.—Fumigate ground badly infested with wireworm. Use Vaporite or Kilogrub. Pick out wireworms from soil when digging and set traps of slices of potato, parsnip or rape cake 2ins. below the surface of the soil. Examine these traps daily.

PERGOLAS.—Examine woodwork and repair. Tar base of all posts.

SEED ORDER.—Send for catalogues and prepare lists.

SHEDS.—Clean out and tidy during wet weather. Examine tools and make list of new ones required. Overhaul and thoroughly oil all lawnmowers. Repaint labels. Tie stakes in bundles and repoint. Prepare hooks for layering.

STORES OF ROOTS, DAHLIAS, ETC.—Ventilate occasionally on a warm day.

STACK good fibrous loam, grass side downwards.

WALKS.—Put fresh gravel where it has become thin. First loosen the surface, cover with a good layer of new material and then roll well.

WASH and stack pots during bad weather.

FLOWERS UNDER GLASS.

GENERAL.—Avoid excessive moisture. Water early in the morning. Guard against mildew. Always use tepid water. Fumigate for red spider and aphis. Ventilate carefully. Close the houses early to conserve as much sun heat as possible. Do not pot plants this month if they can wait until next with safety. Thaw frozen plants very gradually. Cover with mats for a few hours and then [illegible] cold water. Protect from sun [illegible] Rapid thawing or syringing with warm water is fatal. Keep atmosphere dry and warm for flowering poinsettias, pelargoniums, freesias, lachenalias, etc.

CARNATIONS.—Ventilate at all times. Feed with liquid manure or soot water. Give an occasional dose of Clay's or Peruvian guano.

CHRYSANTHEMUMS.—Insert as many cuttings as possible. Purchase cuttings of new varieties. Pot, into 3in. pots, the early struck cuttings.

FEED primulas and cyclamen twice weekly with liquid manure and cinerarias with soot water. Take care not to pour water near the base of the latter, otherwise "stem-rot" will set in.

FORCE in pots Azalea mollis, Deutzia gracilis, lilac, dielytra, spiræa and roses. Bring into gentle heat.

GLADIOLUS.—Pot up into 5in. pots.

GLOXINIAS.—Shake out old corms, pot up in leafy compost and start in a temperature of 60° at night.

LILY OF VALLEY.—Pot up lightly crowns of Fortin or Victoria varieties, plunge outside to expose to frost for a short while, and then bring in for forcing. Give bottom-heat of 80°–90° and an outside temperature of 65°–70° at night.

NARCISSI AND TULIPS.—Bring in to warm temperature from the plunging ground when an inch of growth has been made.

FRUITS AND VEGETABLES UNDER GLASS.

APRICOTS.—Prune on the spur system.

FIGS.—Finish pruning, cleaning and top-dressing. Cut out weak and overcrowded shoots. Ventilate well except on cold damp days or in frosty weather. Scrub, with hot soapy water, trees infected with scale.

NECTARINES AND PEACHES.—Prune and thoroughly cleanse. Cut out old fruiting wood and lay in sufficient of the current year's wood to cover the required space. Keep every shoot perfectly straight and train the tree in the shape of a fan. Keep the shoots about 4ins. apart. Prepare border for young peaches. Take out 2ft. of soil, put in 9ins. of broken bricks and cover this drainage with turf, grass side downwards. Make border on a slight incline to allow excessive moisture to pass away. Fill with a compost in the proportion of twelve loads of best loam, one load of lime rubble, half a load of burnt ash and 2cwt. of ½in. bones. Plant four or five year old trees.

VINES.—Ventilate late vines well to ripen the wood thoroughly. Prune back laterals of midseason vines to within two eyes of the base. Prune when vines are quite dormant to avoid bleeding. Clean off bark and scrub rods with Gishurst Compound. Prepare border for young vines in the same way as advised for peaches, but use for the compost four loads of loam instead of twelve loads. Cement the bottom of borders for vines. Top-dress old borders with chopped loam and ¼in. bones.

CUCUMBERS.—Allow the plants to carry only a few fruits. Water with liquid manure when fruit has set. Keep temperature 65°–70° at night and the atmosphere humid. Ventilate cautiously.

DWARF BEANS.—Sow in 8in. pots in well drained compost. Grow in an airy position in a temperature of 65°. Syringe to keep down red spider.

FRENCH BEANS.—Make small sowings every few weeks to form a succession.

MUSHROOMS.—Collect horse manure for eight days, store in dry open shed for eight more days, turn frequently. Make up beds in mushroom-house. Tread firmly and leave until temperature has declined to 80° and then add spawn. Cover lightly with soil and keep atmosphere moist.

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A. H. Gray	K. A. Victoria

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Miss May Marriot	

SALMON.

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Mme. Leon Pain	Janet

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M. A. De Luxembourg	Melody
H. A. M. Antoinette	

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Arabella	Mme. A. Chatenay
C. Testout	Zephirine Drouhin
Mme. Butterfly	Mrs. Geo. Shawyer
Mrs. John Laing	Mrs. Chas. Russell
Mrs. H. Morse	Mrs. B. R. Walker
Ophelia	Prince de Bulgarie

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imson-scarlet.
Page, scarlet-crimson.
Testout, deep pink.
schki, pure white.
ickson, velvety crimson.
, orange and pink, with copper
mblem, rich deep yellow.
ark scarlet.
town, deep pink, reflexes silver.
ee, salmon and apricot.
aure, velvety crimson.
. Soupert, salmon-yellow.
. Shawyer, silvery-pink.
pearly cream, flushed rose.
Morse, clear bright rose-pink.
Walker, clear bright cerise-pink.
n Laing, bright pink.
en, crimson.
rimp-pink and coral.
ig, deep cadmium yellow.
Claudius Pernet, sunflower-yellow.
, pale orange-yellow; good.
en Alexandra, vermilion and gold.
J. Knight (New), a great scarlet.

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, sulphur-yellow.
illingdon, coppery-yellow.
saffron-yellow.
Stevens, white.
A. Chatenay, pink.

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Abel Chatenay, pink.
arlemont, dark scarlet.
out, pink.
illingdon, yellow.
, saffron-yellow.
, salmon and flesh-pink.
cArthur, deep red.
Laing, pink.
ge, orange and pink.
Holmes, bright scarlet.
. Morse, clear bright rose-pink.
et Dickson Hamill, maize-straw
ur.

OLLECTION OF 12 ROSES SUITABLE FOR TOWN GARDENS.
11/6, Carriage Paid.

out, pink.
ruschki, white.
cArthur, red.
Ophelia, yellow.
son, red.
Mail, shrimp colour.
ohn Laing, pink.
Ravary, yellow.
nner, cherry-red.
soqueminot, crimson.
t Caris, carmine.
Breslau, salmon and copper.

OLLECTION OF 12 ROSES SUITABLE FOR BEDDING.
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lout, pink.
loArthur, red.
Pirrie coppery-pink.
, reddish-orange.
A. Chatenay, pink.
E. Herriot, shrimp and copper.
rgeius, orange.
, saffron-yellow.
old, coppery-red and apricot.
a, salmon-flesh.
rst, pale orange-yellow.
. Laing, pink.

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SIMPLE GARDENING

DIVIDING HERBACEOUS SHRUBS.

THE division of the roots of old clumps is a work that cannot be neglected if one is to be quite satisfied with the herbaceous border as a whole. The large border is more easily managed than the small one, because these plants require elbow room as it were, and cultivators are sometimes inclined to overcrowd them, wishing to include this gem and that one, too, and so on. It is a suitable time now to overhaul the border, to discard the exhausted and renew the vigorous roots; also, to enlarge the border where this can be done, making use of surplus good stuff and adding new. I am sure many readers have recently noticed the condition of the roots and flowers of such as Michaelmas daisies, and earlier, of phlox, to name two kinds. The outside portion of each old clump produced strong stems and large blooms, so it is advisable to discard the weaker central parts and retain the outer. Carefully lift and separate the roots, before digging up and enriching as much border space as possible and re-planting. Where the soi lis cold and very clayey it is a good plan to mix a compost of lighter material for a raised and warmer border and to transfer the divided portions of the clumps to it, arranging them in lines fairly close together for the winter months. In this temporary border leave them till next spring, when the clumps may be planted in their permanent quarters and thrive there. In the meantime the permanent border soil can be dealt with and improved.

PRUNING AND PLANTING DECIDUOUS TREES AND SHRUBS.

The decision to prune these subjects should be made during the summer months, when the leaves have fully developed on the new shoots. The specimens have a different appearance then; overcrowding can be easily observed and a note made as to the extent of the pruning necessary in the winter. In dealing with each tree or shrub due regard to its natural growth must be taken so that such natural growth will be maintained in the future. This is accomplished by keeping the balance of each specimen without crude formality resulting. The severing of large branches should be very carefully done, first with a saw then smoothing the wound with a sharp knife, taking care that the bark portion is neatly pared off. In some positions it is necessary to prune the trees or bushes very severely because the space is so limited. The resultant growth is, naturally, strong and the general appearance formal; this, in the circumstances, cannot be avoided. The planting of these trees and shrubs is a very interesting work. Unlike evergreens, they do not suffer from strong winds, even if the taller ones are left unstaked; indifferent staking is a very unwise thing. If a specimen is allowed to be blown to and fro, root action is considerably delayed the following year, whereas neat and effective staking is beneficial in every way. The specimens that are to be permanent should be planted first, the intervening space being filled afterwards. If wet weather prevails, and dry, dusty soil is available, a spadeful scattered on the roots before replacing the bulk of soil will prove beneficial.

ABOUT POTATOES.

Both seed and store tubers are very precious at the present time. In many parts of the country quite half of the crops rotted before lifting was completed, and decay has, in many instances, continued in the store shed. Those cultivators who grow potatoes on a small scale are very anxious as to treatment. Only where there are no other means of storing would I consent to store the eating tubers in heaps in open-air clamps. The shed store, this winter is the best, if covering litter is available in sufficient quantity to exclude severe frosts. It should not be overlooked that store sheds raised a few inches above the ground level are unsuitable unless a thick layer of straw be placed on the floor as well as on the heap of tubers. I remember one cultivator who stored some of his seed tubers on the floor of a shed of this kind and, although he had piled thick coverings on the boxes during a severe spell of weather, found, when the thaw came, that two-thirds of the tubers were soft and useless. There is always a cold current of air passing under such sheds, and when frost prevails it penetrates and does a lot of harm. Where eating tubers are still decaying I would recommend the use of dry lime. The heap should be carefully hand-picked, all diseased tubers taken away and the sound ones nicely covered with dry lime before the protecting material is replaced. The seed tubers require careful watching; they are all the better for exposure to light and air when the weather is favourable, but when it is not, ample coverings will do good, not harm.

LATE CHRYSANTHEMUMS.

Where high feeding has not been the rule, loss from damping is lessened, but there is sure to be some disappointment from this cause where neglect in regard to watering, ventilation and temperatures exists. Although frosts of six or seven degrees severity do not kill the blooms in unheated houses, they damage some of the petals. In the unheated house there is, more or less, condensation of moisture on the flowers and opening buds, and when they are frozen, ever so slightly, while in this condition, loss of petals will occur. There is no difficulty where the houses are nicely heated. In unheated structures the cultivator should ventilate very carefully, watch the weather closely and so expel as much moisture as possible without letting in cold currents of air. The right thing to do is to water, where necessary, early in the day; to open the front ventilators a little and the top ones wider; to close the front lights early in the afternoon and to leave a small chink of air at the top of the house all night.

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THE SCIENTIST & THE PRODUCER

IT is an unfortunate but, perhaps, a natural occurrence that agricultural and botanical science is moving quicker than its discoveries can be put into practice. Scientists are advancing so fast in their achievements that ordinary mortals are unable to keep up with them. You constantly hear the producer, whether he be farmer, forester, fruit-grower or gardener, blamed for not making use of the most modern methods. The scientist has a good deal of justification for his complaint. Whereas manufacturers and traders always keep on the look-out for money-saving appliances and new methods of salesmanship, producers of products from the soil are notoriously conservative. One obvious reason for this conservatism is lack of capital. Another is that science has only really started to help the cultivator since the beginning of this century, and that from 1900 onwards the amount of discoveries about the scientific value of stocks, fertilisers, bacteria, various soils and so on has been so stupendous that the producer has been staggered and does not know where to start, or once he has started where to stop.

There is, however, one reason for the lack of co-ordination between scientist and producer, for which I think the scientist is largely to blame, and that is that the language they use is quite incomprehensible to ordinary mortals. There is no linguistic mean in which the scientist and the producer can meet on common ground. Each new text book or monograph becomes more complicated and more involved; in fact, few are produced in which there are not at least a baker's dozen of newly coined words or phrases. The scientists' answer is that they are an international brotherhood and that new ideas must be expressed in philological terms so as to be understandable in almost any language. This is surely forming the scientists into a very close corporation with a more definite cleavage every year between the specialist, and the ordinary well educated human being. Naturally the ordinary human has only a limited amount of time at his disposal for delving even into the outer fringe of the scientific side of any subject, but this does not mean to say that he would take no interest in it, if he could.

I was much struck the other night by hearing over the wireless a most excellent lecture on what the Rothamsted Experimental Station was doing for agriculture. It was a short address and lasted a bare twenty minutes, but I am sure that most of those who listened to it wished it had been twice as long. It was expressed in simple language, was lucid, and was intensely interesting. I have heard the same thing said about the lectures which members of the Rothamsted staff give at different agricultural and horticultural colleges and training centres. This proves that it is possible to interest the ordinary man in the scientific side of plant production. And yet there is nowhere, outside of scientific or technical journals, which he never sees, where simple explanations can be given. I know that on the East Coast of Scotland where most of the farmers are keen to try new improvements if they are minutely and carefully explained to them, they do not do so because they do not hear about them, or if they do, they do not understand. Even the Board of Agriculture leaflets, excellent though they are, are often couched in too technical language. The same applies to new discoveries in science which are applicable to gardening or to fruit cultivation.

So sure am I of the interest, even among beginners, in gardening as to the why and wherefore of the growth of a plant and their attendant ramifications that THE GARDEN is shortly going to begin a series of articles on the interior economies of plants. These articles are going to be short and will be written in the simplest non-technical language.

There is little reason why scientists should not give us a little of their knowledge with as few scientific terms as possible, and perhaps if our readers understood why and how a plant grows, as no doubt some of them do, a better understanding of modern discoveries may not prove such a difficult step to follow. Naturally, such discoveries and improvements are particularly important when applied to economic crops.

Meanwhile this does not do away entirely with my original plaint, that modern scientific terms are becoming year by year more terrifying. At the present rate of increase there will be an entirely new language in another ten years. It will be only recognisable as English by the occasional insertion on a page of an "and" or an "is." Perhaps philologists could help.

CHRISTMAS PRESENTS.

A correspondent has written asking me to draw attention to the value of plants as Christmas presents—actually he does not confine himself to plants, but includes trowels, a garden book, raffia, or an instrument for strangling slugs: and, after all, why should not these instruments be included, for Christmas presents are becoming more and more utilitarian every year? It is true that children are old-fashioned enough to object to finding a pair of boots or half a dozen collars in their stocking, but then, children at Christmas live in a world by themselves. Grown-ups are different, and the more useful the present the more they are pleased. Think how pleasant it would be to hang a sack on the end of your bed and find therein the next morning a ton of rock of exactly the right shapes and sizes for the rock garden you had been planning, all the plants to stock your herbaceous border for the coming year, and the lawn mower you have put off buying for the past two years. It is not an impossibility—provided the sack is large enough. I am much obliged to my correspondent for drawing my attention to this important point. E. H. M. C.

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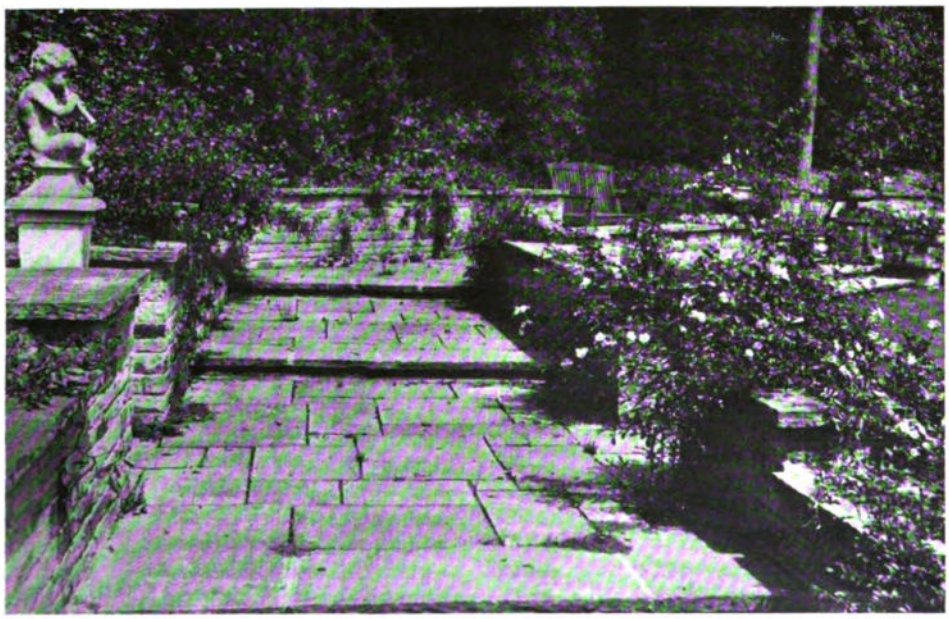
GARDEN DESIGN

SOME SUGGESTIONS ON PLANTING.

AT this time of the year the gardener's thoughts turn naturally to plants and planting. Nature, left to go her continuous unmolested way, clothes the earth with vegetation—wonderful alike in its myriad forms and the range of its ever-changing colours; from tiny close-growing mosses to tallest forest trees; from the plain greens and comparatively simple organisms of ferns and allied plants to the brilliant colouring and complex structure of orchids and many another plant; with herbaceous plants, for these cover the country-side as well as the garden, springing to fresh loveliness of flowering year after year; with deciduous shrubs and trees, full of changing beauty from the first sign of spring's delicate greens until their leaves fall, only to show the tracery of branches as lovely as the leafy dress they have discarded. Everything with wonderful fitness and economy of purpose carries on its destined work and helps to beautify the earth.

Nature plants in broad stretches and with harmonious colours, and, with due regard to proportion, the garden maker should follow her example and plant in masses. Many plants that singly or in small groups are unnoticeable or even unpleasing, can be very beautiful freely scattered in their green setting. To realise the value of massing one has to have numbers, as many as possible, of, say, Anchusa italica in lawn or grass against a background of green foliage of trees and shrubs. Seen thus it is far more effective and beautiful than in a mixed border. What, for want of a better description, I will call the wilder plants are best grown in this way. Many plants one feels are so much the result of cultivation that their place is in the border or gardens proper.

Everyone realises the beauty of narcissus in grass, and also that hyacinths and tulips would seem as wrong as daffodils seem right when growing naturally in some woodland walk or in the lawn. And to grow certain herbaceous plants in the same way is but an extension of the idea. Lupins, especially the blue, mauve and purple ones, are always effective massed by themselves. So also are iris, some of the veronicas, V. spicata and V. subsessilis, verbascums (mullein), eremuri and most of the hardy lilies.



THE PAVED GARDEN.

Most of the different varieties of any plant family mix together harmoniously, as also do the greater number of those plants that like more or less the same conditions. The many different forms of plant life are the result of ages of natural adaptation to environment. Aquatics and moisture-loving plants perish on dry banks, just as berberis, cistus, etc., dislike even an ordinary amount of moisture. In all their variety of colour and habit of growth roses in their different sorts tone, as do delphiniums, phloxes, berberis in their different sorts, also the varieties of most of the plant families. From all this the lesson to be learned is that, in our gardens, plants should be given their proper places and conditions and should be massed.

To consider more particularly the always popular herbaceous border. It may, with careful planning, be a continuously changing succession of colour schemes; or, if that is too ambitious a description, it can be more simply said that from an effective arrangement with any principal colour another and an entirely different colour scheme may arise as plants succeed plants in their flowering season. The clear yellows of early daffodils may be followed by the pinks and scarlets and wine and ruby reds of tulips, of which there are shades enough to form wonderful chromatic harmonies. Then for the summer there could be blues, cooler and welcome in hot weather, with grey foliage and perhaps pale yellow or pinks, these again to be succeeded by the deeper yellows and crimsons and bronzes of autumn.

It is not always realised by the amateur how important form is in garden design. From the ground plan to the more important grouping of shrubs and trees it must receive first consideration, and colour must, so to speak, be built on to form. There must in all the different kinds of planting be first a proper balance, that is to say, the principal or outstanding masses chosen primarily for their ultimate height and substance must in opposite borders be balanced by other outstanding masses, not necessarily opposite or even alike, but so arranged that when fully grown a nicely related harmony and proportion is felt between the two sides.

Even in herbaceous borders weight may be given and their effect made richer by the introduction of evergreens or other shrubs, or perhaps some of the smaller flowering trees and bushes. These being outstanding, so far as form is concerned, should be placed with a careful regard to the attainment of a good balance, and as, unlike herbaceous plants, their growth is permanent and increasing, they are valuable alike in winter as in summer.

As well as the planting scheme as a whole, plants in the borders should form a succession of harmonious groupings each beautiful in itself and giving in its results every opportunity for individual taste and skill of grouping. The number of possible combinations is without limit. Grey foliage plants, and plants with white, very pale yellow, and the softer shades of mauve and lavender are valuable as foils for and to relate what might be, when used together, clashing stronger colours. Delphiniums, perhaps the keynote of the summer border, should be in as large groups as may be. They are lovely also against green only or in conjunction with cool whites, such as the large-petalled Chrysanthemum maximum, and in a warmer, stronger way with the bronzy foliage of Prunus Pissardii or Chinese peonies.

Foliage also is invaluable and should be considered in the colour scheme. Peonies are nearly as effective afterwards as while they are flowering, and should be placed so that their bronzy foliage tells in the general scheme. Yellow and bronze heleniums, red and yellow gaillardias, sulphur yellow anthemis, golden yellow coreopsis and orange marigolds will, with the coppery bronze foliage of peonies and purple-leaved Prunus Pissardii or the larger-flowered Prunus Moseri, make harmonies always pleasing and in sunshine glowing with light and colour. What may be described as autumn reds, beautiful as they are,

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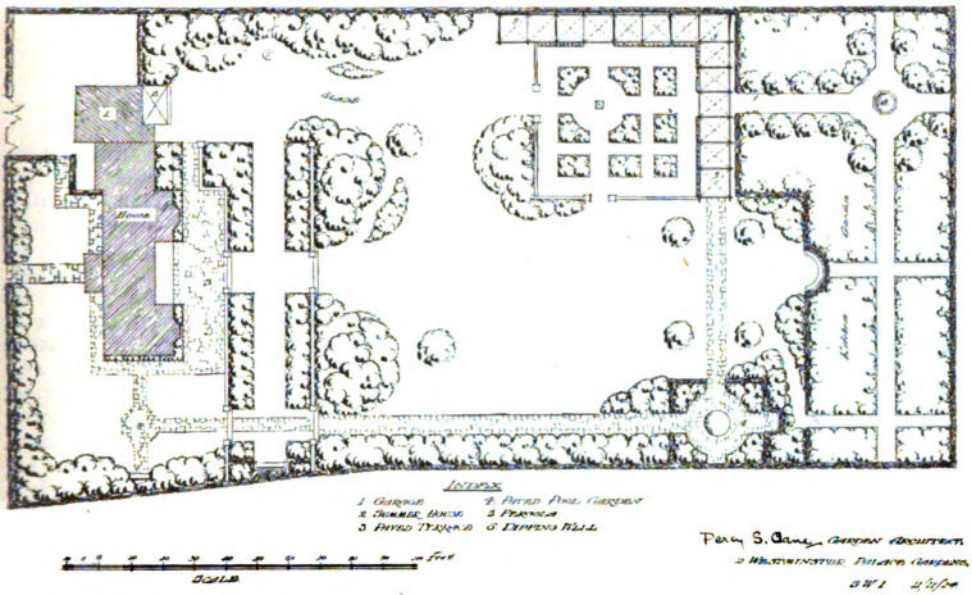


need to be carefully placed. Clear blues may be used with them most effectively, but they should not be near whites, pinks or any red approaching scarlet.

You may take the plant materials, endless enough in their numbers, and by finest artistry of arrangement make of them what you will. Your borders may be strong, glowing with gold and purple, red and blue; they may be softly delicate—mauve and greens and lavenders and white and palest yellows; they can be mixed to include all of your favourite flowers or they can be of one colour only, blues from the palest to the deepest shades, or yellows and gold and bronze; but, so long as they are harmonious in colour and the groups are proportional in size to the border or garden of which they form a part, the results must be, even in the simplest garden, interesting and beautiful. PERCY S. CANE.

THE CLASSIFICATION OF ROSES

BY H. R. DARLINGTON.

MANY GARDENERS FIND IT DIFFICULT TO UNDERSTAND HOW ROSES ARE CLASSIFIED INTO THEIR VARIOUS SECTIONS. IN THIS ARTICLE MR. DARLINGTON GIVES AN EXPLANATION.

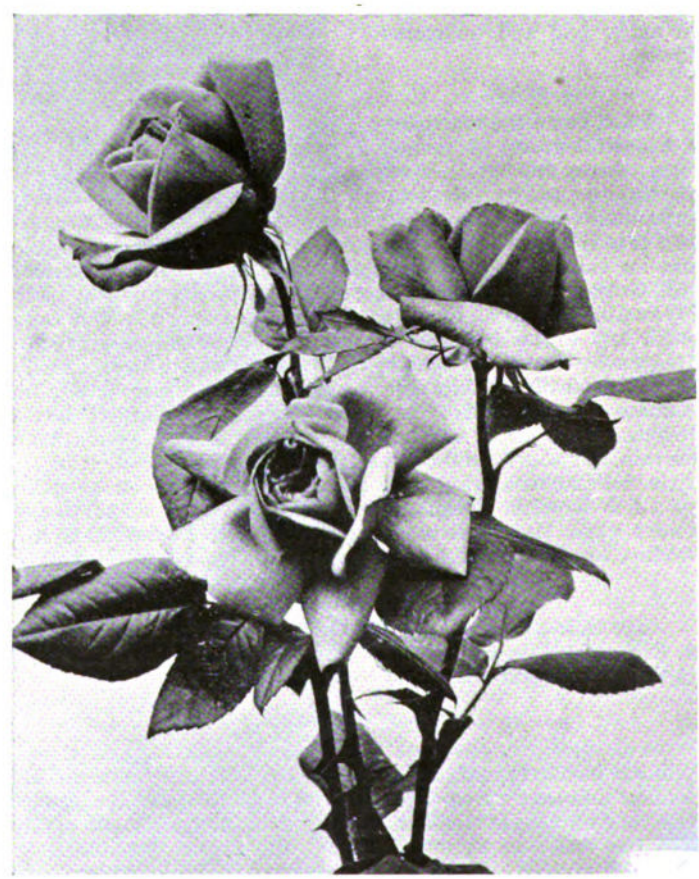
SOME ten years ago—shortly before the war—a good deal of discussion took place on the classification of roses, and several papers on the subject were contributed to the National Rose Society's Annual of 1914, under the general supervision of the late Mr. George Gordon.

The main object of classification of any group of plants should be, so far as practicable, to give some indication of the affinities, history, origin and character of the plants classified, in aid of detailed description, but it is clear there may be other objects. We may wish to indicate the use to which the different plants may be put in the garden, and their adaptability for special purposes, or the flowers that should be shown in particular classes at our exhibitions, or the most convenient arrangement of the different forms in a nurseryman's catalogue.

In the roses generally grown in modern gardens there is one clear line of difference that may easily be recognised, the one group being the bunch-flowered roses, which carry their flowers in a truss or bunch all opening more or less at the same time. This we find in the polyantha pompons, such as Mrs. W. H. Cutbush and Orleans Rose, and in many of the climbing roses of the Wichuraiana and multiflora sections, such as Dorothy Perkins and Crimson Rambler. The individual flowers in these cases are small and generally rather open in character. In the second group the flowers are much larger and borne more or less singly or, if they are carried in a head, as is often the case, they open successively and not all together. The flowers themselves are large and generally enclose the floral organs rather closely, giving the high pointed forms with which we are familiar in roses such as Avoca, Mrs. Theodore Roosevelt, Mrs. Herbert Stevens and the pink and white Cochets. However convenient a rough classification of this kind may be for certain purposes, it tells us nothing of the origin, and little as to the character of the individual varieties, and neither this nor any of the artificial arrangements that have been suggested have displaced the more orthodox groups, which have arisen with the development of the rose and give some general idea of the parentage and habit of the members of the different groups.

In this article I shall deal only with the more or less dwarf growers suitable for beds and borders and shall not include the climbing roses.

The modern rose has been produced mainly by crossing wild and garden forms of the rose with varieties of the China or tea rose, over a long period. Sometimes this was done naturally and later artificially. The results so obtained were re-crossed over and over again with China or tea roses. By this method forms have been produced which combine the hardiness and, in some cases, the fragrance of the older forms with the perpetual flowering character of the Chinas and teas. Fifty years ago garden roses had become very numerous



A TYPICAL ROSE OF THE PERNET GROUP.

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in spite of those discarded. Of the list of some 200 names given in the Appendix to Lindley (1820), very few were left even then, and, if we except Spong, York and Lancaster, and Maiden's Blush they are probably all gone to-day. The classification of those grown fifty years ago had, however, become very complicated. Mr. William Paul in his great book on the rose garden enumerates no fewer than forty-one classes of garden roses, twenty-one of which he classes as summer flowering and twenty as autumnal. There was the reign of the hybrid perpetual which in size, and form, and often in fragrance, held easily the first place in the rose garden. To-day the hybrid perpetual is gradually disappearing — nay, it is almost gone, but it will be convenient to consider first this group and then the large-flowered kinds that are in effect replacing it.

A TYPICAL TEA ROSE.

THE HYBRID PERPETUAL.

The hybrid perpetuals still contain two roses of the first rank, Frau Karl Druschki, perhaps the best and most easily cultivated white rose, if one can forget its lack of fragrance, and Hugh Dickson, of delightful fragrance, fine form and habit. Mrs. John Laing, also very fragrant, is not far short of these two, and perhaps the wonderful flowering capacity and fine colour of Victor Hugo may keep it for a time, but it possesses in a marked degree that characteristic of so many of this group, namely, that to get one good rose there will be many bad and quartered flowers.

TEA ROSES.

Then come the tea roses, a beautiful group of refined form which, much to my regret, seem almost to be sharing a like fate so far as this country is concerned. British raisers have almost ceased to produce them. We had two good decorative teas in 1910, Lady Hillingdon and Mrs. Herbert Stevens, also an exhibition tea, Mrs. Foley Hobbs; in 1911, Alexander Hill Gray; in 1912, Mrs Herbert Hawkesworth; in 1914, Lady Plymouth and Mrs. Campbell Hall; since which I can only recall Mr. Prince's Muriel Wilson (Dr. Campbell Hall, 1922). There are two things against the teas as garden roses; nearly all the beautiful exhibition forms, such as white and pink Maman Cochet and Mrs. Foley Hobbs, hang their heads downwards, a habit which, while it protects the flowers from the rain, detracts from their garden value; and, in the next place, their delicate colouring and tender petals are readily spoilt by a few showers. Perhaps this country is too cold for them. Under glass the Bride and its pink sport, Bridesmaid, still produce lovely flowers, but they are of little use out of doors.

THE CHINAS.

The Chinas form a small group of even purer descent from R. indica than the tea rose. The old monthly rose and Comtesse du Cayla are good examples.

THE HYBRID TEAS.

This group began with Cheshunt Hybrid, 1873, and was followed by La France, 1877, a rose which became immediately popular and may be considered to have established the group. The very numerous members of this group merge imperceptibly into the teas the hybrid teas and the Pernet group (to be presently noticed). I think few rosarians could define precisely why Hugh Dickson should be classed as a hybrid perpetual and George Dickson as a hybrid tea, both roses making the strong autumnal growth chiefly characteristic of the former group.

Between the hybrid tea and the roses of the Pernet group the distinction is yet more difficult to find. Emma Wright, which is classed as a hybrid tea, is in the bud stage and that of the opening flower, indistinguishable from Severine, which is classed with the Pernet group. It is true that as the flowers fade Severine becomes slightly more pink than Emma Wright, and it has perhaps slightly more polished foliage of not quite so deep a green as that of the other, but these differences are not such as separate the typical members of the two groups. We must therefore be content to recognise that the boundaries of these groups are to some extent artificial and arbitrary and have been determined to a large extent by the judgment or fancy of the raisers.

In this group a very beautiful class of single or nearly single decorative roses has arisen of which Irish Elegance, Irish Fireflame and K. of K. may be taken as examples. In the best forms of these single or semi-single varieties the flowers are borne very freely on long sprays and open more or less in succession.

The perpetual flowering of the members of this group is obtained by the readiness of the plant to push up fresh growths from the flowering stem often before the first flowering is finished, this process being again repeated till the frost interposes and it is characteristic of the typical forms, such as Mme. Abel Chatenay in their second growth to produce from near the base a much branched panicle of flowers which open successively, and should be moderately thinned while still buds if good flowers are required. Although some of the group, such as Betty Uprichard and K. of K. possess little, if any fragrance, and must rely on their colour and form for their attraction, the group contains many highly perfumed flowers, notably Mrs. Bryce Allan and George Dickson.

PERNET ROSES.

The Pernet group has become both numerous and popular, the original member, Soleil d'Or, was obtained by M. Pernet Ducher in his search for a yellow rose by crossing the hybrid tea with Persian Yellow. The plant proved a strong grower, but the flower was very poor in form, and had little to attract except its colour. It was, however, succeeded in 1910 by Rayon d'Or and two years later by Mme. E. Herriot, often called the *Daily Mail* rose in consequence of its winning the cup presented by that paper at the International Exhibition of 1912. These have been followed by a numerous progeny, which, as above stated, merge into the hybrid teas. They are for the most part lacking in fragrance, but some few, such as Golden Emblem, possess a certain tea rose perfume. The typical members of the group are characterised by having many strong thorns, generally red and translucent when young, and large, dark and glossy foliage.

These roses were at first called Austrian hybrids, from a supposed connection with the Austrian briar. Later the National Rose Society adopted the inconvenient and incorrect Latinised form, "Pernetiana." It is better, however, to refer to the group as Pernet roses. No one nowadays speaks of Rosa Noisettiana, which is a case very similar to this.

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MUSK HYBRIDS.

Mr. Pemberton has given us another new group of beautiful decorative flowers by working with the musk rose on our garden hybrids. Perhaps the best known and most useful of these are Moonlight and Pax, both of which grow well, but there are many others, and he may doubtless show us even better roses in the future.

POLYANTHA POMPONS.

The polyantha pompons form a gay little group, specially suitable for growing in small beds in place of bedding plants, for they are full of flower and bright all summer. Crossing the hybrid tea with R. multiflora, produced three groups of plants, first the tall-growing ramblers of which Crimson Rambler, brought out by Mr. Turner in 1893, was the first to attract attention. These were summer flowering only; next came an intermediate group which grew to 6ft. or 8ft. and flowered again in autumn. Of these Adrian Riverschon may be taken as an example. Finally came a dwarf group which flowered continuously through the season. One of the first of this group was Cecile Brunner, 1880, but it was the arrival of Mrs. W. H. Cutbush in 1906 which really established the popularity and value of the group as bedding roses. Since then the group has extended rapidly and includes such well known kinds as Orleans, Ethel Poulsen and Edith Cavell (the best crimson so far). For the most part they possess little fragrance, but Ethel Poulsen and Yvonne Rabier are delightfully scented. The flowers are generally rather open in character and produced in large heads, all the florets of which open more or less simultaneously.

The above groups in effect represent the dwarf roses of our modern gardens. For those who have room there are many others still worth growing. The dusky Tuscany, Maiden's Blush, Rosa alba, and R. altaica are all charming, but their place is outside the rose garden proper.

THE SOUTHERN BEECHES

BY W. J. BEAN.

NOTHOFAGUS ARE HANDSOME TREES WHICH SHOULD BE FAR MORE OFTEN SEEN IN OUR GARDENS AND WOODS. THEY ARE ONLY FOUND IN THE SOUTHERN HEMISPHERE AND ARE CLOSELY ALLIED TO OUR BEECHES.

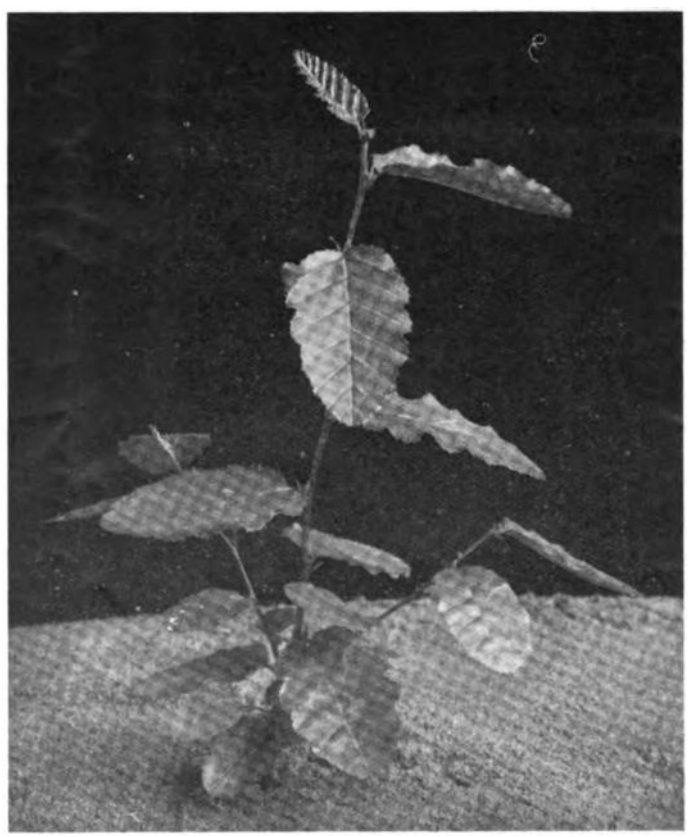
TO the tree lover, one of the chief anticipations engendered by the prospect of a visit to Chile or New Zealand would be the sight of the magnificent beeches growing in those countries. Until comparatively recently they bore the same generic name as the beeches of the Northern Hemisphere (Fagus), but there is now a general agreement that they should be distinguished by the name Nothofagus. Many of them are evergreen, while all the northern species are deciduous and their foliage as a rule is very much smaller. Apart from conifers, indeed, several species seem to stand alone among the large trees of the world by reason of the smallness of their leaves. There is the Chilean N. Dombeyi, for instance, which has a trunk 8ft. or 9ft. in diameter with leaves averaging 1in. in length; still more remarkable is N. Cunninghamii, a Tasmanian tree, which is described as attaining 200ft. in height with a trunk 12ft. to 13ft. in diameter, but whose leaves are only about ¼in. long; then N. obliqua is 120ft. high, and Menziesii and fusca 100ft.

In this country we admire these trees chiefly for their elegance and distinction, for, with the exception of N. obliqua, none of them promises to become of timber-producing size. But even in a small state they are very attractive, largely perhaps because they are so different from our northern type of tree. One of their characteristic features is the arrangement of their leaves in two opposite rows along the branchlets.

As regards hardiness they are certainly not fitted for the most inclement parts of the British Isles. They succeed best south and west of London, but the following species have for several years grown well at Kew: antarctica, betuloides, Dombeyi, obliqua and procera. These, it will be noticed are all South American; in fact, no success in the open air has been obtained with the Australasian kinds. The successful cultivation of New Zealand, Tasmanian and Australian species can only be accomplished in localities where the general run of New Zealand trees and shrubs and Himalayan rhododendrons such as Aucklandii and grande succeed.

They do not seem particular as to soil, but prefer more than any perhaps a good, deep, friable loam. But on the peaty soil at Knap Hill there used to be (perhaps is now) a quite good specimen of N. betuloides. I do not remember seeing any of them in gardens situated on chalk or lime that I have visited, but that is a matter on which I have no definite knowledge. Perhaps information could be supplied by some readers of THE GARDEN.

The best grown trees will probably be those raised from seed, but layers for possibly all, and cuttings for some, may be used. N. Dombeyi and N. procera we have struck quite easily from late summer cuttings, and N. betuloides and N. antarctica have taken root from layers; the former, however, is very slow.



ONE OF THE MOST PROMISING SOUTHERN BEECHES, N. OBLIQUA.

SOUTH AMERICAN SPECIES.

N. ANTARCTICA.—According to Loudon, this tree was first introduced to this country along with betuloides in 1830; it was also sent from Tierra del Fuego by Sir Joseph Hooker in 1843. Writing in his "Flora Antarctica," this famous botanist and traveller says that, along with betuloides, it principally composes the dense dark forests which cover the shores of the Straits of Magellan and the mountain slopes of Tierra del Fuego. N. antarctica reaches considerably higher altitudes than betuloides and ought, one would imagine, to be considerably hardier. The earliest introduced plants, nevertheless, did not survive, and Elwes and Henry at the time of publishing the third volume of their great work had only been able to discover in Great Britain a single tree, which was at Hafodunos in Denbighshire and was then 15ft. high. Mr. Elwes brought home seeds from Chile in 1902, from which a considerable number of plants were raised. These have succeeded very well up to the present time and some are now 15ft. to 25ft. high. N. antarctica is

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deciduous, and although these trees have not the slender shape or stature of N. obliqua introduced at the same time, being more spreading and bushy in habit, they are still quite elegant. The leaves are ½in. to 1½ins. long and are set in two opposite rows on the downy branchlets not often more than ½in. apart; they are minutely round-toothed.

N. BETULOIDES.—First introduced from the south of South America in 1830 and afterwards by Sir Joseph Hooker in 1843, this charming evergreen tree is still comparatively rare—not so rare, however, as its companion tree, N. antarctica, was up to 1902. It has lived in the open air at Kew for the last twenty years and I have seen good specimens in the late Mr. Chambers' garden near Haslemere and in the Knap Hill Nursery. But it will never be so fine a tree in any of those places as it is in the south-western counties. No specimen of it in the British Isles, so far as I know, equals one in Lord Clinton's arboretum at Bicton in South Devon. I measured this in 1920 and it was over 50ft. high, about 40ft. in diameter, its trunk 9ft. in girth at 18ins. from the ground. The leaves are ½in. to 1in. long, ¼in. to ⅜in. wide, dark glossy green above, paler beneath, but not downy. They are set on the twigs ½in. apart and form masses of foliage, dense but not ungraceful. The leaf margins have rounded teeth and the young shoots are covered with fine down.

N. DOMBEYI.—For the first introduction of this fine tree we are indebted to Mr. F. R. S. Balfour of Dawyck, who imported seeds at the end of 1916. It is remarkable that so notable a tree should not have been introduced before, for, according to Mr. Elwes, it forms, along with N. obliqua, the chief timber supply of Chile. Near the Baths of Chillan he measured two trees, one 27ft., the other 22ft. in girth of trunk. But the seeds of these southern beeches seem to keep badly, or a large proportion of them are infertile. Mr. Elwes brought home seeds in 1902, but none of them germinated, and of the considerable quantity Mr. Balfour imported in 1916 only four grew. This is an evergreen tree, its leaves being ⅜in. to 1½ins. long, half as much wide, ovate to ovate-lanceolate in shape, pointed, finely and rather unevenly toothed. They are dark glossy green above, paler bright green beneath and specked with minute blackish glands on both surfaces, but more thickly beneath. The young shoots are clothed with very minute down. As a young tree it is very elegant. The young trees raised from Mr. Balfour's seeds are succeeding well and have not been affected adversely by any winter cold since 1917, although towards spring they sometimes lose a good proportion of their foliage and cease to be as strictly evergreen as they appear to be in their native country.

N. OBLIQUA.—At present this is the most promising of all the southern beeches in cultivation. It was originally introduced from Chile by William Lobb for Messrs. Veitch in 1840, but apparently none of that sending survives, and the best trees now in cultivation we owe to the late Mr. H. J. Elwes, who brought seeds home in 1902. One of several trees at Kew now twenty-two years old is 56ft. high, the stem 3ft. 2ins. in girth. They are slender in form, extremely elegant, and on the whole among the most attractive of all deciduous trees of their size and age. And apart from poplars there are not many hardy deciduous trees whose average annual growth exceeds 2½ft. It does not appear to be known how it was that trees of Lobb's introduction died out. If one had time to wade through the gardening periodicals from 1849 onwards, it might be possible to find out. Judging by the behaviour of existing trees they would appear to be quite hardy, but since 1902 we have had no frosts like those of February, 1895, or winters like that of 1860–61. Until we do, there must remain some uncertainty as to whether this beech can endure all that the English climate is capable of. Its leaves are 1½ins. to 3ins. long, about half as much wide, with irregular, triangular, pointed teeth on the margin. The young shoots are not downy. It flowers quite freely and develops the small three-sided nuts, but none of these, so far as I know, has proved fertile.

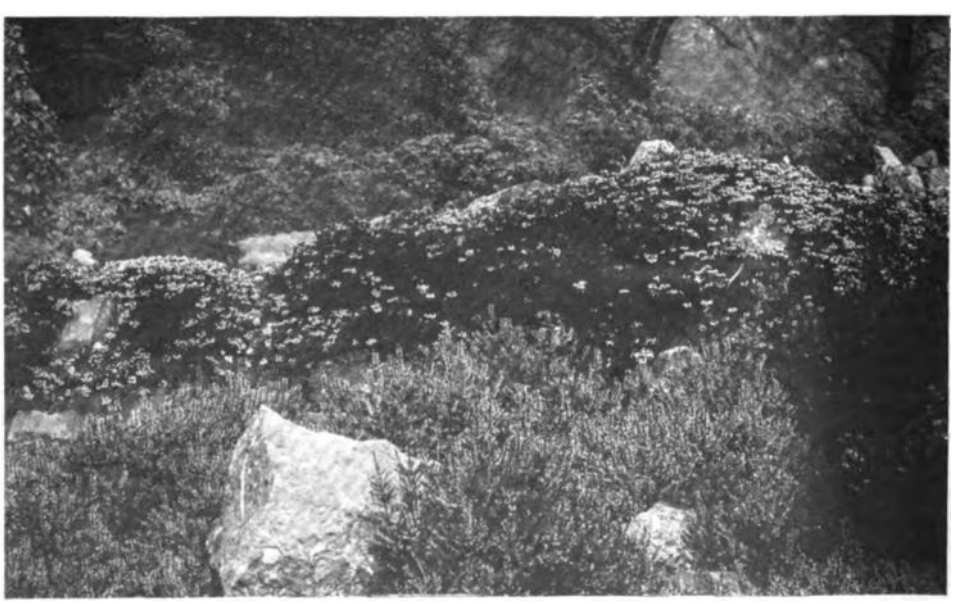
N. PROCERA.—This Chilean tree does not appear to have been introduced to this country before 1913, in which year seeds were sent to me by the Dendrological Society of France, of which I am a member. It has grown well, and during the eleven years it has been growing at Kew has not been in the least affected by cold. Naturally, it is a deciduous tree of large size. From the other Chilean beeches it is very distinct in the size and character of the leaves, the largest of which are up to 4ins. or 5ins. long and 1¾ins. wide, finely toothed. In general appearance they suggest the leaves of hornbeam or, still more, those of Alnus firma, having on each side the midrib fourteen to eighteen prominent parallel ribs. The young shoots are downy. Our young trees are of erect growth, rather stiff in habit, and unless their progress is interrupted by more cold than they like, promise to make fine trees. Cuttings put in in gentle heat in August have taken root readily.

(To be continued.)

SOME NOTABLE ERICACEOUS PLANTS

APART from the rhododendrons and heaths there is a number of allied shrubs which do not seem to be as well known as they deserve to be, plants often of the rarest charm and which are not in the least degree difficult in any medium lime-free loam. Most of these, it is true, like the latter to be on the cool side and they enjoy really old leaf-mould. But that these so-called peat plants need peat is a fallacy which has doubtless been instrumental in deterring many gardeners who do not possess that material from going in for them.

Here I can only deal with a select few, and none of the easier ones is more deserving of first mention than Bryanthus (Phyllodoce) empetriformis. This delightful little shrub will cover a couple of square feet or more with its semi-prostrate, heath-like foliage, and in spring and again in autumn it is singularly beautiful with its crop of bright rosy purple, pitcher-shaped flowers supported by stems and calyces in a vivid crimson. This species is the best and hardiest of its genus, and none is more worthy of fuller recognition. B. Breweri, not less charming, of much the same habit of growth and with very similar foliage, is not quite so hardy and it does not always flower with the freedom of the sister species. The flowers of this



THE BEAUTIFUL AND HARDY BRYANTHUS EMPETRIFORMIS WITH ITS CHARACTERISTIC ALMOST PROSTRATE HABIT AND ITS MASSES OF ROSY PURPLE BELLS.

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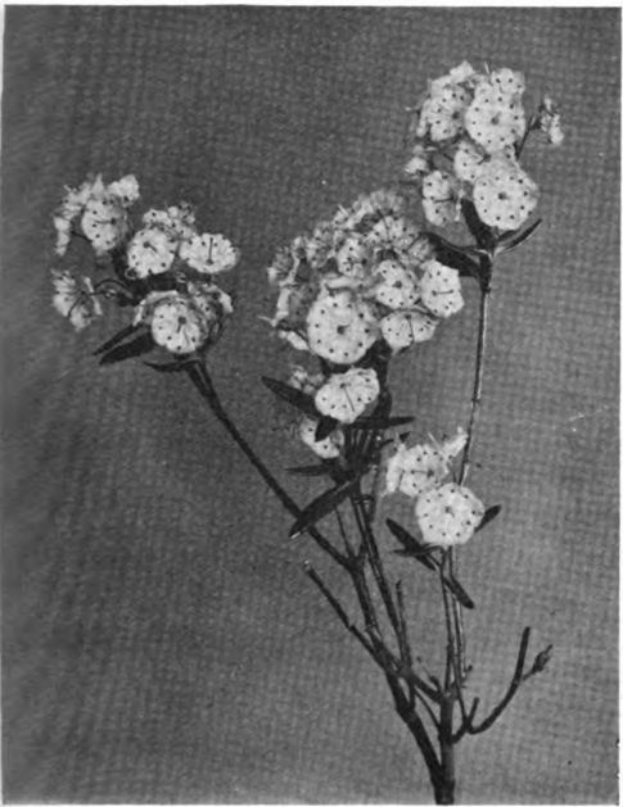

ORNAMENTAL IN FLOWER AND FOLIAGE, KALMIA LATIFOLIA

Californian are borne in short racemes instead of singly as in empetriformis, and the rosy lilac corollas are not contracted at the mouth but spread wide open like little bells.

B. erectus, now called Phyllothamnus erectus by our masters, is a rare and choice shrublet which no lover of dwarf ericaceous plants should be without. It may be expensive, it may even be difficult to acquire at any price, but there are firms—all praise be to them—who stock this jewel and it is worth all they ask for it. B. erectus is said to be a hybrid between Rhodothamnus Chamæcistus and B. cœrulea (which I find is not nearly as blue as it is painted) and it presents itself as a sturdy bushling under a foot in height and well furnished with a bright glossy green, yew-like foliage. In spring the flowers appear in clusters at the tips of the branches, and these might be likened to those of some tiny azalea, the spread of the five-lobed corolla, which is a lovely shade of clear rose, being about half an inch. We find this precious treasure quite easy and good-tempered on a cool side in the heath garden, the soil being shaley loam enriched with a little leaf-mould.

Under similar conditions Bruckenthalia spiculifolia also prospers, making dense cushions of fine, heathy foliage. Above these arise the flowers in early summer, closely packed racemes of pale pink corollas, their wide-open mouths being suggestive of some calluna. I have seen this neat little heathy plant growing under conifers where the ground is often very dry, but it seems to need exposure to enable it to flower well. Kalmia glauca must also be included in this list, for it is a singularly pretty shrub, not often more than a foot in height, with narrow leaves of a deep lustrous green and almost white undersides. The flowers, which appear in late spring in terminal clusters, are about half an inch across, of the characteristic kalmia shape, and the colour is a pleasing full-toned rosy pink. Being naturally a bog plant (I have seen it flowering with its feet in shallow water in the Rockies), K. glauca has a right to insist on moisture being sufficient at all times, especially in spring, but it will be happy enough in a really cool mixture of leaf-mould and loam with a top-dressing of the former (or layer of sphagnum) over the roots in April.

Another dwarf North American of quality is Leucothoë (Andromeda) Davisiæ, the Benjamin of rather an exclusive race and perhaps the most beautiful. This, again, is by no means difficult if the simple demands of most of its genus are observed. We grow it in a partly shaded woodland bed allotted to such things, the root run consisting largely of leaf-mould, mainly of the pine wood variety. L. Davisiæ is a shrub of 1ft. or 2ft., rather rigid in habit, with leathery, dark green leaves and jaunty cockades of flower racemes, the corollas being white and nodding.

In the same grouping, but where it gets full sun, is Leiophyllum buxifolium, the sand myrtle of the Eastern States of North America. Sweet-tempered as it is and charming at all seasons, this pretty bushling is not seen as often as it might be. It prospers in any coolish loam and when its small, box-like foliage, dark green and highly burnished, is studded with its innumerable crimson flower-buds it is even more delightful than when the whole plant becomes a rounded mass of silvery white, pink-tipped blossoms scintillating like crystal in the sunshine of May.

L. buxifolium has a cousinly relationship with the ledums, but we have not yet managed to make much of a success with these, and the cassiopes and Epigæa repens must also be numbered among the willing but weak nostalgics which refuse to be comforted. While we have not yet abandoned all hope of satisfying these fascinating wildings, there is no gainsaying that what they usually crave for is not so much their native soil as their native air. They yearn for the spartan winters and mosquitoed summers of their far-off motherland, the silent North, and for these our kindliest substitutes are but a poor makeshift.

Vaccinum glauco-album is an uncommon and distinctive member of a numerous and conflicting clan, a shrub of rather more than 2ft. which at first glance might be taken to be Gaultheria Shallon. But it is smaller in all its parts than the latter, the undersides of its leaves are a vivid bluish white, and this colour also pervades the flower-bracts and the fruit. A most desirable shrub for associating with heaths and kindred subjects. Here it has for stable companions some of the more easily grown gaultherias, such as G. Veitchiana and the closely allied Hookeriana. G. Forrestii and pyroloides cuneata, Used as a carpeter about such subjects

THE HANDSOME WINTER GREEN, GAULTHERIA PROCUMBENS.

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as the above and others, G. tricophylla is very precious and, once it is established, by no means backward in yielding its intensely blue fruits, which seem so enormous for so small and slender a plant. As for G. procumbens, it grows freely almost anywhere in the woodland, and familiarity will never breed contempt for its bright red winter berries. G. nummularioides also prospers abundantly, draping a bank with its long, prostrate stems, closely set with their pairs of dark green, rusty leaves and overlapping one another in a dense tuft like a greatly magnified spleenwort fern. Though this Himalayan flowers well, hiding its inconspicuous corollas underneath the leaves as if it were conscious of their feebleness and never suffering from frost, it does not ripen its fruit with us. A. T. JOHNSON.

DECEMBER AT VINCENT SQUARE

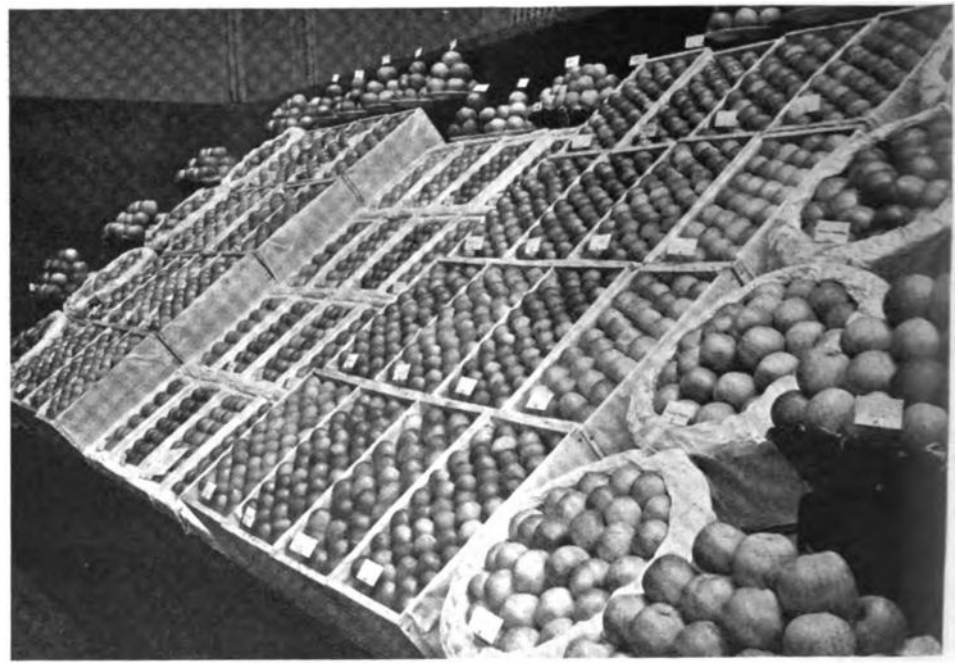
THE end of the season is gradually becoming more apparent at the fortnightly shows of the Royal Horticultural Society, and although there were many exhibits at the second last meeting of the year, held on December 2nd, there were few floral exhibits to lend brightness to the hall. True, there were one or two fine shows of chrysanthemums for December, and the orchids were good, but one had to rely chiefly on the work of the artists for colour effects. There was also a distinct falling off in the attendance, due, no doubt, to the miserable weather conditions. Fruit was represented by small but well arranged collections from Messrs. Bunyard and Co., H. Hemsley and the Hollesley Bay Labour Colony. The main exhibits were those from landscape architects, artists and sundriesmen, and these always evoke a considerable amount of interest, especially if any new and, to all intents and purposes, useful article makes its first appearance before the public. Gardeners, although often criticised as a conservative body, are sometimes eager to have a trial of any new appliance when it comes along, and if it meets with their requirements the extended use and ultimate success of the article is assured. One particular exhibit was of interest, that of Mr. J. Jardine with his Médoc and Guienne secateurs. Gardeners are well aware of how many patterns of this useful tool are on the market, and also how many of these are totally inferior. These "Guienne" secateurs, however, although expensive, apparently have everything in their favour and merit a trial.

One of the main exhibits at the Show was that of Mr. George Reuthe, Keston, Kent, who had a very fine collection of conifers, almost every genus being represented by one or more species and varieties. Within recent years, conifers have come to occupy a most important place in the world of horticulture. Their value from a timber and forestry standpoint has long been recognised; but with recent explorations all over the world and the discoveries of many species new to science, and the interbreeding of these species by the enthusiast, there has arisen a multiplicity of new varieties and forms eminently suited by their shape and size to be classed as inhabitants of any ordinary garden. The rock gardener knows their value in his alpine patch, while the shelter given by others, suitably planted, to plants of less hardy constitution is unrivalled. They are admirable as shelter belts, wind screens and hedges. Mr. Reuthe's collection enabled one to see the enormous progress which has been made during this present century. It was a representative world collection—from China and Japan to the western seaboard of America, and from New Zealand to northern Canada. The pines were well represented by such species as aristata, Balfouriana, contorta and flexilis—the latter a most graceful species; while the spruces or piceas, so often confused with abies, were shown to advantage by such forms as aurantiaca, koyamia, Morinda and Engelmanni. Perhaps the most ornamental and decorative of the cultivated conifers are the firs, especially valued because of the white under-surfaces of their leaves. Their decorative qualities were admirably shown by species such as balsamea, numidica, concolor and Webbiana.

Those selected as suitable for pot culture and decorative plants for the house included Widdringtonia Schwartzii—a most graceful plant—Picea Vilmorini, species of podocarpus and abies. Formerly, the one and only decorative conifer grown in the house was Araucaria excelsa; but with such a selection one's slightest whim can be satisfied. The gathering together of a collection such as Mr. Reuthe staged involves much labour and skill, time and patience, and we feel sure that his efforts will be well rewarded by the patronage he deserves at the hands of the horticultural public.

A touch of colour was lent to the drab and mournful appearance of the hall by Major Pam's well arranged exhibit of begonias. There were well grown seedlings in shades of pink, salmon and white, all tastefully arranged. The flowers were carried well on their stems and were shown off to distinct advantage by the always delightful green tints of the leaves. The plants did not show any ill effects of frost or other evils attendant on our clime which befall so many other raisers of this plant, and the fact that Major Pain braved the elements in these dull December days with his exhibit gave pleasure to many on Tuesday last. Begonias, more than ever, are being largely employed for bedding purposes, and as such give excellent results, far superior to the old days, when they were treated as stove plants. They also lend themselves for conservatory and other decorative work, being especially valuable owing to their long flowering season, which lasts from mid-July till the advent of frost. They are of easy culture and, in fact, in every way they merit the attention of the amateur. Major Pam's collection should do much to arouse that interest in this plant which is only now beginning to assume its rightful position among the many others of its kind.

The Hollesley Bay Labour Colony showed a most excellent selection of apples and pears packed for market. Although the size in some cases was not large, yet the colour was good and the grading beautifully carried out. Many of the common market varieties were to be seen, among them very fine examples of Bramley's Seedling. The packing was equal to that of any foreign apples that we have seen. The exhibit reflected great credit on Mr. H. Barton, the superintendent.



THE EXCELLENT EXHIBIT OF APPLES BY THE HOLLESLEY BAY LABOUR COLONY.

Other exhibits were as follows:

Apples.—Messrs. Bunyard and Co., Hollesley Bay Labour Colony, H. Hemsley.

Begonias.—Major Albert Pam.

Cacti.—Mr. Sidney Smith.

Carnations.—Messrs. Allwood Brothers, Stuart Low and Co., C. Engelmann.

Chrysanthemums.—Messrs. Keith Luxford, Cragg, Harrison and Cragg, A. G. Vinten, Mr. Arthur Young.

Conifers.—G. Reuthe.

Cyclamens.—Messrs. Stuart Low and Co., Caledonian Strain Floriculturists, Sutterbridge, Luton.

Grapes.—The Hon. Vicary Gibbs.

Hardy Plants.—William Wells, jun.

Orchids.—Messrs. Cypher, Limited, Sanders, G. F. Moore, London Gardens, Florists, Stuart Low and Co., H. J. Pitt, A. J. Hollington, Sir Arthur Watson, Messrs. Cowan and Co., Robert Paterson.

Shrubs.—H. Hemsley.

Topiary.—J. Klinkert.

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Violets.—J. J. Kettle, Baldwin Pinney.
Landscape.—Percy S. Cane, Jean Graef (mistletoe grafts).
Artists.—Edith A. Andrews, Maud G. Angell, Marion Broom, Edith Fisher, Agnes Foreman, Margaret Linnett, Sophia Miller, Mrs. Henry Spenser, Claridge Turner, Winifred Walker, Ellen Warrington, Juliet Williams, Alice E. Wilkinson.
Horticultural Sundries, Tools, etc.—House and Garden Sundries Company, Limited, Messrs. Walkers (fruit tree protectors), Chase Continuous Cloche Company (alpine plant protectors), E. R. Buggé (sprays and powders), J. Jardine (Médoc and Guienne secateurs), Thomas Gunn, Limited (tools), Miss Alice Baker, John Pinches (Acme labels), Ashtead Potters, Limited (china bowls), H. J. G. Wood (plant supports), Radium Fertilizer Company (fertilisers), Carter and Williams (labels and insecticides), Abbott Brothers (bird sanctuaries and shelters), A. Everitt (gardening gloves), S. E. Wilson (garden lights).
Jams, etc.—Miss Hilda Sewell, Moyleen Confections, Limited, Pickering Cottage Preserves (bottled fruit).

NEW AND RARE PLANTS.

AWARDS OF MERIT.

CARNATION JANET.—This is a perpetual-flowering variety with well formed blooms of a deep carmine tinged with blue in colour. These are borne on stiff, wiry, tall and erect stems, carrying the flowers well. It has a slight fragrance. Shown by Mr. C. Engelmann.

CARNATION DORIS COX.—A perpetual-flowering variety which did not in any way appeal to us. The blooms are carried well, but the colour is in no way attractive. It is a washed-out shade of lilac-mauve. Shown by Mr. George Carpenter.

RHAMNUS ERYTHROXYLON.—This species is a representative from eastern Siberia and Mongolia, and, from the fruiting sprays exhibited, appears closely allied to R. cathartica. It is a hardy deciduous shrub, and at this time of the year bears clusters of black fruits about ¼in. across. In appearance it is handsome, though somewhat funereal. Shown by the Hon. Vicary Gibbs.

ORCHIDS.

Cypripediums formed the chief feature at this meeting, the day having previously been selected for a special display of the autumn-flowering kinds. A gold medal was awarded to G. F. Moore, Esq., Chardward, Bourton-on-the-Water, Glos., for a group of outstanding merit, while a silver-gilt Lindley medal was awarded to his gardener, Mr. W. H. Page, for the excellent cultivation of all the plants. Another attractive group was staged by Robert Paterson, Esq., Cathcart, Glasgow, who received a silver-gilt medal for a choice selection, a bronze Lindley medal being awarded to his gardener, Mr. Merry.

CERTIFICATED ORCHIDS.

BRASSO-CATTLEYA BRITISH QUEEN VAR. SPLENDENS (B.-C. Dibyano-Mendelii × C. Lord Rothschild).—An immense flower of its kind, of rose pink colour, the expansive labellum prettily fringed at the margin, of rosy mauve colour on the front and side lobes, the throat lemon yellow. From Messrs. Cowan and Co. First-class certificate.

CYPRIPEDIUM CAPPAMAGNA VAR. FRED SANDER (Cardinal Mercier × Nubia).—Flower well above the average size, the broadly developed dorsal sepal heavily flushed with deep purple colour, the petals and labellum well proportioned and tinged with red-brown. From Messrs. Sanders. First-class certificate.

CYPRIPEDIUM CRUSADER, WESTONBIRT VAR. (Lucifer × Julian).—Probably the best hybrid yet seen combining size and colour. The large dorsal sepal orbicular in shape, almost covered with crimson colour, the upper border being white; petals and labellum yellowish, heavily tinged with mahogany colour. From Lieutenant-Colonel Sir George Holford, K.C.V.O., Westonbirt, Tetbury, Glos. First-class certificate.

CYPRIPEDIUM DORIS STANTON (Goliath × Pyramus magnificum).—One of the largest of hybrids in the genus, the dorsal sepal flushed with light rose, the upper part white, the broad petals and labellum tinged with dark purple. From G. F. Moore, Esq., Chardwar, Bourton-on-the-Water, Glos. First-class certificate.

ODONTONIA ALEXANDRA (Odontonia Merope × Odontoglossum Crethus).—A further step in the production of a warm-growing Odontoglossum, suitable for the United States of America, and produced by the inclusion of the genus Miltonia in the parentage. Sepals and petals blotched and spotted with crimson-purple, the widely formed labellum whitish, blotched with dark red at the base and with a yellow crest. From Messrs. Charlesworth and Co. Award of merit.

ODONTONIA OLIVIA VAR. PRINCESS (Miltonia Bleuana × Odontoglossum triumphans).—An improvement on the original form of this bigeneric hybrid; the segments of golden colour, blotched with red brown. From Messrs. Charlesworth and Co. Award of merit.

CYPRIPEDIUM OUR PRINCE (Goliath × Tommy Curte).—A large flower of bold construction, carrying forward the well known attractive features of both parents. From Robert Paterson, Esq., Cathcart, Glasgow. Award of merit.

CYPRIPEDIUM MRS. STEPHEN ANDERSON VAR. BISEPALUM (Bourtonense × Christopher). The chief feature of this large flower is the unusually developed ventral, or lower, sepal, which closely resembles the dorsal, or upper, sepal, hence the varietal name. Of light greenish yellow colour, the sepals margined with a white band. From G. F. Moore, Esq., Chardwar, Glos. Award of merit.

NEW CHRYSANTHEMUMS.

The following novelties were submitted to the Floral Committee of the National Chrysanthemum Society on December 1st, when awards were made.

JOHN HOWE.—A large single of attractive shape with slightly reflexed tips to the florets. There is a broad zone of pale golden colour which towards the tips is heavily stippled with bright crimson. Shown by Messrs. Keith Luxford and Co.

MRS. E. C. KINNS.—This is a sport from the well known Baldock's Crimson, but is rather a more graceful bloom. The colour effect is bright orange. Although not a market flower it would be of use, on account of its colouring, in gardens. Shown by Mr. E. C. Kinns.

SUNSHINE WILCOX.—A well grown plant about 4ft. high, and several vases of this sport from Miss Wilcox were shown. The golden bronze Miss Wilcox has been sent in large quantities to Covent Garden Market during the past week or so. Both sorts are grown in graceful sprays of small flowers with narrow florets. Sunshine Wilcox is a very bright golden yellow. First-class certificate. Shown by Mr. Arthur Young.

WALTER HOWE.—A most brilliant single fully 6ins. across. The broad flat florets are in two rows and of a rich velvety crimson colour. First-class certificate. Shown by Messrs. Keith Luxford and Co.

PROPERTY DAMAGED BY ROAD IMPROVEMENTS

GARDEN WAYSIDE PROPERTIES.

OWNERS and occupiers of garden wayside properties often find that they are sufferers by reason of the activities of their local authorities in attempting to cope with the requirements of modern traffic. Two examples are to be found in connection with tar spraying work or road drainage, the results of which frequently cause damage and loss to properties bordering the highway. The unfortunate owner or occupier who is adversely affected in this way is generally perplexed when considering whether he has any right to be compensated for any injury imposed upon him by public work of such a character.

A CASE OF TAR SPRAYING.

Quite recently there was an action in the High Court against a District Council which had allowed its road surface water, charged with tar acids, to drain into two watercress beds belonging to the plaintiff, and through these beds to the streams beyond. The result was that the watercress beds were destroyed. The Council had tar-sprayed the road adjoining the property, but the tar was broken up some months after, during a spell of frost, and the surface water from the road soon contained sufficient tar acid to cause the injury described. The Council attempted to protect itself by its statutory powers under the Public Health Act, 1875, which, no doubt, allowed it to tar-spray the road, but not to discharge the road water so affected by the tar acid into the plaintiff's watercress beds to do damage there; unless, at least, the damage which resulted was not, practically, avoidable, in the exercise of the Council's statutory authority. The Council did not try to prove that the road water could not be taken to the stream, which was close by, without going through the plaintiff's property. But while it was entitled to the right to drain off the road water in this way, it had no such right to let the water drain into the watercress beds in the state it was in, nor, for that matter, into the stream itself, in its noxious condition. The Council failed to show that the result of what it had done was a necessary consequence of the discharge of its statutory power, and judgment was given for the plaintiff.

A DRAINAGE CASE.

It frequently happens that the property or premises of rural owners and occupiers, and sometimes those in urban centres, are injured by floods, or an abnormal rainfall, which the defective or insufficient drains or sewers of the local authority are unable to carry off quickly enough to avoid damage and loss arising. This question, too, has been lately considered, and by the Court of Appeal. A local authority, as it was then observed, would be liable in an action for damages, notwithstanding its statutory powers, whenever it was proved that those powers were exercised negligently in these matters.

A STATUTORY REMEDY.

When, however, there has been no such negligence by a local authority, in such or similar cases, but, nevertheless, damage has resulted from its proper discharge of its public work of this nature, the remedy of any person who suffers damage is not by an action, but by recourse to Section 308 of the Public Health Act, 1875, which provides that full compensation shall be made to any person, not in default, by the local authority exercising such powers for any damage which may have been sustained by reason of the exercise of any of the powers of the Act.

A LAWYER.

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MADRE DE LORO

FROM the crest of the ridge we look back down the tortuous mountain valley up which we have toiled, with its great rock masses, its patches of trees and bushes, and little terraced fields poised here and there on the steep slopes. Turning again, a glorious view lies in front of us. The ridge on which we stand sweeps away to the left in a semi-circle, varying from 3,000ft. to 4,000ft. in height, and enclosing a broad basin some miles in diameter, filled with dense unbroken forest—a finer forest scene than can be found anywhere else on the Canary Islands, for Gomera surpasses the other islands in the extent and luxuriance of its woods. Under the guidance of our Canario friend, we plunge downward into the cool shade. The composition of the forest is very interesting, for all the species which grow here are unfamiliar to us, at least as forest trees. Four members of the laurel family are conspicuous—Viñatico (Persea indica), Loro (Laurus canariensis), Barbusano (Appolonias canariensis) and Til (Ocotea fœtens). The first two of these are particularly striking, forming glorious lofty trunks. The beautiful davallia (D. canariensis) and the common polypody of our English rocks (P. vulgare) cling to their trunks, and a species of sempervivum (S. amnium) perches high up on the moss-grown boles and makes yellow splashes of colour, outshone by the scarlet fallen leaves of the viñatico. Among the other native trees we see the mocan (Visnea maconera), the hija, which we call Portugal laurel (Prunus lusitanicus), a fine large-leaved holly Acebiño (Ilex canariensis), Palo Blanco (Notelæa excelsa), Aderno (Heberdenia excelsa), marmolan (Pleiomerus canariensis) and several ericaceæ, madroño (Arbutus canariensis), Myrica Faya, Brezo (Erica arborea). The last named, the tree heather, perhaps interests us most, for we are rather proud of having at home a bush of it 10ft. high, which covers itself in early spring with fragrant grey-white blossom. But here it forms groves, 50ft. in height. I try to get my arms round one of the trunks, but my hands do not meet, for it is 7ft. in circumference.

A diversion occurs. Our guide steps out on a projecting spur, surveys the valley below, puts his fingers to his lips, and gives a long complicated whistle. We listen with attention, for this is the famous whistling language of Gomera. The sound echoes from the woods opposite, is repeated by more distant hills, and dies away. The whistler listens, shakes his head, and calls again. Whee, whee, whee—whee, whee, whe, whee-e-e-e, floats out over the forest. No answer. We resume our march, and half a mile farther on the shrill call is given again. This time a faint clear answer comes up from far below. "Good," says our guide; "I was telling Juan to bring a cheese to the luncheon-place," he explains. Presently we debouch into an open glade, where a sight greets us most rare in the Canaries—a broad, cool, rippling stream. The hot sunlight dances on the shallows, and the sides are lined with ferns of many kinds. "Here we eat," says Don Pedro. Bread and wine, sardines and gofio, appear from mysterious saddle-bags. The gofio is kneaded with water from the stream, and lunch is ready. While we eat, a venerable man strides up, his long "lanca" in one hand, in the other a fresh cheese wrapped in a clean napkin. "Ah, Juan," says our guide, "you have come."

After lunch we are called aside to see one of the curiosities of the forest. A great laurel ("bay," we would call it) rises solitary, and on its trunk, a few feet up, is a curious outgrowth forming a ring round the stem—a series of almost forked growths, neither roots nor branches. They are soft and velvety to the touch, and remind one of a deer's horns while still in the velvet. They come away easily from the stem, and we break one across. The section shows a uniform green watery tissue, like the stem of a succulent plant. It has the fragrant scent of laurel, and is clearly portions of the tree, not a fungus parasite or anything of that sort. It is a puzzle, and we appeal to our guide for information. "Madre de Loro" (Mother of Laurel), says he. What is it? Frankly I do not know, nor have I discovered any reference to it in the books to which I have had access. No doubt the men of science have worked it all out—probably those industrious Germans to whom we owe most of our knowledge of the plants of the Canaries. But I am not sure that I do not prefer leaving it there, a mystery among those beautiful forests.

R. LLOYD PRAEGER.

CORRESPONDENCE

HARDY PERENNIALS FOR SUB-TROPICAL GARDENS.

SIR,—In his interesting paper on this subject (page 792), Mr. Canning-Wright bestows well-merited praise on the pampas grass; but I cannot agree in his opinion that "nothing excels it." I submit that Arundo conspicua is its superior in several respects. Its long wands bear aloft their heavy silky tassels at mid-summer, and at the present time (November 21st), these are as fresh as ever; whereas the pampas grass does not flower until autumn (in this late untoward season none appeared until October). The arching stems of A. conspicua are far more slender than those of the pampas grass, but they are of a consistency enabling them to withstand any amount of buffeting and to carry the flowering heads untarnished well over Christmas.—HERBERT MAXWELL, *Monreith.*

HYACINTHS IN ORCHID POTS.

SIR,—I herewith enclose a photograph of hyacinths grown by me in orchid pots. They are easily grown in this way, and are quite a novelty. I hope the illustration will prove of interest to the many readers of your valuable paper.—FRANK S. COOPER.

AN ATTRACTIVE WAY OF GROWING HYACINTHS

COLD HOUSE RHODODENDRONS.

SIR,—While quite agreeing with Mr. Cox's article on this subject and knowing how right he is in advocating the desirability of using derelict (or new!) houses for the cultivation of rhododendrons, I should suggest to those proposing to adapt houses under the conditions he advocates, to try a better sort of plant than he puts forward, viz., the sweet scented ones. I would suggest R. Edgeworthii and its hybrids, fragrantissimum, Sesternanum, Lady A. Fitzwilliam, Princess Alice, as well as R. Gibsonii and R. ciliicalyx. If these are planted in a house in good soil they will layer themselves in a few years and their fragrance can be enjoyed yards away, or in the case of the glasshouse adjoining the main building, it will permeate the whole structure, the most delicious of all garden perfumes. These are all semi-dwarf plants, for a larger building I would propose R. Nuttallii (the Queen of Rhodos), R. Dalhousiæ, R. grande argenteum, of course R. Aucklandii (Griffithianum), R. Victorianum, any of Gill's Aucklandii hybrids, "Gill's Triumph," "Ernest Gill," etc.; R. Boothi, and for smaller growing shrubs, R. fastigiatum and R. Augustinii. None of the

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latter has much scent. I would also recommend Camellia reticulata and Clethra arborea, but perhaps I am now copying the Temperate House at Kew, and not a bad example either! Luckily in these Western districts nearly all the above mentioned shrubs will do quite well out of doors, but I should rather doubt R. Nuttallii, though at Torquay it seems quite at home. We grow most of the rhododendrons here, but so far I have found nothing from China to equal the Sikkim plants, though our sport of R. oreotrephes is quite a sight to see.—AUSTIN MACKENZIE, *Argyllshire*.

PRUNUS SUBHIRTELLA (VAR. AUTUMNALIS).

SIR,—This Japanese rosebud cherry has been in full blossom here through November. The pink and white blossoms are borne thickly on last year's wood and have withstood the sharp spell of frost we have just experienced. The tree is planted among rhododendrons in a bed facing east, in deep loam enriched with cow dung and peat. On this tree the blossom and leaf showed together. On another tree planted on a lawn on the south side of the house (shallow loam on shale) the growth has been very small. All the leaves fell in October, and although the old wood is studded with blossom buds they will be a month behind the other in opening. The trees seem to be perfectly hardy.—KNILL, *Barnstaple*.

MORE ABOUT PERSEPHONE.

SIR,—If it is not too late—I have been busy getting the garden ready for a frost which did not arrive—I shall be glad to answer Mr. Jacob's query regarding the quest of Persephone, in the number dated September 6th, page 623. She might be called the originator of the poet's, or perhaps, of the polyanthus narcissus. According to Homer, with her attendant nymphs,

> "Fair Proserpine consumed the fleeting hours
> In pleasing sports, and plucked the gaudy flowers,
> Around them wide the flamy crocus glows,
> Through leaves of verdure blooms the opening rose;
> The hyacinth declines his fragrant head,
> And purple violets deck th'enamelled mead.
> The fair narcissus far above the rest,
> By magic formed, in beauty rose confessed.
> So Jove, t'ensnare the virgin's thoughtless mind,
> And please the ruler of the shades, designed.
> He caused it from the opening earth to rise,
> Sweet to the scent, alluring to the eyes.
> Never did mortal or celestial power,
> Behold such vivid tints adorn a flower,
> From the deep root an hundred branches sprung
> And to the winds ambrosial odours flung;
> Which, lightly wafted on the wings of air
> The gladdened earth and Heaven's circuit share."
>
> *Hymn to Demeter* (*Ceres*).

Then follow the yawning of the ground as she approaches the marvel, and the rape of the maid, Persephone or Proserpine.

There is no doubt that narcissi were commonly worn in chaplets. Theophrastus mentions them, and Sophocles' chorus in "Œdipus at Colonnus," explains that "ever, day by day, the clusters of the fair narcissus bloom, quickened by the dew from heaven, the crown from days of old for mighty goddesses; the crocus, too, with gleam of gold."

This juxtapusition of narcissus and crocus seems to be more than accidental. The crocus was a favourite subject for design among the ancient Cretans, perhaps on account of its colour, suggesting the sun; one wonders if, for the same reason, the yellow narcissi were not the ones which grew for Proserpine; but what connection existed between the narcissus, whether poet's or tazetta, and the maid, I cannot discover. Possibly it was its heavy scent and its pallid, deathlike hue, like the colourless shades in Pluto's realm, or the scarlet-rimmed cup may have symbolised the sun itself, or the female principle, by its circle. If ever I get to London again I am going to search the British Museum for that wreath!

There is a note in the Encyclopædia Britannica (ninth edition) in the article on Eleusinia, stating that a procession escorted "a basket containing pomegrantes and poppy seed (the latter representing the stupefying power, Napkiooog, under whose influence the maiden, Persephone, was stolen away)," which causes me to wonder if in the most ancient days narcissus did not mean "Poppy," but laymen wandering in philological pathways are apt to go astray. At any rate, poppies were the especial flower devoted to Demeter, the mother of Persephone, whom Theocritus' harvesting shepherd hoped to see smile upon him with poppies and corn in her two hands. They were constantly woven into her coronals. She was said to have discovered them, and the narcotising properties of their juice at Ægialea, afterwards known as Mecone, "poppy-town" (whence Meconopsis, I suppose?), still slumbering under or amid poppy fields.—HELEN INGERSOLL, *N. Y.*

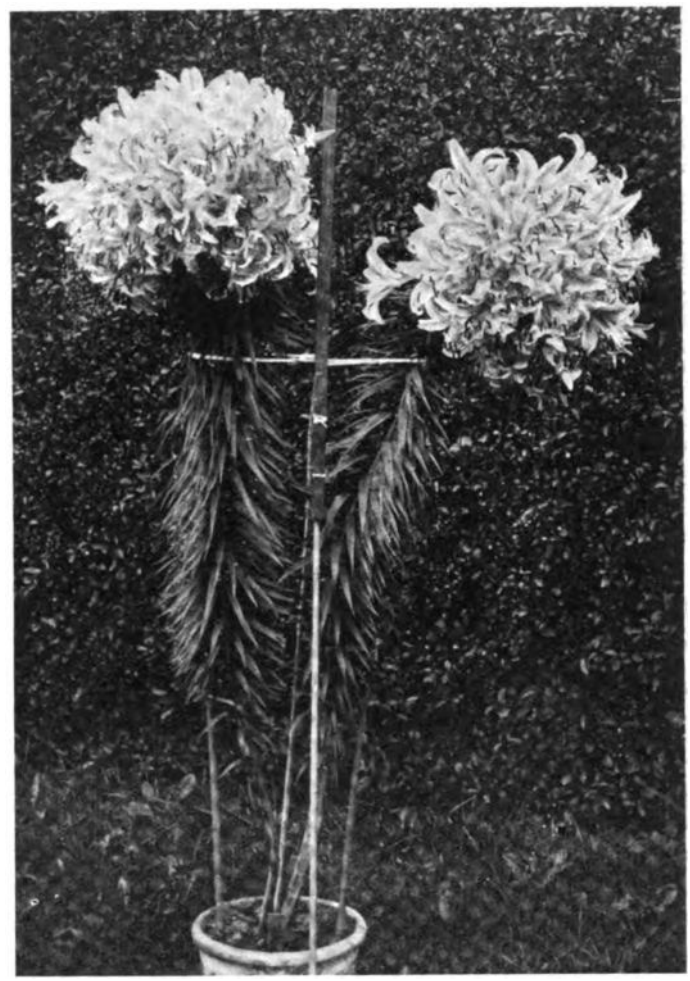
COLOURS IN HYDRANGEAS.

SIR,—In regard to the answer to "W. C.," Guernsey, regarding preventing hydrangeas turning blue, on page 611. Experimental work done by the New Jersey Agricultural Experiment Station at New Brunswick, N.J., U.S.A., proved conclusively that the varieties of H. hortensis commonly grown in our greenhouses for spring forcing will be blue or pink depending upon whether the soil is sweet or sour. Many varieties were tested. My recollection is that the white varieties did not vary with the soil, but blue-flowered varieties were easily turned pink by growing in soil to which enough lime had been added to give it an alkaline reaction. Pink varieties bore blue flowers when grown in soil with an acid reaction.—PARKER T. BARNES, *Harrisburg, Penn, U.S.A.*

LILIUM AURATUM.

SIR,—Having read the recent correspondence with reference to the record number of blooms upon a Lilium auratum, I enclose herewith a photograph of one grown by me last summer.

The bulb was one of a number obtained for me by a friend from Messrs. Prothero and Morris, and the total number of blooms was 175, one stem carrying ninety-six and the other stem seventy-nine. The bulb was a very large one and each of the two fasciated stems had a circumference of about 8ins.



LILIUM AURATUM, A RECORD NUMBER OF FLOWERS.

directly beneath the blooms. All the blooms opened within a couple of days and were counted just previous to opening, a large spot of whiting being put on each bud with a camel-hair brush as it was counted, to ensure against its being included twice.

The individual blooms were 5ins. to 6ins. across by about 4ins. deep. Many people came to see it, including Messrs. Treseder of Cardiff.—W. J. GUNSTONE.

NERINE MRS. W. R. LYSAGHT.

SIR,—I was interested in the picture and notes on this new nerine in your issue of November 15th. I understand from what Mr. Briscoe writes that the two plants illustrated were seedlings from the same cross, and were absolutely identical. This last mentioned occurrence is, I should think, very unusual. For though I have been raising nerines for seventeen years and have now no fewer than 257 distinct seedling stocks of my own raising, I fail to recollect any case in which there has not been some small varying characteristic. That is to say, no two have been *exactly* alike. Why is the nerine not more grown? There is no flower to compare with it for colour and brilliancy through the dull autumn days.—F. HERBERT CHAPMAN, *Rye*.

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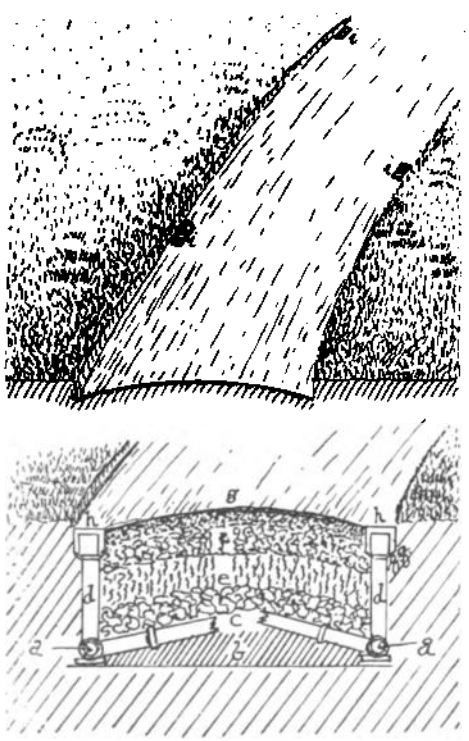
SIMPLE GARDENING

VENTILATION OF GREENHOUSES AND HEAT REGULATION.

DURING the winter months a great deal of pleasure is obtained through attention to greenhouse plants individually, and also in masses of plants arranged for effect in these structures. We must remember, however, that all the specimens, unlike those in the rockery and open border, are dependent upon our personal care for air, heat and moisture. The manipulation of the ventilators should be well studied and, daily, the weather conditions. In some nurseries, for the benefit of certain plants, a few houses are almost hermetically sealed, but the attendants are always close by to regulate the internal heat and moisture. The amateur's plant house is a different structure; it contains growing plants and others approaching the flowering stage or in full bloom. Air is required every day, but there should never be any cold draughts. The sun rises late and no harm will be done if it shines on the house for one hour or so before the ventilators are opened a little. Take note of the wind more than of the sun; a cold draught will prove harmful and this should be guarded against. Artificial heat should be lessened as the sun gains power and a little more moisture added. Usually, this is obtained in sufficient quantity from the ordinary watering of the plants. Damping of floors and paths, sometimes necessary in the summer, is not required now, nor till the spring.

MAKING NEW GARDEN PATHS.

There is neither economy nor satisfaction in the construction of garden paths unless the work is well done. It would be much better to confine the work, during one season, to the making of one path well, rather than to two, if the work in connection with them cannot be thorough. Of course, I am now referring to permanent paths made in old, as well as new, gardens. First, take due note of the watercourses after rains, and prepare accordingly to lay down sound drainage with good outlets. In some gardens, according to situation and soils, drain pipes are not required, only good open material for the base. In others, a complete system of drainage by pipes is essential. This we will briefly refer to now. One main drain will answer in some cases; two are necessary in others. The latter, shown in the accompanying sketches at *a*, *a*, with connecting drains from surface gratings and down-pipes at *b*, *c*, *c* and *h*, *h*. The base, at *b*, is quite firm ground, on the pipes, to form a general base, is rough material, shown at *e*, then finer at *f* and, finally, the surface layer at *g*. Gratings should be placed as shown at *i*, *i*, *i*. The water from the slightly rounded surface of the path will pass to the underground pipes as shown below. For main paths, where wheeling or carting of produce or soils pass over them the paths should be 1ft. deep in material; in the case of ordinary paths 7ins. will be sufficient without underground pipes. Broken bricks, clinkers and gravel are all suitable.



MAKING NEW ASPARAGUS BEDS.

Only in a few cases is it wise to leave the work of forming new beds to the date of planting—in March or April. The exceptions are those relating to beds in light, naturally well drained ground. The medium and heavy loams are all the better for full exposure to the air, rains and frost for several weeks prior to planting. Cultivators will be able to decide now what should be done. It may be advisable to have raised beds in one instance, and to plant on the level ground in others. In the former case the necessary raising of the beds should be done together with the work in general. In clayey soils two rows of plants in each bed will be enough and three rows where the soil is of a more porous nature. Allow a space of 18ins. between the rows and a 1ft. margin on both sides of the bed, the alley being 18ins. wide. Where the rows of plants are on the level ground the same distance should be allowed between the rows, and between every fourth and fifth row an alley 2ft. wide. Of course, readers know quite well that the asparagus plant is deep rooting and requires a well broken soil in which to grow. Only in exceptional cases should any drainage material be put in, as the neatly raised beds will be sufficient. On gentle slopes the beds should be formed east to west, if the slope is to the south, to husband the rains, but on quite level ground they should be north and south to ensure the maximum amount of sunshine reaching the plants.

PROPAGATING CHRYSANTHEMUMS.

Early in December the first batch of cuttings should be inserted. These must be cuttings of the naturally late-flowering sorts, those of Mrs. Gilbert Drabble, William Rigby, Majestic, Norman,

Chittenden and so on. Of course, the cuttings should not be subjected to any artificial heat beyond that maintained in a greenhouse where frost only is excluded. I do not use any heat except that afforded by the glass of a house used in summer for tomatoes. In these circumstances the cuttings do not root under five weeks, but they are sturdy. A good compost consists of loam two parts, leaf-soil one part and old mortar rubble one part. The cuttings should be inserted singly in small pots and watered before they are placed in the propagating frame. During the time that the cuttings are in the frame very little water will be needed and no shading. The glass of the frame is wiped dry every morning and evening, and care is taken to avoid loss through leaf or stem damping. If the leaves droop a little, sometimes a fine spray of water early in the day will do good. On no account should the soil be kept in a sodden state. At *a* the old plant pot is shown; at *b* a stem shoot, the wrong one for a cutting; at *c*, *c*, *c*, sucker shoots, the right ones. The weakly cutting, *d*, is unsuitable, the one at *e* is a good specimen. The right way to prepare a cutting is shown at *f*, and it is ready for insertion at *g*. In the small cutting pot, *h*, the cutting is inserted with sand at its base, *i*. At the end of three weeks the progress of the roots is shown at *j*. GEO. GARNER.

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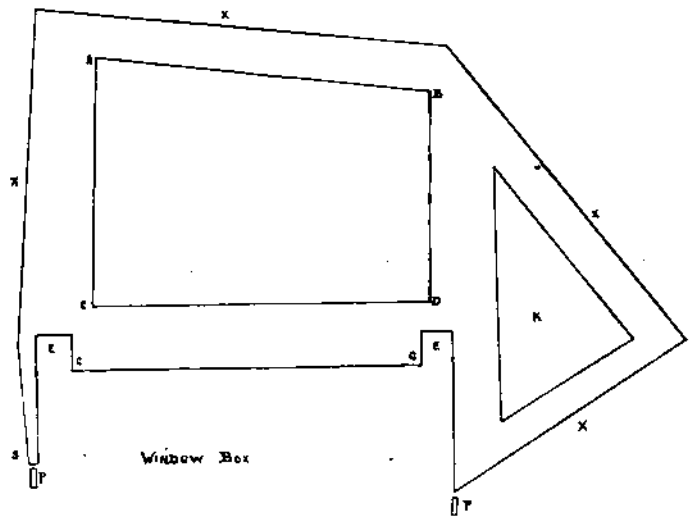
A WINDOW-BOX GREENHOUSE

THE following method of converting an ordinary window-box into a temporary greenhouse during the winter months may prove useful. It has the great advantage of being economical, and of being easily removed, so as to be available for ensuing winters.

Two end pieces are set up, being cut out preferably from three-ply wood in accordance with the pattern shown in the accompanying sketch. The projection in front, though not absolutely necessary, is advisable, as it gives more room for the plants inside, and accommodates any of them, that while growing, have extended over the front of the box. Three-ply wood can be bought by the square foot, but the most economical way of obtaining it is to buy an empty tea chest made of this material from the grocer. These can be purchased for a few pence, and will provide wood for at least two boxes. Hinged doors with a fastening should be provided in each end piece, so that during the warmer days they can be left open. They are also useful for allowing the box to be watered occasionally. Having erected the end pieces, which should, preferably, be screwed to the box, a length of Windowlite is spread over, and attached to them, and to the box, back and front. This is done by screwing battens on to the edges of the end pieces, and the front and back of the box, the Windowlite being secured beneath the battens. In order to ensure the screws holding in the end pieces, strips of three-ply wood should be screwed on to the end pieces along their edges.



a b c d Frame door covered with Windowlite, hinged along side *b d*. *e e* Spaces for the reception of the sides of the box. *g g* Ground level of the box. *k* Window covered with Windowlite. *x x x* Strips to be attached along these edges on their inner side to provide grip for screws holding down Windowlite and retaining battens. *p p* Battens securing Windowlite to box. (Measurements as convenient.)

Windowlite is a new material, which can be bought at most establishments selling building material, such as the Army and Navy Stores. It consists of oiled paper strengthened with fine wires, and is transparent and weatherproof. It varies in price according to width, that for 28ins. wide being 5s. 7d. a yard, but it can be obtained wider. Though it is very pliable, it is not advisable to bend it back on itself. H. C. EVANS.

MY IXIA BED

THE article by Mr. Canning-Wright in THE GARDEN of October 25th was of special interest to me, because I have in my little garden a bed which was made in the summer of 1922 for the less hardy bulbs, and is much on the lines that he suggests. Because it was meant for ixias in particular it has always been called the ixia bed, though ixias are only one race of its inhabitants. It is not a border, but a bed measuring 4ft. 4ins. long by 2ft. 8ins. In even so small a space many bulbs in many varieties find a home, and I could have arranged for a still larger collection if I had begun with the experience I have now gained. For I frankly admit that my aim was not so much to have a bed which should be beautiful as one in which I could grow many kinds: I wanted a collection of plants growing happily rather than a picture. Yet it is something of a picture too; one always has a picture where there is a happy plant.

The ixia bed is raised some 10ins. above, and at the edge of, a larger bed, itself raised above the level of the path, and is backed by a south wall. It is enclosed in slates—better, I thought, than stones, because they would allow more sun-heat to pass for the ripening of the bulbs. The foundation was several inches of small stones for drainage, as Mr. Canning-Wright prescribes. The soil of this garden is not that "fibrous yellow loam" of which he speaks, but is a very cloggy, shaley loam. This was mixed with some loam from the hedges and with plenty of sea sand. If I were making the bed again I should put leaf-mould for most of the loam, and even more sand. A warm, light, well draining medium is what is wanted. The surface of the bed slopes slightly from the wall so as to get still better exposure to the sun.

One luxury my bed is indulged with which would not be feasible for a larger border. It has a light, not so much to keep out frost as to keep off some of that abundant rain which we get here so near the sea in North Cornwall. In the wall behind the bed there is a board with hooks in it, and the light is fitted with rings at the back. It is not meant to come down close to the slate sides, but is held some distance above the bed by a prop which catches it in front. The ixias, etc., are growing in the winter, and the light, if it were not several inches up, would bend their foliage unduly. In the winter—say from now to March—the light is kept handy to the bed, but is off, or lifted by a string which catches up the front of it to the wall behind, both by day and night, whenever rain or a touch of sharp frost does not make it expedient to give protection.

And what bulbs are in this bed? Its size, of course, rules out those large-growing ones which Mr. Canning-Wright mentions, such as Watsonia and Galtonia candicans. But there are many smaller treasures which he also enumerates and so well describes. I put my various bulbs roughly in groups, and have kept a little plan of the bed with their places marked. Of course, there are ixias in mixture, and a special cluster of that Ixia viridiflora which Mr. Canning-Wright singles out for recommendation—a most surprising flower to the majority of visitors Then there are Morphixia paniculata—only a couple of bulbs, but they show their grace and quality—Ixiolirion Pallasii, babiana, sparaxis, Tritoma rosea, Brodiæa laxa and Anomatheca cruenta. There are a few oxalis too; O. Boweii round the edge prospers, and one precious O. lobata has been charming this autumn with its rich yellow flowers delicately curled and pencilled. Some bulbs were also put in which do not need such a privileged condition, as Muscari Szovitzianum, Anemone fulgens, Puschkinia scilloides and Chionodoxa Luciliæ; but they brighten the bed in the earliest spring while the Ixias are getting ready, and they do not resent their pleasant places. Then there is a corner for tigridias, which are left in through the winter and seem to be increasing. They bloom rather late, and this year their beautiful flowers have suffered sadly from the continuous rain. But the tale would not be complete without acknowledging failures. The worst have been Ornithogalum arabicum and Cypella Herberti, with Oxalis versicolor and an unidentified Oxalis species. These did not even come up, and I think that the bulbs of the two first must have rotted in the excessive wet just after they were planted and before the light was made for their protection. Oxalis seems always to be uncertain. All the bulbs that have flowered have ripened seed. Of what I collected I put some into the bed itself to see what happens and some into pots. Ixiolirion, for instance, grew and has been planted out elsewhere. I sow the seed as soon as it is ripe.

Now one or two suggestions of experience for improvement. The bulbs in this bed fall into three divisions of flowering-time. First come such as Muscari and Anemone fulgens; then the ixias and the other small Cape bulbs; then, in the late summer, the tigridias from Mexico. And, of course, each of these has its season to disappear completely and to give space. At this moment tigridias are over and are ripening their seed before they vanish till next spring. The earliest hardy bulbs are coming up and, with, perhaps, Anemone fulgens, will begin to bloom in January. Ixias are well up too, but their group will not bloom till April and May.

Now comes a question which only time can answer. Some time ago I got a bit of Paronychia Kapela. For paronychias Mr. Reginald Farrer suggests a special use. They make, he says, "a carpet for rare little bulbs." So I put P. Kapela into the bed, and there it is becoming a coverlet, spreading over half already. What will be its effect on the other occupants of the bed? Will it keep the sun from ripening their bulbs? Or will it absorb superfluous moisture and help to keep them dry and warm? ST. ERVAN.

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BOOK REVIEW

THE name of Messrs. Longmans, Green and Co. has long been associated with the publication of excellent volumes dealing with some phase of gardening, and to those of recent date already published there falls another to be added to that already lengthy list, namely, "My Garden Book," by John Weathers (Messrs. Longmans, Green and Co., 39, Paternoster Row, London, E.C.4; price 36s. net). The author's name is well known to the majority of those engaged in the commercial side of horticulture, as his book on "Commercial Gardening" is still consulted as a standard work, and it thus serves as a useful criterion when we come to judge of this, his latest production. Mr. Weathers has had almost forty years' experience in the various branches of horticulture, and hence can speak with authority from a vast store of knowledge gained over that period. It is often said the more one knows of a subject the less he is inclined to transfer his knowledge to paper, but if everyone followed that axiom, succeeding generations would suffer through falling into the same errors that had been committed by their fathers and forefathers. The thread of personal experience which runs through the volume is one of its most valued assets. There is little that is new in the course of the text. Rather should it be looked upon as a comprehensive treatise on gardening, dealing adequately with its theory and practice. It may, in other words, be looked on as an encyclopedia of gardening confined within the limits of a single volume. A rapid survey of the contents will suffice for the reader to gain something of the immensity and completeness of the book. The book is divided into six parts, making for ease in referring to any particular part. These divisions deal with garden construction and their upkeep, with, in addition, a few chapters devoted to what might be conveniently termed elementary botany and physiology. These chapters are written in fairly simple non-technical and direct language so that he who runs—be he amateur or professional—may read and understand. Several parts of these chapters could have been conveniently omitted, as they come more within the scope of a botanical work than a work on gardening even allowing it to deal with theory. Such paragraphs on the ascent of sap, the facts concerning which even at present the botanist is in grave doubt about, osmosis (a study beset with many pitfalls for the uninitiated in the science of physics), the selective properties exhibited by roots, the descriptions of dicotyledons and monocotyledons, stem structure and the chapter on leaves (altogether too botanical). The average gardener is content to let the study of such subjects remain in the sphere of the botanist, and although they have a direct bearing on the raising of plants and crops, it would perhaps have been better to have left these things unsaid. Such small details, however, are not of much importance when one takes into consideration the size and nature of the volume. Part II deals with the hardy flower garden, in which much useful, descriptive and cultural information is given on the formation and upkeep of herbaceous borders, descriptive lists of herbaceous annuals, biennials and perennials, hardy and bulbous plants and a wealth of detail on hardy shrubs. The conservatory and greenhouse, with a list of desirable plants with which to furnish them, is adequately treated in Part III. Part IV is devoted to fruit, in which is included chapters on insect and fungus pests and remedial measures to be taken to ensure successful results. The vegetable and the herb garden are treated in Part V, while the last part is more or less general, having a calendar of work and an excellent index.

The volume contains a perfect mine of information furnished with a wealth of detail set out for the greater part in a most simple and lucid style. An interesting feature of the book is, as the author points out in his preface, that the derivation of all generic names are given, which lends a decided educational and instructive value to the work. To the gardener, for whom the volume is primarily intended, the descriptive lists of plants, vegetables and fruit suitable for various purposes will be found to be of enormous value. In this way it resembles a miniature encyclopedia. It is a volume which the practising gardener, be he an amateur or professional, will find of the greatest possible service in his daily duties. It brings home to one the scope of gardening taken in its entirety, and such a complete work will be found of great assistance as a work of reference. It is copiously illustrated by means of excellent half-tone blocks, made from photographs of the late R. A. Malby, many of which are well known to readers of THE GARDEN, and numerous line drawings. There are twenty-four coloured illustrations, which might well have been omitted as they detract from the general appearance of the book. The colourings are altogether too rich and warm to be true to Nature, and from them the reader gains neither a true idea nor representation or perspective of the subject dealt with. In these days one must rely on colour photography to reach as close as possible to natural colours and effects. The volume is excellently printed throughout and reflects great credit on the publishers.

G. C. T.

"THE British Journal Photographic Almanac for 1925" (Henry Greenwood and Co., Limited, 24, Wellington Street, Strand, London; price 2s.) is again to the fore. It is the ideal handy manual for all busy photographers who wish to have a book to which to refer.

CATALOGUES RECEIVED.

Messrs. Little and Ballantyne, Carlisle.—Trees, Forest, Fruit, Ornamental and Evergreen, Alpines and Roses. Enclosed in the catalogue is a brief but interesting article by Mr. Stanley Francis dealing with the question of home forestry and the future outlook. It will prove a timely reminder to all owners of woodland who are now taking an increased interest in afforestation, which has now to be regarded as a problem of the greatest national importance.

R. C. Notcutt, Woodbridge, Suffolk.—Nursery Stock, Alpine and Herbaceous Plants for 1925. An excellent catalogue, well illustrated by means of numerous half-tone blocks.

William Artindale and Son, Florists and Nurserymen, Nether Green, Sheffield.—Hardy Herbaceous and Florists' Flowers.

William Watson and Sons, Limited, Killiney Nurseries, Killiney, Co. Dublin.—Ornamental Shrubs and Fruit Trees.

H. J. Jones, Ryecroft Nurseries, Hither Green, Lewisham, S.E.13.—Hardy Plants, Gold Medal Chrysanthemums, Phloxes, Michaelmas Daisies etc.

Ernest Ballard, Old Court, Colwall, near Malvern.—New Asters.

Herd Brothers, The Nurseries, Penrith. Forest Trees and Fruit Trees.

Storrie and Storrie, The Nurseries, Glencarse, Perthshire.—Fruit Trees and Bush Fruits.

J. W. Cole and Son, Westwood Nurseries, Peterborough.—New and Choice Chrysanthemums and Zonal Pelargoniums.

Charles Turner, The Royal Nurseries, Slough.—Roses, 1924-1925.

The Gardeners' Royal Benevolent Institution Seventy-ninth Anniversary Dinner.—£10,000 Raised for Aged Dist... Horticulturists.—The seventy-ninth anniversary dinner held on November 25 will be memorable in the annals of the Gardeners' Royal Benevolent Institution, for on the occasion His Royal Highness the Prince of Wales, presided at the festival and also the wonderful record sum of £10,000 was raised for this deserving institution.

The Prince of Wales in rising to propose the toast was enthusiastically received. He said: "Though I have been privileged to be president of the Institution since 1919 this is the first time I have been able to preside at the festival dinner. I am very glad that, by taking the chair to-night, I am able to associate myself with such a deserving charity, and one which must make a special appeal to Englishmen, to whom the words 'gardening' and 'horticulture' mean so much."

The occasion was one of unusual interest. An anonymous donor had offered £[illegible] on condition that contributions of another £9,000 were announced that night, and an excellent response was made. Card after card went up to the table, increasing, and in many cases doubling, the contributions already promised, until the Secretary was able to announce that the money required to meet the generous offer of the anonymous friend had been secured.

Mr. Leonard G. Sutton, C.B.E., Chairman of Committee of the Gardeners' Royal Benevolent Institution, in replying to the toast said that: "The interest of gardeners must go straight to the hearts of all Englishmen, for they all loved flowers. If they had not a garden in which to grow them, they bought them and put them on their tables." In the course of his remarks, Mr. Sutton alluded to the interest the Royal House had taken for so many years taken in horticulture and the Gardeners' Royal Benevolent Institution, recalling that fifty-three years ago His Highness the Duke of Teck, the grandfather of the Prince of Wales, presided at a similar gathering to the present one, and forty years ago His Royal Highness the Duke of Connaught also took the chair at the festival dinner. Mr. Sutton said how much this interest on the part of the Royal House had enabled them to go forward in the confidence that they would be able to give substantial help to the numerous applicants whose cases were, every week, being brought before the Committee.

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GARDEN WHEN YOUNG

IT is a curious fact that there is an almost universal mistake in gardening. Let me explain it as best I can:

There are three stages in gardening—that of the beginner when he is principally interested in anything which gives a quick return; the middle stage, where interest is taken in gardening as a whole and everything that grows is taken into the gardening maw; and the final, which tends more and more towards specialisation, usually in the direction of individual genera of trees and shrubs. Now, the first and third stages should be reversed. Why should a man—or woman—who has passed middle-age suddenly become passionately devoted to trees and shrubs, which take years and often decades to come to maturity? Oaks and large rhododendrons are cases in point. They are in the heyday of their popularity just now. They are keenly sought for, but there is hardly a plant in the garden which is a slower grower. It is a curious phenomenon, why so many keen gardeners past their prime of life should take such an interest in them. This is not meant disrespectfully; rather am I filled with wonder at their disinterestedness and unselfishness in planting trees which they will never see in their full glory. This may partly be due to the fact that old age likes to have something substantial about it on which it can rely, whether it be a human or a plant in the garden. The natural sequence of events would be that all over fifty years of age should specialise, if they specialise at all, in annuals, biennials, herbaceous plants, alpines, small shrubs—anything, in fact, of which they can see the fulfilment.

Rather does the fault lie with youthful gardeners, who are so impatient that they have no thought for the future. All their ambitions lie in the direction of immediate results. They will argue for hours upon the merits or demerits of a plant in the herbaceous border or rock garden. The years pass so quickly that before they know where they are they are middle-aged and the real time for tree planting is past. Is it not better to plant trees and shrubs when young and devote your attention to quick result when older?

This may sound as if the sentimental side of gardening was too much stressed, but there is some common-sense about it. We frequently hear regrets that some plants were not planted years ago, or complaints from people that it is little use mentioning slow-growing plants because they are too old to see them mature. After all, everyone likes to see the result of their handiwork.

This brings me to the fact that gardening is supposed to be the recreation for middle or old age. This is also supposed to be the age of violent exercise, which is probably the reason why so few young people take up gardening as a hobby. Yet there should be time for a little of everything, if that everything is carried out with moderation. Young people should be taught to take an interest in gardening at an early age, and horticulture has so many facets that it should not be difficult to find one side at least with which to attract their interest.

There are numbers of colleges and schools which are devoted to teaching agriculture and horticulture. These are deservedly popular, but by young people I do not mean those who are going in for the cultivation of plants as a profession, rather are my remarks directed at those who from environment or other reasons will ultimately live in a suburban or country area. They will in time possess a garden and will probably become keen gardeners. They should learn something about them now. This knowledge need not necessarily be book knowledge; the main thing is that their curiosity should be aroused; they should keep their eyes open and learn to admire a plant. Once they are interested the rest is easy. Questions will be asked and a modicum of the information received will be stored for future use and so in time they will automatically become keen horticulturists. Horticulture is an insidious hobby and once a man is caught in its toils there is no escape, but I have never heard of anyone complaining.

There is one rule in gardening, however, which should be more recognised: design positions for slowest growing plants first and get them in, even before paths are made. A year wasted is a year lost.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

HOLLIES, by W. J. Bean.
GARDEN DESIGN, by Percy S. Cane.
A HOLIDAY IN THE CANARY ISLANDS, by Dr. R. Lloyd Praeger.

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DOUBTS AND DISCOVERIES

BY H. A. GREATOREX.

THE EARLY AUTUMN-FLOWERING CROCUSES.

At the end of the war the trade in the crocus species found itself, as indeed did much else, in a state of demoralised confusion. So great was this confusion that an order for any particular species sent even to the best nurserymen was likely to result, not only in no single specimen of the species ordered, but in a medley of three or four or even more species of a totally different kind. It seemed as though one stood as good a chance of getting what one wanted by ordering a hundred or two mixed species as by ordering by name.

This was the time that I chose to furnish my garden with every kind of crocus species which I could find in the nurserymen's lists, with somewhat surprising results. I felt that something was wrong when I handled the corms. They varied so much in appearance where they should have been alike, and some whose corm-tunics I remembered in other days were palpably wrong. However, I was much too eager to see my crocuses in flower to return them. I planted them in my garden in nice little groups according to their several names, marked their positions, noted them in my notebook and hoped for the best. A month or so later zonatus thrust its spikes through the soil and opened its flowers. Here could be no question. It was zonatus without a doubt. Then in a few days chrysanthus fusco-lineatus, which for some time had been displaying a most strange activity while its neighbour, chrysanthus fusco-tinctus slept, burst into startling bloom, and revealed itself as speciosus! This was but a beginning. Group after group broke into flower. Winter-flowering and spring-flowering crocuses seemed to have lost all sense of season, and where speciosus did not appear there was sure to be Salzmanni erectophyllus or ochroleucus. A few of the groups proved to be correctly named. Of the rest some were wholly wrong, some contained a corm or two of the species named mixed with one or more other species, and some species, wholly absent from their proper groups, appeared here and there as isolated specimens in various parts of the garden. Iridiflorus surpassed all other kinds, for while, among the corms of speciosus and Salzmanni erectophyllus masquerading as this fine species, no single corm of its own kind was found, there did appear one solitary specimen of Karduchorum, a crocus not at that time listed by any nurseryman known to me.

A BEAUTIFUL AUTUMN CROCUS, C. PULCHELLUS ALBUS

Things are better now, and most of the species listed can be relied upon to be true to name, though there are still a few which cannot be trusted.

The sorting out and naming of these crocuses has been a puzzling but fascinating labour. When one possesses all the members of an allied group it is comparatively easy to identify each member. It is not so easy, however, when some of the members are missing, and when only one member is present the problem is difficult indeed.

Anyone who has bought crocuses during the past few years and is puzzled to account for the phenomena displayed should read Mr. Bowles' most excellent handbook of the genus, though even with this aid all difficulties will scarcely vanish immediately.

Zonatus presents no difficulties. It can be obtained true to name from various nurserymen. Its queer, flattened, shapeless corms, rosy pink ground colour, orange throat and white anthers render it practically unmistakable. Its ally Karduchorum looks to the casual observer like a greyish blue toned zonatus without the orange spots in the throat. I do not think it can be bought at present. I have seen it listed for the past four seasons and have bought it each year. The first two years it turned out to be ochroleucus, last year it was Salzmanni erectophyllus, and this year ochroleucus again. Although I have failed to get it under its own name, two corms have reached me, one as mentioned above in a batch of alleged iridiflorus, and one among some zonatus corms. Both corms flowered. One behaved as did those described by Mr. Bowles in his Handbook, sending out its flowering shoot almost horizontally; but because of my very shallow planting this shoot had no difficulty in reaching the light. The other sent up its shoot perpendicularly. Both produced healthy leaves, and both failed to appear next year. I am sorry, for the flowers are attractive.

Pulchellus calls for little comment. It is supplied by the nurserymen true to name, and its identification should present no difficulty. Its orange spotted throat, dark veining and white anthers are rather suggestive of zonatus; but its full-toned, lavender flowers and neat, rounded corms are quite different.

No confusion, either, should arise over the type form of speciosus; but this is a very valuable species, and its many forms are a little perplexing. The form which I receive as Artabir, and which I believe to be correctly named, has neat, medium-sized flowers, paler than in the type, but fairly heavily veined. It flowers at about the same time as the type form; but, possibly because of its more floriferous character, always remains in flower with me for some days longer. The variety which is sent to me as Aitchisonii, and of which I have some doubts, is a very large-flowered, late-flowering, pale form. It comes into bloom a day or so after the last flowers of the type form have rotted away. The buds and the outside of the closed flowers have a silvery grey appearance, due to a freckling of greyish blue purple on an almost white ground, and the inside of the segments is heavily veined, as much so I think as in the type, though both the ground colour and the veinings are much paler in this variety, being of about the same tone as in Artabir. In the mass, however, at a little distance, I find a hint of the blueness of blue sky which I cannot see in Artabir, and the outsides of the buds of the latter form have much more colour. The cross veinings of the flowers for their first two days are strikingly beautiful. This does not quite agree with Mr. Bowles' description of Aitchisonii as a flower less veined than the type and of a pale uniform shade of lavender within; but if it is not Aitchisonii, what else can it be?

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C. SPECIOSUS, THE TYPE FORM OF A VALUABLE SPECIES.

The variety albus as supplied by Messrs. Barr contains more than one form, some individuals having a duskiness at the throat which is absent from others. Among these white forms I always find a few coloured specimens of a rather peculiar type. They are all pale forms and are practically free from the grey-blue frecklings on the outside of the segments generally so characteristic of the species. All of them have the inside of the segments of a pale lavender blue, only faintly veined. In some the outside of the segments is of a pale lavender blue, in others almost white, and one I have, with enormous flowers, which has the outside of the segments of the colour of white satin and the inside lavender with the cross veinings almost absent.

Many other forms, some of them very distinct either in colouring or in their season of flowering, are sure to turn up as occasional strays in any considerable batch of crocus species bought to-day. Such at least is my experience.

A WHITE WISTARIA

THERE ARE NO MORE CHARMING AND GRACEFUL SPRING-FLOWERING SHRUBS THAN THE WISTARIAS.

ALTHOUGH popularly known as the Japanese wistaria, this noble climber is considered to be native only of North China, and was introduced from Japan to Belgium by Siebold, and in 1874 the first plants found their way to Kew Gardens. Undoubtedly the noblest of all woody climbers so far introduced to this country is this and its allied species and their beautiful varieties, which, during their period of bloom, become features of outstanding loveliness. Equally adaptable are these magnificent climbers for clothing the walls of houses, pergolas, arbours and similar positions, or even large trees, through the branches of which their long entwining growths spread with amazing luxuriance; and as a bush in the open there is not, even among the vast number of hardy flowering shrubs, anything to equal the graceful charm and distinct beauty of these glorious wistarias. A good and fairly heavy moist loamy soil is what all the wistarias delight in, and this they thoroughly deserve, whether planted in the open, at the foot of walls, or near a large tree.

In the latter case it is advisable to take out a large hole 3ft. square and make good with turfy loam, thus enabling the wistaria to become thoroughly established, with the growths reaching the branches of its host tree before the latter's roots have seriously penetrated the new soil.

Other methods are adopted for supporting this handsome climber, in the form of skeleton iron framework, and this practice contains much that is good as it allows the slender racemes to fall to their full extent and permits of their being seen and enjoyed from every point of view, the beauty of the flowers being enhanced by the gentle shading of the interior.

The illustration is that of W. multijuga var. alba which annually provides a feast of bloom. Thousands of its pure white pendulous racemes—often reaching 3ft. in length—grace the sides of pergolas and various buildings, giving their interiors a delightful lacy aspect.

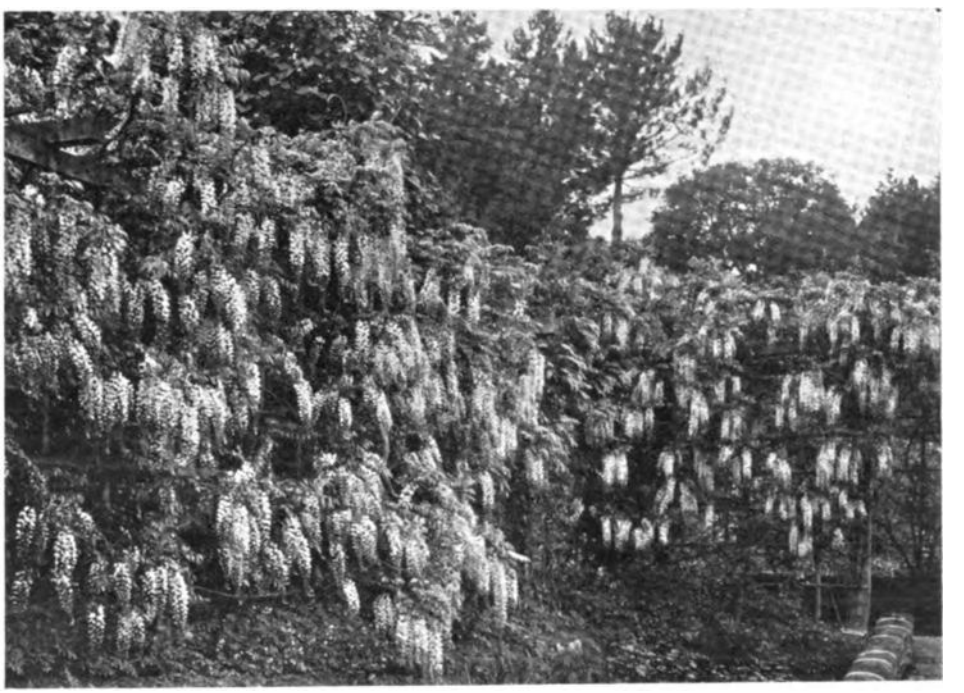
Pergolas intended for this variety and, indeed, all the multijuga group should be built taller than is the usual custom, owing to the great length of their inflorescences. Much of the beauty and gracefulness is often lost to these choice climbers by injudicious pruning, it being the practice to cut the side branches hard back from the start; this, however, is wrong, and robs this glorious climber of much natural grace and charm.

The growth should be encouraged to stand out—at least, wherever such is possible—from 3ft. to 4ft. from its supports, in which condition the branches become stout and self-supporting, and by reason of their profusion of bloom the effect is superb.

A very important point which concerns this white variety of W. multijuga is that it flowers a fortnight later than the type and its charming rose variety, and this characteristic renders it an even more precious shrub for gardens, as by the time its flowers have reached their best most of the violent storms are past.

Three distinct kinds of this wistaria are grown here, namely, Wistaria multijuga, with lilac and blue flowers, racemes 3ft. to 4ft. in length; W. m. var. rosea, with lovely pale rose flowers; and W. m. var. alba, with immense racemes of pure white flowers.

It is interesting to note that, whereas this handsome white variety is a fortnight later than the species in coming into bloom here, Wistaria multijuga is about the same time behind the better known and equally desirable W. chinensis. E. MARKHAM, *Gravetye Manor*.



ONE OF THE MOST BEAUTIFUL OF ALL WOODY CLIMBERS, WISTARIA MULTIJUGA ALBA ON A PERGOLA AT GRAVETYE MANOR.

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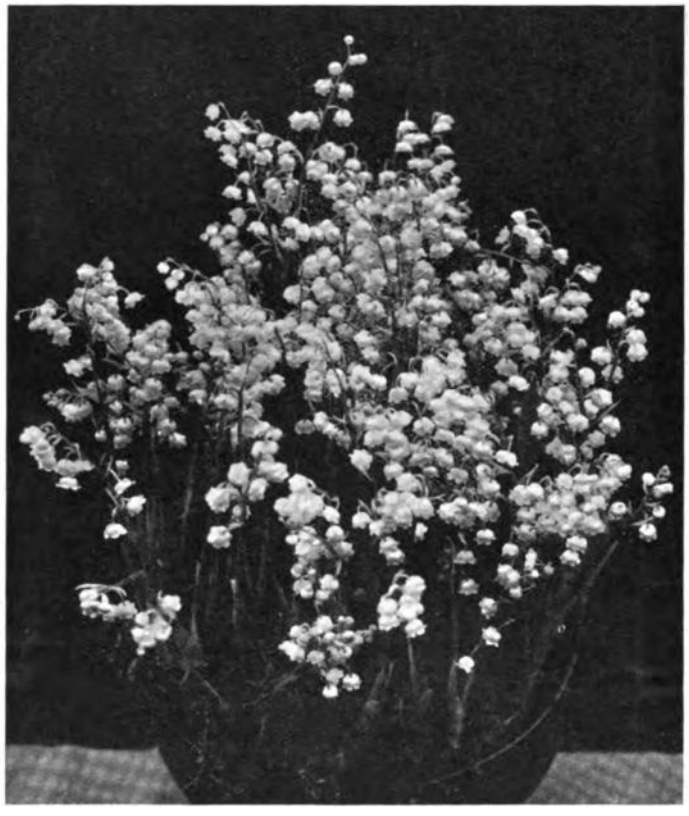
LILIES OF THE VALLEY ALL THE YEAR ROUND

THESE DAINTY HERBS HAVE LONG BEEN PRIZED FOR THEIR DELICATELY SWEET SCENTED FLOWERS; AND, AS THEY ARE HARDY AND EASILY GROWN IN PARTIALLY SHADED PLACES, THEY SHOULD FIND MUCH FAVOUR FROM FLOWER LOVERS.

AMONG spring flowers there is scarcely one to compare in beauty, fragrance, purity of line and grace of form with the lily of the valley. In the cut-flower market it can be obtained practically all the year round, and considerable trade is done, though at certain times of the year the price is of necessity high. There is no reason why lovers of these charming flowers should not, by taking a little thought, obtain lilies of the valley throughout the whole year from their own garden or greenhouse. Let us assume that lilies of the valley are grown in a border outside and that the question of forcing them has not already been considered. Even at this late hour flowers can be obtained in a comparatively short time if imported crowns are purchased and forced at once. By bringing these crowns at intervals into a fairly high temperature a succession can be maintained until the crowns in the borders are in bloom. The Berlin strain of imported lilies of the valley is most successful for forcing; Fortin's and Victoria varieties are excellent for general purposes. As soon as the bundles arrive from the nurseryman they should be untied and potted up. A sufficient number of 5in. pots should be well drained, ten crowns placed in each in an upright position and a leafy compost lightly packed in, leaving ½in. of the crown exposed. This fairly loose potting allows heat to pass through the soil, so that the roots are kept in a warm state. If preferred, boxes can be used instead of pots, and in that case the crowns should be placed at a distance of 1½ins. apart. When the work is finished the pots should be well watered and stood outside. No covering is required, as lilies of the valley benefit from exposure to frost before forcing is started.



THE SMALL WHITE DROOPING BELLS OF LILY OF THE VALLEY.

The first batch should be taken into the house for forcing after a few days and the remainder left in the same position in the open. The latter should be brought inside at regular intervals. Forcing takes from four to six weeks, the late batches forcing more readily than the early. The most important consideration in forcing is the temperature, which should be about 70° Fahr., while a bottom heat of at least 80° Fahr. is essential. Until growth has started the pots should be kept in darkness by inverting over each another pot; or if boxes have been used, light can be excluded by placing boards over the top. Unless this is done the flower spikes come up alone and no leaves appear. Feeding is not necessary, but an occasional syringing with warm water is very helpful. Warm water alone should be used for watering. Only the late forced batches are worth saving for future use. After the flowers of these are cut the crowns should be planted outside, and in a year's time they will have gained enough strength to enable them to flower in the border.

Home-grown crowns can be used for forcing instead of the imported ones, when the necessary steps are taken. If the beds from which the crowns are lifted have been well prepared and given liberal treatment, home-grown crowns are as good as, if not superior to, imported ones. When the time comes in September for the lilies of the valley in the border to be transplanted—as a portion should be each year—the required number of crowns for forcing should be potted up and stood outside. Only three year old crowns are suitable for this purpose. The first batch should be brought inside for forcing by the end of November.

The size and quality of the flowers in the borders depend on the situation and particularly on the preparation of soil. When transplanting, a position in partial shade should be selected—under a north or west wall is ideal—and the ground thoroughly well dug. Plenty of leaf-mould and some decayed manure should be added. Unless the soil is of an open texture a dressing of sand must be given, for good drainage is most necessary. As lilies of the valley are lifted the weeds should be removed from among the roots and the crowns should be sorted and planted in different beds according to their size. They will be found to be in three sizes, the new crowns formed the current year, those formed the year before, and those which are at least three years old. A shallow drill should be taken out of the prepared ground and the crowns placed 3ins. apart in an upright position. The drill should then be filled in so that the points of the crowns are just below the surface. The next drill should be started at a distance of 9ins. from the first. When the beds are completed they should be covered until the following spring with a layer of leaf-soil.

Before the last flower in the shady border has been gathered, in order to avoid a break in the supply, "retarded" crowns should be purchased every few weeks until the forced crowns in the houses are once again showing their flower spikes in January. These crowns known as "retarded" lilies of the valley arrive in this country tied in bundles and are put immediately into cold storage. There they remain in a dormant state for two or three months—at a temperature of 28° Fahr. As soon as the crowns are received from the nurseryman they should be very lightly potted in a leafy compost, because growth begins at once without any forcing or feeding whatever. In about three weeks after potting the flowers are ready for cutting. A temperature of 65° Fahr. is all that is necessary for "retarded" crowns. The pots should be given the same treatment

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as advised for forced crowns, but they should be shaded, even after the covering is removed, if the sun is at all strong.

It is at least possible that, because there are many calls on the garden-lover's time in the hey-day of his year, there will be some weeks when there are too many urgent things on hand to allow time for potting lilies of the valley; but there is consolation in the thought that, directly the pressure of work is lessened, some more "retarded" crowns can be purchased and the succession assured. Who can deny a warm welcome to the fragrance and slender beauty of the lily of the valley? Who will refuse to acknowledge its grace, which can be enjoyed the whole year round?

THE SOUTHERN BEECHES

BY W. J. BEAN.

IN A PRECEDING ARTICLE THE AUTHOR DEALT WITH SPECIES OF NOTHOFAGUS FROM SOUTH AMERICA. IN THIS ONE HE CONFINES HIS ATTENTION TO THOSE SPECIES FROM AUSTRALIA, NEW ZEALAND AND TASMANIA.

AUSTRALASIAN SPECIES.

N. CLIFFORTIOIDES.—In New Zealand, where this tree is commonly called "mountain birch," it grows to about 50ft. high, with a trunk 1½ft. to 2ft. in diameter. There are trees more than half that height in the south-western counties, but it is rather a rare tree. For many years a specimen, ultimately about 12ft. high, grew in Messrs. Veitch's nursery at Coombe Wood. I remember it being there about thirty years ago, so that, although it grew so slowly, it must be considered as capable of bearing considerable cold. But Coombe Wood, being elevated and with a slope to the south, is rather favourably placed; on the flat, low-lying site of Kew it is not hardy. It is evergreen, and its leaves, mostly oval or ovate, are about the smallest among the southern beeches, being only ⅛in. to ¼in. long and ⅛in. or less wide. They are set in two opposite rows along the dark, wiry, downy twigs, ⅛in. to ¼in. apart, are without teeth on the margin, and, on young trees, are free from down on both surfaces; the very short stalk, however, is downy like the twigs. On some branchlets from adult trees in New Zealand that I have preserved, the lower surface is covered with a close felt. This is a charming and very distinct small tree where it thrives well.

N. CUNNINGHAMII.—In Tasmania this becomes a very fine tree, its dimensions as found there at low elevations being given as occasionally 200ft. in height with a trunk 40ft. in circumference. It is not hardy in our average climate, but in the south-western and other of the milder counties is thriving excellently. There is a well known example at Osborne in the Isle of Wight which must now be approaching 40ft. in height, but still finer ones are at Kilmacurragh and Fota in Ireland. It is evergreen and has the thin wiry twigs so characteristic of these trees. The leaves are usually ⅛in. to ¼in. long, diamond-shaped to triangular, and conspicuously toothed. The husk, which encloses three nuts, is curious by reason of numerous gland-tipped processes growing over it. I have seen good crops of fruit on the Osborne tree, but all, I believe, infertile.

N. FUSCA.—This is one of the fine evergreen trees in which New Zealand is so rich, becoming there 100ft. in height with a trunk 7ft. to 8ft. in diameter. The branchlets are curiously zig-zagged and when young are covered with minute down. The leaves are roundish ovate, but quite distinct from those of any other species in having three to seven comparatively large incurved teeth on each side; they are ¼in. to 1½ins. long, dark lustrous green above, pale green beneath, smooth on both surfaces. While it is one of the most distinct and curious of the nothofaguses, it is not, to my taste, one of the handsomest. In a young state at least it is somewhat thin in habit and not luxuriant in foliage, but the old leaves turn purplish in winter and a brilliant red before falling in spring, just as the young ones are unfolding. It is not apparently one of the hardiest, although it lived outside at Coombe Wood for many years, but grew slowly.

Photo R.B.G., Edin.

NOTHOFAGUS FUSCA, ONE OF THE FINE EVERGREENS OF NEW ZEALAND.

N. MENZIESII.—In a wild state in New Zealand this tree appears to bear a considerable resemblance to a birch, the bark being silvery white, and one of its common names there is "silver birch." It is, however, an evergreen and grows 100ft. high with a trunk 5ft. to 8ft. in diameter. The leaves vary from triangular to diamond shaped, are ⅛in. to ¼in. long, dark glossy green, the margins doubly toothed. In general appearance this tree much resembles N. Cunninghamii; it can, nevertheless, be distinguished by the double-toothing of the leaves (simple-toothed in Cunninghamii), also by two curious tiny pits that often occur near the base of the leaf, one on each side the midrib, each fringed with brown down. These pits are sometimes absent, sometimes there is only one. This nothofagus is rare, but recently I saw it succeeding very well in Mr. Fletcher's fine arboretum at Aldwick Manor, on the outskirts of Bognor where also several other species are in excellent condition.

N. MOOREI.—A native of New South Wales, where it reaches 150ft. in height, this tree is only likely to be hardy in the mildest parts of our islands. A specimen that was over 20ft. high was, some years ago, growing in the open air at Kilmacurragh in County Wicklow. It is evergreen, the ovate or lance-shaped leaves being 1½ins. to 3ins. long, half as much wide, tapered towards both ends but more slenderly towards the apex, finely toothed, dark green and glossy. Excepting N. procera, it has the largest leaves of the southern beeches, but they are not so strongly ribbed as in that species.

N. SOLANDRI.—A New Zealand evergreen tree reaching in that country 40ft. to 80ft. in height, with a slender black-barked trunk 1ft. to 1½ft. in diameter. It is one of the small-foliaged species, the leaves being only ⅛in. to ¼in. long and about half as much wide, oblong, smooth and glossy green above and smooth or nearly so beneath on young trees, but clothed with greyish white down on adult ones. The margins are without teeth. This species is rare in cultivation and appears to be most closely allied to cliffortioides; it occurs wild at the same altitudes and ought to be of about the same hardiness. It may be distinguished from that species by the leaves being rather larger and tapered or wedge-shaped at the base (rounded or somewhat heart-shaped in cliffortioides).

The following species so far as I know are not in cultivation: apiculata and Blairii, New Zealand; Gunnii, Tasmania; Montagnei, nitida and pumilio, South America.

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A BECKENHAM ROCK GARDEN

BY W. IRVING.

AS AN EXAMPLE OF WHAT A KEEN LOVE OF ALPINE PLANTS CAN ACCOMPLISH THIS GARDEN DESERVES ALL CREDIT. THE OWNER HAS CONCENTRATED HIS ATTENTION ON SAXIFRAGES. EXCLUDING THE MOSSY SECTION OVER THREE HUNDRED AND FIFTY SPECIES AND VARIETIES FIND A HOME HERE.

AS an example of what can be accomplished in a short time, the beautiful rock garden and grounds of "Edenhall," in Albemarle Road, Beckenham, are testimony to the energy and taste of the owner, Mr. C. Kirch. In the planning of a rock garden of any pretensions the chief factor essential is that of position, with elevation and irregularity. But here is shown how a level surface can be transformed into an ideal one that harmonises with its surroundings.

The ground originally at disposal some three years ago was comparatively level, occupying approximately about 1,000 sq. ft., but, by excavating and building up, the necessary elevations were attained, as well as irregular paths winding in and out between banks and mounds. Water, which is one of the greatest attractions in a rock garden, has been artificially introduced in such a manner as to give it a natural appearance, and at one corner a cascade has been formed. The water falls down the cascade and is led through a series of shallow pools and streamlets at different levels, eventually reaching a central pool planted with nymphæas and other suitable aquatic plants.

At the time of our visit the rock garden was ablaze with colour in a setting of Purbeck stone, of which some 800 tons was used in its construction. This stone is well adapted for rock gardening, and being of a porous nature is eminently suitable for plant life. In the scheme of planting, large masses of each kind has been aimed at, and it is only possible to notice here a few of the principal features of interest. One of the first plants noted was a mass of the garland flower (Daphne Cneorum), with its pink sweet-scented flowers in excellent condition. There were also several species of the ladies' slipper orchid (cypripedium), from North America, including C. spectabile, with its white and rose tinted flowers; C. pubescens, with yellow flowers, and C. montanum, with white ones. These were all represented in colonies in a shady position.

In the shady crevices might be seen the rosette mullein (Ramondia pyrenaica), from the Pyrenees, with its mauve-coloured flowers, along with its more Eastern relatives, R. serbica, and R. Nathaliæ from the Balkans and Haberlea rhodopensis. As companions to these were many kinds of the smaller ferns, like Asplenium Trichomanes, Ceterach officinarum, Cystopteris fragilis, Polypodium cambricum and Adiantum Capillus-veneris to mention only a few which were well established.

Among the crevices of the rock, as well as on the level ledges, both in full sun and half shade, many species of saxifrages were represented by groups of various sizes, such kinds as S. Elizabethæ, S. sancta, S. Paulinæ and S. oppositifolia being prominent. S. Cotyledon, with its long arching sprays of white flowers was in excellent condition as was also S. longifolia, while the mossy kinds were much in evidence. Other popular families, such as the gentians are largely grown, those noted being G. verna, of dwarf habit and rich blue flowers; G. acaulis, the gentianella, with its large trumpets of deeper blue; G. Farreri, to flower later with G. sino-ornata, appears to be thriving happily in various positions. Wide cushions of the mossy phloxes with pink and white flowers, various kinds of dianthus, aubrietias, gypsophilas and numerous other families, all play their part in making an attractive display during the season.

ONE CORNER OF THE GARDEN, WITH A CASCADE.

No rock garden of any pretensions would be complete without some of the slow-growing and dwarf conifers and shrubs, and these have been used with judgment and taste. Among the conifers were Abies nigra, A. pumila, A. Maxwellii, and A. pygmæa, Juniperus tamariscifolia, J. prostrata, with their spreading prostrate branches, the upright Cupressus Fletcheri, and the dwarf C. obtusa var. nana. The flowering shrubs included Cytisus Beanii, C. kewensis, and C. humifusa, of the dwarfer section, while taller-growing ones were C. Andreanus, Prunus pumila, P. triloba, Rhododendron ferrugineum and R. hirsutum.

Many bulbous plants gave evidence of being successfully employed as the various families are represented in colonies freely disposed, like Narcissus minimus, with its tiny yellow trumpets, N. triandrus, with its drooping white ones, the hoop petticoat daffodil (N. Bulbocodium), the blue Anemone apennina from Italy, and the darker A. blanda from Greece. In addition were groups of the grape hyacinths (muscari), scillas and many others too numerous to mention. In a shady recess some North American liliums, like L. Grayi, L. canadense and L. superbum were associated with groups of the trinity flower (Trillium grandiflorum), meconopsis, Epigæa repens and low-growing gaultherias.

In the lower, moister positions, and on the banks of the streamlet, primulas of many kinds are freely employed, associated with other suitable moisture-loving plants like irises, mimulus and such like plants.

An interesting feature was a wall planted with many species of houseleeks (sempervivum), which by reason of diversity of colouring and growth is an interesting feature at all times of the year. They are planted in large masses, and included many of the more distinct kinds, like the cobweb houseleek (S. arachnoideum), the dark coloured S. triste, the well known S. calcareum, and the yellow flowered S. Allionii, among a host of others.

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As a screen to divide the rock garden from the lawn with its paved walks, borders and rose beds, a dry wall has been built with stone arches giving access either way. Here again the wall is utilised to the fullest extent with suitable plants, and in the crevices such as the rock rose (Helianthemum), Onosma echioides, Lithospermum prostratum, dianthus and others have been used with full effect.

In addition to a collection of the choicer rock and alpine plants, Mr. Kirch has concentrated his attention on the saxifrage family. He aims at getting together all the different kinds in cultivation, and so loses no opportunity in getting in touch with other growers of this popular plant, and by means of exchange or purchase to enlarge his collection. This already consists of some 350 species and varieties excluding the mossy ones.

In the alpine house adjacent to the rock garden numerous specimen pans of saxifraga species and varieties may be seen, mostly in perfect health, though some are not the easiest of plants to grow in this country. Among the many kinds noted were: S. Burseriana, in various forms; the silvery leaved S. lingulata, with its long sprays of white flowers; numerous varieties of S. Aizoon; the yellow-flowered S. apiculata; large rosettes of S. longifolia the queen of saxifrages, the Macedonian S. Grisebachii, with its crozier-like inflorescences of red flowers, besides a large number of hybrids and varieties, many of them still rare in cultivation.

Such a collection gives one an idea of the infinite variety of saxifrages now grown in gardens, and it also brings home the confusion that exists with regard to the nomenclature of the various members of this genus. As the different species hybridise freely it is almost impossible to raise from seed true to type unless great care is taken to isolate the plants before the flowers open. Plants under the same name from various sources differ to a great extent, and are probably the result of seedlings, hence the great difficulty of attempting to keep a collection correctly named. Besides saxifrages, other plants like androsaces of various kinds, the rarer campanulas, dianthi and other alpine plants from higher altitudes are given the shelter of the alpine house where they get the protection they need in our changeable climate.

An inspection of the frames close by reveal that Mr. Kirch is actively engaged in hybridising some of the more important species, and there is a prospect that some interesting kinds may be produced at some future date. Lovers of these plants are assured of a hearty welcome at any time and would doubtless profit from a visit to this most interesting garden.

It may be added that the rock garden was built by Mr. E. Scapelhorn of Beckenham, who evidently gave much thought and consideration in carrying out the design.

Well worth a visit is the rose garden close by, containing all the newest and best varieties, 1,700 in all, in groups of five, which, with a large bed of 100 Golden Emblem, was a blaze of colour at the time of our visit.

HELIANTHEMUMS, LITHOSPERMUMS, DIANTHUS AND OTHER PLANTS ARE UTILISED TO FULL ADVANTAGE ON A DRY WALL.

A GENERAL VIEW OF A SECTION OF THE GARDEN.

ONE OF THE STONE ARCHES, IN THE CREVICES OF WHICH ARE SHADE LOVING PLANT

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WINTER FERTILISERS

THERE is a large number of fertilisers which can only be used to the best advantage during the winter months, and I propose in the present notes to consider some of the most important. It is hardly necessary to mention that bones take the premier place in these winter fertilisers, but as they have been considered fully in another article, their use need not again be described in the present one.

About a dozen materials have to be taken into consideration as useful winter fertilisers. These in each case are somewhat slow in action. They comprise a wide range of different articles, some supplying nitrogen, others phosphate, and others still, potash. Their solubility varies enormously, some going completely into solution, while others only dissolve with great difficulty. Water solubility is not an entire guide, as it must be borne in mind that many materials which water takes up very badly are soluble to a remarkably high extent in citric acid, ammonium citrate, and in soil water charged as it is with carbonic acid gas.

The most convenient way of arranging these winter fertilisers for treatment is, I think, in alphabetical order, and I will, therefore, commence with a few notes on

Basic Slag.—It is unnecessary to go into the origin and manufacture of this valuable winter fertiliser, but care should be taken to obtain a sample for use in as finely ground a condition as possible. The contents of soluble phosphate should be high, although such samples will cost considerably more than those in which insoluble phosphate predominates. A high citric solubility, however, will be quite as good as one could wish for. The use of basic slag for lawns is well known, but, unfortunately, it is apt to encourage the growth of clover. For use as a slow-acting phosphatic fertiliser on flower borders it is exceedingly useful, the rate being about a couple of ounces per square yard. For digging into fruit borders and into the vegetable garden, a quarter of a pound can be used for the same area.

Chalk and Limestone Dust.—A word or two only is necessary with regard to these materials, as they can only be regarded as indirect winter fertilisers. They prove very valuable soil sweeteners if worked into the land during November, and heavy dressings can be given with perfect safety, say 30lb. to 40lb. per square rod.

Cyanamide.—This should be used in the late winter, so that the nitrogen it contains can be available for the stimulation of leaf growth in the spring when the plants are ready to take it up. If cyanamide is used extensively there is very little need to lime the land, as carbonate of lime remains in the soil after the ammonia has been released from the material. The rate of application of this fertiliser is distinctly variable. Personally I am in favour of small doses, say 1 oz. to 2 oz. per square yard, but much larger amounts have been given to poor land with good results.

Flue Dust.—This is a very valuable potash fertiliser, the amount of potash it contains sometimes being as much as 10 per cent. It can be readily obtained in industrial districts from manufacturing firms, and if used early in the winter it can be applied in a fresh state at the rate of about a quarter of a pound per square yard. For late winter use it should be well aired before application, and spread on the surface for a week or two before being worked in, to allow certain deleterious compounds to be oxidised, or to evaporate into the air. Used fresh it has distinct pest-killing properties, which make it doubly valuable. I recommend its extensive use on land intended for the cultivation of potatoes and root crops generally.

Gypsum.—Much more use should be made than is made at the present time of this material, especially on land intended for turnips and globe beet, for which it often proves very valuable. The action of gypsum is not at the present time fully understood, but it is thought that it reacts with the locked-up potash the soil contains and releases this for absorption by plants. An application of gypsum is, therefore, equivalent to using a potash fertiliser, and, of course, it is very much cheaper. About 10lb. can be used per square rod.

Horn and Ivory Dust.—These two materials are similar in action and composition, supplying nitrogen to the soil in a slowly available form. They can be readily obtained in cutlery districts and have proved exceedingly valuable as mild stimulants. Both are light, bulky materials, and are almost entirely insoluble in ordinary water. One good dressing—say 10lb. per square rod—will last over a number of years, and, therefore, these materials, which are, of course, generally regarded as waste, prove highly economical. I recommend their use on ground intended for cabbages, potatoes, artichokes and similar crops. Good results have been obtained by giving moderate dressings once in four years to plantations of bush fruits.

Kainit.—This is a well known potash manure of somewhat complicated composition. Its use as a summer fertiliser is undesirable on account of its content of magnesia, salt, etc., and also that it is somewhat slow in dissolving. Used in November or December, however, it proves of great value, and can be worked into flower, fruit and vegetable ground during the winter digging. Light dressings only are given, as a rule, on account of the cost of the material, and up to now it does not seem advisable to use more than about 4lb. per square rod. The value of kainit for lawns is well known, but it often pays also to mix a little in with vegetable refuse to increase its value when this material is being made into a stack, or thrown into a pit to rot down into organic manure.

Muriate of Potash.—This fertiliser is the same as chloride of potash, muriatic acid also being known as hydrochloric acid. Used as a summer stimulant, this fertiliser proves in many cases to be an active plant poison, and loud have been the complaints concerning its untimely application. Used in the winter months, however, its poisonous effect appears to be changed in contact with soil water, and bearing in mind that it is a cheap source of potash, much more use should be made of it than has been done in the past. Light dressings only are recommended, about a couple of pounds per square rod being ample, and ground only should be treated with it where a large content of potash is desired, as is the case, of course, when such ground is to be planted with potatoes or sown with different kinds of tap-rooted vegetables.

Pearl Ash.—Candidly, I do not recommend the application of pearl ash, either as a winter or as a summer fertiliser. It has been highly praised by many so-called experts, but it is too strongly alkaline a material for use with safety on any but very acid soils. Pearl ash is cheap and readily obtainable, of course, but if its use is going to be destructive both to plant tissue and of actual humus in the soil, as it has in several instances proved to be, it is naturally dear at any price. Light dressings only are generally applied, about 1 oz. to 2 oz. per square yard. If used at all it should be worked in as early in the winter as possible.

Reverted Superphosphate.—Just a word about this material, which is often regarded as useless junk. If ordinary superphosphate is not stored in a perfectly dry place complicated chemical changes frequently set in, and the material loses its power of dissolving in water. Technically it reverts to another kind of phosphate, and its solubility can only be restored by the use of strong sulphuric acid. Reverted phosphate, however, proves a most valuable slow-acting fertiliser for use during November, and its application is to be far more highly commended than is that of superphosphate itself, on account of its not rendering the soil acid after application, as the latter does. It is valuable alike for the flower and the vegetable garden, while it has also been used in the preparation of fruit borders with conspicuous success. Relatively heavy dressings are applied in the first instance, as the effect of an application is felt over a period of several years. I recommend about a quarter of a pound being used per square yard at the present time, and it should be promptly dug in.

Spent Carbide.—This consists largely of slaked lime with some carbonate of lime or chalk, and a small amount of unacted-upon calcium carbide. It is valuable as a soil sweetener, and also proves to be a mild deterrent to soil pests, on account of the acetylene gas given off by the unacted-upon carbide. Immediate application is recommended, and in any case it should not be used after the end of December. The rate can be varied from 4 oz. to 8 oz. per square yard.

Wood Ashes.—The last material of the dozen selected is, of course, wood ashes, and I should like to urge that less waste of these is advisable. Gardeners from now onwards will be busy burning up woody garden rubbish, but in at least 50 per cent. of these cases no efforts will be made to keep the ash dry, or to store it until required for use. Wood ashes contain considerable amounts of potash and prove a very valuable late winter fertiliser, especially for land intended for potatoes and other tap, tuberous or globular rooted vegetables. It is not necessary to use sulphate of potash as a summer or spring dressing if one has plenty of wood ashes, and special potato fertilisers (which, of course, consist very largely of potash) can be abandoned and large sums saved by the non-purchase of them. After a bonfire the ashes should be sifted as soon as they are cool, to remove rubbish which has not been fully calcined, and should then be stored in sacks or barrels in a perfectly dry place. The rate of application of this material is about a quarter of a pound to the square yard.

E. T. ELLIS.

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CORRESPONDENCE

IMPORTATION OF NURSERY STOCK INTO CANADA.

SIR,—Owing to the fact that an English nurseryman has written to me to say that he cannot fulfil my order owing to restrictions, imposed by the Canadian Government, I should like to draw to your attention that possibly a misconception as to the actual facts *re* importation of nursery stock into Canada may exist among British nurserymen. Since the impression that plants of all kinds from abroad are absolutely barred entry into Canada is likely to prove detrimental to the interests both of British growers and of Canadian horticulture, it seems desirable that the true facts be given proper publicity.

The copies of the regulations governing the importation of nursery stock into Canada (1) from the United States, and (2) from Great Britain and other foreign countries, explain that plants (with certain exceptions), may be brought into Canada, provided that certain formalities are complied with. The essence of the regulations is that the Canadian importer must apply to the Department of Agriculture at Ottawa for a permit to import. This permit is freely given, except in the case of certain trees, shrubs, etc., upon which there is an embargo, and is accompanied by official labels that have to be forwarded with the order and must be affixed by the shipper to the packages containing the plants. The stock is examined by the Department's inspector at the port of entry in Canada, and goes forward to the consignee without further formality other than the payment of Custom's duty. The regulations perhaps make the procedure seem rather involved, but it is, in reality, very simple and I have experienced no difficulty in bringing in plants.

With the United States matters are very different, and American importers have much difficulty in securing permits to import; possibly the fact may have led British growers to believe that the regulations in both Canada and the United States are the same.—HUGH S. SPENCE, *Ottawa*.

[As our correspondent remarks, there are printed copies of the main regulations governing the importation of nursery stock into Canada; these are obtainable from the Department of Agriculture at Ottawa. At the present moment the following restrictions are enforced:

The importation into Canada of merchandise packed in hay, straw or other fodder is prohibited unless—

(1) Such merchandise is accompanied by a certificate from a properly qualified veterinary officer of the country of origin, and that such hay, straw or other fodder has been grown and stored and the merchandise packed in a district not infected by foot and mouth disease.

(2) Such merchandise is accompanied by a certificate from a properly qualified officer of the country of origin to the effect that the hay, etc., used in packing the merchandise has been thoroughly disinfected.

(3) In the absence of such certificates the merchandise shall be unpacked and the packing destroyed under the supervision of an officer of the Federal Department of Agriculture and the cost borne by the shipper.

Importers are advised to notify their shippers accordingly.

Regulation No. 6.—Prohibiting the importation of the following species of Pinus and their horticultural varieties:

Pinus Strobus, *L.*; Pinus monticola, *Dougl.*: Pinus Lambertiana, *Dougl.*; Pinus Cembra, *L.*, and all other five-leaved species of pinus. This is to prevent the introduction of pines susceptible to the white pine blister rust, and those which may be affected by the disease.

Regulation No. 8.—Prohibiting the importation of all species and varieties of currant and gooseberry, not including the fruits. Currants and gooseberries are the host plants of white pine blister rust and it is to prevent the further introduction of this disease that importation of these plants is prohibited.

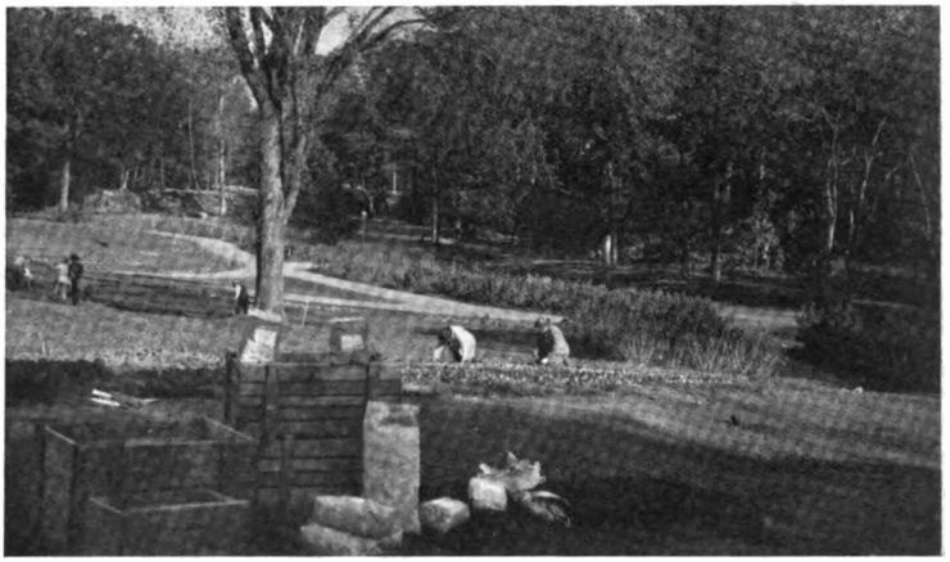
Regulation No. 9.—Prohibiting the importation of European buckthorn (Rhamnus cathartica) and Berberis vulgaris and all their hybrids and horticultural varieties.

Also all species and varieties of berberis and odostemon (Mahonia) susceptible to crown rust of oats and black stem rust of wheat, respectively, including:—B. amurensis, B. canadensis, B. Lycium, B. sibirica, B. aristata, B. ilicifolia, B. Nepalensis, O. Aquifolium. There are no restrictions on Berberis Thunbergi.

Potatoes are prohibited as a protective measure. Canada is free from potato canker as well as potato tuber moth and so precautions are taken to keep it free.—ED.]

A DAFFODIL COLLECTION IN THE UNITED STATES.

SIR,—The clouds have gathered and are closing in rapidly towards that black night when daffodils and certain other "miscellaneous bulbs" will no longer be allowed unlimited importation into these United States. January 1st, 1926, is the gloomy date. After then, only those who have been lucky enough to obtain permits from the Federal Horticultural Board in Washington will be able to import these bulbs. The importer must grow them for two years before he may sell or even divide them among his friends. His purpose in importing the bulbs must be approved at Washington: he must be undertaking scientific research in which he needs the plants, or have convinced the authorities that his "collection" is of such a nature that it is of horticultural or of scientific value to the country, and needs augmenting; or he must be going to use his plants to make money. Very little remains in this country on other than a commercial basis. It all seems a pity. We do need a quarantine, but not quite in this way. The amateur gardener is usually the one who desires the new, rare varieties, who makes a "collection," whether large or small, and it is he who insistently demands the good, new sorts until the growers here finally become aware that there is money in the better things. But few growers will handle newer kinds until they do become convinced of that fact and one can hardly blame them when they are to make their living from the plants they grow. Horticulture, as a general thing here, is in its infancy—too few know what is really worth planting; but we grow quickly here and we get so enthusiastic about a subject, and go at it with such a vim, that we should not be discouraged. The start was a good one. A few more slaps in the face like Quarantine 37 and our good start will have been of little use. What the amateur and the garden clubs must do now is to keep on learning what is worth having and to keep on demanding it; becoming more and more insistent. As far as daffodils are concerned, maybe the growers will become exasperated. They *can* grow bulbs here, but they will not be able to supply their customers at a price that any but the richest can afford. The question will be whether they will sell a very few bulbs at an extortionate price, like the farmer who leaves his peach crop on his trees rather than lower the peach market, or whether they will make more money selling a quantity of imported bulbs at lower rates. Once they become convinced that they will be able to sell enough cheap daffodils to make a larger income, they will convene in Washington, get a hearing and bang! off goes the insane quarantine based only on a commercial point of view and we shall have a sensible one where plants that come from infected districts will be excluded until the districts are shown to be free from disease. Of course, the commercial spirit will be under it all the same; but the result is what counts. Nobody objects to a commercial reason for anything that helps tend toward real betterment along lines entirely uncommercial. Fortunately, the gardening spirit is one accustomed to sharp set-backs, to looking to the future, to exercising a large imagination, and particularly is it so when planting bulbs. Those storehouses little show to the uninitiated what worlds of beauty they contain. Persistence is the rock bottom foundation of good gardening. Naturally, with such a sword of Damocles as this exclusion hanging over daffodil lovers, there is an agonising rush to get all the bulbs possible before the



THE PLANTING OF DAFFODILS AT THE NEW YORK BOTANIC GARDENS.

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day arrives and the dealers here have been quite staggered by the onslaught. Next year no doubt, the demand will quite out-distance the supply. Among the collections augmented has been that of the New York Botanic Garden at Bronx Park, New York. Through the generosity of the Dutch Bulb Growers' Association, which made a gift of about thirty-seven thousand daffodil bulbs, and through purchases, using a fund subscribed to by garden clubs and individuals, over fifty thousand narcissi have been planted this autumn. The rare sorts have been put in beds, others "naturalised," and the whole concentrated in a portion of the grounds the nature of which is rolling, with out-cropping of rocks at one side, beautiful woodland on two others and a sunny meadow devoted to bearded irises, on the other. The planting was an interesting study from many points of view. The tools available for the work in the grass were varied. Over here we are not lucky enough to be able to get Barr's bulb planter, but one of them we did have. Other tools used were spades, a digging fork, a long and a short crowbar (light, and resembling huge chisels) and, of course, trowels. The ground was very hard in spots as the planting took place during a period of drought. The bulb-planter was most certainly the best tool and the spade the next best. The crowbars made good holes, but as the ground was simply pushed hard into the sides, many of them had to be filled with soil after the bulbs had been dropped in. The large trumpet daffodils, with the exception of the varieties Emperor and Fairy, were put in dug ground to give them a better start and a colour plan was made beforehand for the "wild" effects. It is hoped to increase the planting next year as there is plenty of room where the collection is located to spread out.—ETHEL ANSON S. PECKHAM, *New Rochelle, New York.*

PRUNUS SUBHIRTELLA VAR. AUTUMNALIS.

SIR,—I am surprised and disappointed at an omission in Mr. Bean's admirable little book, "Shrubs for Amateurs." The prunus mentioned above, which also seems to be called P. microlepis and P. Miqueliana var. Smithii (surely too many names for so small and delicate a thing). It is far less of a tree than Æsculus Paiva, Buxus sempervirens and Cotoneaster frigida, so that its size cannot be the cause of its exclusion. And as I saw it this morning, its long slender twigs covered from end to end with buds, of which a dozen have opened already to pearly white flower, while the rest are a store of delights to last us from now until March, I thought that, were I condemned to choose three shrubs, and rejecting all others cleave only unto them, Prunus subhirtella var. autumnalis should be one of the three. I might add that the year it came here it was planted in November and was blooming by January.—E. HUNTINGFIELD, *Halesworth.*

FRIENDS AND FOES OF THE GARDEN.

SIR,—Like your correspondent, W. Linders Lea, I read with much interest and pleasure Mr. Clifford W. Greatorex's article on our feathered "Friends." Although some birds admittedly do a certain amount of damage in the garden, I do not consider that any of them deserve to be called "Foes," for surely they earn a share! Here we feed the birds regularly all through the winter and are rewarded by a large and varied collection of visitors to our breakfast room window ledge; included in the list are thrushes, blackbirds, chaffinches, blue and great tits, starlings, and, of course, sparrows and robins. Personally, I consider that a garden without birds would be robbed of half its charm: imagine an early summer's evening without the song of thrush or blackbird! I sincerely hope that the time will come, in the not far distant future, when you may be able to include articles on birds as a regular feature of your valuable paper.—CECIL M. BAILEY.

SIR,—In the article, "Friends and Foes of the Garden," in the issue of THE GARDEN for October 25th, Mr. Greatorex writes of the dormouse as being non-injurious to the gardener's "valued plants." While this may be true of the common dormouse, there is one species, known as the "garden dormouse," which is capable of doing great damage to fruits in the garden. Some years ago these little animals raided the peach houses here, spoiling quite a number of the peaches and nectarines. I was puzzled somewhat at first as to the cause of the damage inflicted on the fruits, till I caught one one day mutilating a choice nectarine in broad daylight. They did not consume a fruit wholly, but sampled a number, usually selecting the best fruits. Needless to say every dormouse after that we came across was soon put out of existence.

In "Wood's Natural History," the author, writing on the Lerot, or garden dormouse, says: "It has derived its title of Garden Dormouse from its annoying habit of entering gardens and making sad havoc of the choicest fruit; for it is an animal of great taste, and makes its selection among the ripest and best fruits with an accuracy of judgment that may be highly agreeable to itself, but is sincerely execrated by the owner of the garden. It is particularly fond of espalier-trained fruit-trees, and is much given to devouring the peaches when they are just in their bloom of rosy perfection."

This species appears to be larger than the common dormouse, being 8ins. in length, including its tail, the latter species being rather more than 5ins. long. With regard to Mr. Greatorex's dictum *re* cats and their abolishment, after long experience in gardens with cats, and without cats, I should vote in favour of their retention, as I find the damage done in cat-less gardens by the creatures on which they prey is very great.—R. W. DEAN, *Audleys Wood Gardens, Basingstoke.*

THE ALPINE FLORA OF THE COL DU LAUTERET.

SIR,—Having had the pleasure, accompanied by my wife, of spending a week at the Col du Lautaret in Dauphiné, towards the end of July, 1924, I thought that perhaps a few notes regarding the alpine flora we saw there might be acceptable to those readers of THE GARDEN who might be described, not so much as "botanists," but rather "alpine plant lovers." We made the Hotel des Glaciers our headquarters and found everything quite comfortable for anyone who has a good working knowledge, as distinguished from book knowledge, of the French tongue. The higher alpine meadows, such as exist around there, want to be seen before they can be realised; in that they present certain alpines, and those not of the commonest, in an unlimited profusion. The writer had on at least three previous occasions obtained plants from nurserymen ostensibly of Campanula barbata, to find that one was defunct on arrival, the second on blooming turned out to be C. thyrsoides, and the third the true barbata, blossomed with him in the spring of this year; but both C. barbata and C. thyrsoides were in full bloom at the Lautaret, the former in thousands and the latter not uncommon. To see an alpine meadow glorified with the soft, yet distinctive blue of myriads of C. barbata is surely a "sight for gods and men." In all this abundance of the plant we did not once come across the white variety, or indeed any variation in colour of bloom worth recording.

We also saw thousands of Lilium Martagon: but here the variations in habit and colour seem worthy of remark. One form of the plant was characterised by the possession of a woolly down, particularly noticeable on the unopened buds of the inflorescence, which gave a very peculiar appearance, totally distinct from the other form with smooth buds possessing no down whatever. I should be pleased to know from any botanically inclined reader of THE GARDEN what name, if any, this sub-species or critical variety of L. Martagon possesses. We found that this variety has a more distinctive coloration of petal which appealed to me much more than that of the typical "smooth" variety, the colour of which is of a livid, unpleasant and undecided tone that somehow always reminds the writer of decaying flesh which is ruddy below, but with this colour marred by its surface tint. We searched among some thousands of these plants and were rewarded at last by finding a clump of about six bulbs, which, if not pure white, were at least an ivory white without taint of the other colour. Of these we took three without removing the others and carefully replaced the sod again, laying underneath it the few scales which had been displaced from the three bulbs removed. There is always some satisfaction to the writer in taking home to his own garden a bulb as distinct from a non-bulbous plant, because one has something tangible and substantial, something with a reserve of energy, which enables it to tide over the winter and await with certainty the resurrecting touch when the sun returns in spring in its strength. The most familiar and most showy plant of the Col du Lautaret is the "Oeillet du Lautaret" (Dianthus neglectus), and here, indeed, there is room and to spare for selection of more and yet more brilliantly-coloured forms. My wife and I wandered around the meadows day after day and each day we seemed to happen on blossoms of this plant more brilliant in colour than those of yesterday. We took a few and how they will colour their blooms remains to be seen in succeeding years, but it is to be feared that the colour will not be what it was on heights of the Lautaret. And now, Mr. Editor, that I may not trespass too much on your space, I shall cease to dwell on the beauties of the Lautaret, but if it be your will, and the will of the readers of THE GARDEN, I may perhaps on some future day describe the little plants we saw and loved at the Lautaret, at the Galibier, and at the pass of the Mont Cenis.—R. J. S.

ROSES: GUARANTEED BRITISH GROWN.

SIR,—The appeal made by The British Rose Growers' Association to growers of roses to buy only those which are delivered to the consignee bearing the seal of the Association is worthy of consideration and adoption. Every season one notices in our markets, and in auction rooms, trees offered for sale—often denuded of foliage entirely—that to an old grower show unmistakable signs of their having been exported. In the majority of instances, these trees after being planted in British soil do not last more than a few years, being unadapted to our soil and climate. As a grower of roses of many years standing, I am convinced that there is nothing like British roses for this country. Foreign grown trees lack vigour and continuity, without which it is useless planting. There is therefore no cheapness in them, and it is more remunerative in every way to deal with home nurserymen. More than half the foreign roses which I have seen planted in this country have but a brief existence when compared with home reared and grown trees. The seal which all firms of repute are now using, is a guarantee as to the *bona fides* of the article sold, and is a satisfaction to the buyer to know that trees sent him are more likely to flourish in his garden, because they are of British origin. The appeal has not come a moment too soon.—W. LINDERS LEA.

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SIMPLE GARDENING

THE LAWN.

A BEAUTIFUL lawn—one well made and well attended to all the year round—adds very much to the general attraction of a dwelling-house. In towns and their suburbs, where green grass and foliage are so much appreciated, efforts to secure such are never regretted. But the attention given to lawns during the summertime will not result in a faultless lawn. The work done then is quite different from that required in the winter. I am sure that many readers, who pay very close attention to their lawns in the summer, neglect them in the winter. I do not refer now to the laying down of turves but to the general treatment of the established lawn. I do not advocate the placing of thick dressings of farmyard manure on the lawn. Where this has been done without regard to proportion I have seen the grass destroyed wholesale. All manure of this kind applied as a surface dressing should be well rotted and broken up rather finely. Equal bulk of good loam passed through a 1in. mesh sieve should be added and the two ingredients thoroughly mixed. One barrowload to a square rod will do much good. Where these cannot be obtained use 1 peck of old mortar rubble reduced to a powder and, one month later, a similar quantity of old, dry soot, respectively, per square rod. Wood ashes are good, too. If the above cannot be obtained, rake the lawn vigorously one day and brush it to and fro the following day. In every case roll the grass when it is fairly dry, not sodden.

GLOBE AND JERUSALEM ARTICHOKES.

Artichokes are rarely well grown. In the first place, they are planted in unsuitable soils and positions or in badly prepared ground. The plants will grow in nearly all kinds of soil—sandy, clayey and medium loam, doing best generally in the latter. But without good treatment the best is not obtained from the plants. When raising young stock of globe artichokes I always sowed two or three seeds in 3½in. pots filled with good loam and a little leaf-soil, retaining the pots in a cold frame till April, hardening and planting out at the end of May. This made a good beginning, as the plants grew strongly all summer without check. In the winter previous to sowing the seeds in February the ground was trenched and manured. Readers should do the work now if suitable ground has not already been prepared. A word also about the present treatment of established plants. If unprotected, these suffer in severe winters. All dead leaves and weeds should be cleared away, the soil loosened on the surface only, and dry strawy litter and fresh tree leaves, mixed for preference, packed neatly round each plant. It is time now to lift and store the Jerusalem artichokes. The large tubers should be stored just like potatoes and the medium-sized ones by themselves in readiness for planting again next March. After the crop is lifted the ground should be trenched.

PRUNING VINES.

I always like to have my vines pruned about Christmas Day; not later than the last day in December. As the daylight begins to lessen I cut back the end of each branch a few inches, thus ensuring more light reaching the basal buds on each branch, as these buds are important; those nearer the ends of the shoots are not as necessary to the next year's crop of grapes. By the end of December nearly all the leaves have naturally matured, fallen off or do fall when the rod is sharply rapped. Their functions are at an end. On each side branch, of the current year's growth the two bottom or basal buds should be taken great care of, as from one of these the next bunch of grapes comes. A sharp knife should be used to cut off the branch in preference to pruning scissors, as the cut must be a clean one, leaving a smooth end just beyond the bud and not

a jagged one. With the left hand hold the rod firmly while the cut is being made. The accompanying sketches show how young, nicely established and old vines should be pruned. The young vines should be pruned as shown at *a*, it is the right way to build up a strong rod eventually. On some rods shoots as shown at *b* grow, these should be cleanly cut out unless required to fill a gap. Prune the leader as shown at *c*, leaving 2ft. of young rod, *d*, and the side branches as shown at *e*. A main rod, *f*, bears side branches and spurs; cut off as shown at *g*, taking care of bud *h*; the one, *i*, is useless. An old spur is shown at *j*, *j*, the current year's branch is pruned at *k*, the bud, *l*, being rubbed out as soon as growth begins.

HOW TO PREPARE GROUND FOR GLADIOLI.

These lovely flowers were greatly admired last year, hundreds of thousands of them were grown in gardens large and small. Many were well grown, others showed lack of cultural skill. Undoubtedly much finer spikes, and individual flowers also, are the result of high cultivation and constant watchfulness as the spikes develop. Some corms are started in pots and planted out later in the season where the soil is clayey and cold; the majority are planted in the open border during April and early May. I much prefer to plant in the border, even where the soil is stiff, if it can be duly prepared. It is a mistake to defer soil treatment to planting time. Begin now. The best way is to commence on the selected plot as if real trenching work was being done. The subsoil should be left in the bottom, but thoroughly broken up, and the surface portion turned over in as lumpy a condition as possible. It is really wonderful how mellow such clayey soils will become by the end of March. The exposure to wind, rain and frost pulverises the lumps so they crumble almost to powder. I may state here, for the benefit of the inexperienced, that in gardens where organic manures are not available, hop manure, mixed with the soil at the bottom of the trench, will prove very beneficial. The trenches should be made 9ins. deep early in April, the hop or organic manure used, and a nice sprinkling of bone-meal added to the top soil when the trench is filled. With sand placed round each corm when planted, growth will be free and strong.

WATER GARDENS.

Bog and waterside plants are, in suitable positions, always very restful and attractive. One would think that such plants, when nicely established, would take care of themselves—thrive without any further attention as it were. Some of them—the strongest—will do so, but we wish to maintain the balance so as to give the weaker, but none the less beautiful, plants their chance to grow freely. An ordinary plank will enable the workman to approach the plants in certain cases, but in others, where there is deeper water, the plank should be nailed to a strong empty box. These precautions are necessary for bog gardens, but for streams and similar places water-tight boots are generally sufficient. Coarse weeds should be dredged out with roots and mud attached. Portions of very strong-growing plants can be detached and the slips planted elsewhere if required. At the sides of streams hardy ferns look charming always, and roots may be planted there, re-arrangements made, and foreign matter cleared away from all specimens so that there will be nothing to interfere with the growth of the new fronds in due course. The present is a suitable time to make good any landslips, tiny or serious, near streams and ponds, and to rectify deficiencies.

GEORGE GARNER.

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CHANGES IN PLANT NAMES

BY F. A. HAMPTON.

SINCE almost all our garden plants were introduced from abroad, and came to us with names more or less strange, their vocabulary provides a good general picture of the kind of changes that foreign words undergo as they are gradually absorbed into the language and moulded into conformity with it. The list of garden plants is continually growing and their names are often uncouth to those who have most to do with them, so that the most frequently used are likely to undergo the regular philological changes in the process of their naturalisation, and as the process is going on around us the interest of these changes is not wholly antiquarian.

The simplest way of adopting a foreign word is, naturally, to give it an English pronunciation and then to spell it phonetically. This happened to the French *pensée*, which became first *paunsie* and finally *pansy*; the English tendency to place the accent early in the word, and rather heavily, leading to a blurring of the final *ée* into an indeterminate *y*. A similar shift of accent makes *ándrosaise* a popular pronunciation of that awkward word *androsace*.

One rather curious result of a change of pronunciation is the obliteration of the personal name in those plants that are called after distinguished botanists and others, so that Leonard Fuchs is hardly to be remembered in *fuchsia* nor Dahl in *dahlia*.

When a word has been a long time in circulation it tends to become softened in pronunciation and, as it were, "run together"; thus, on tracing back *germander*, we find successively the late Latin *germandra*, the late Greek χαμανδυά (chamandrya) and, ultimately, the classical Greek χαμαιδευς (chamædrys), *i.e.*, "ground-oak"; in the official nomenclature the popular "germander" is re-minted as a specific name, *Veronica Chamædrys*. A simpler case of "running together" is *damson*, which has the same origin as the damask rose and was first known in England as the "damascine plum."

As another result of long use, words become shortened by syllables dropping off, *athanasia* (immortality), coming through late Latin as *atanesia*, becomes eventually *tansy* in English. This method of shortening seems more popular nowadays than compression for dealing with long plant names; rhododendron is being familiarised into "rhodo," and the future of chrysanthemum seems to waver between "mum" and "chrysant," with a bias towards the former. Possibly the initial *a* was the more readily dropped from *atanesia* because it looked like the indefinite article, a factor that may be influencing the fate of anemone, which the street sellers in London are turning into "nemony" and, with a transposition of consonants, into "nenomy."

The definite article has sometimes had a considerable effect on the form of a word by becoming incorporated with it, especially in the case of words coming into the language through Arabic and bringing with them their definite article *al* (the). In the case of Koran, which was for a long time written "Alcoran," the meaning of the first syllable has been recognised and it has been dropped; but in many Arabic words of earlier introduction the article has been firmly welded into the structure of the word and become inseparable. A good example is found in that far-travelled word *apricot*, which begins as πραικόκιον a late Greek word corresponding to the late Latin *præcoquum* (*pomum*), *i.e.*, "early apple." In the Spanish Peninsula *præcocion* became, in Moorish Arabic, *burquq*, and appears, with the definite article *al* prefixed, as *albricoque* in Portuguese and thence in Elizabethan English as *apricock*. The tree itself is said to have an origin even farther afield, in North China, though Linnæus gave it the official name of Prunus Armeniaca.

The first syllable of *alkanet* ("the henna") and *artichoke* ("the cardoon") is a relic of the Arabic *al*, and it has been suggested that *daffodil*, which is certainly derived from asphodel, may possibly owe its mysterious initial *d* to the Dutch or Flemish definite article *de*, much as "doolay" in the Army French of the last war meant simply "milk."

Perhaps the most subversive change that affects imported words is that due to a tendency to force them into line with native words of similar sound, and just as our method of dealing with a new phenomenon is to analyse it into terms of the already known and find a pigeon-hole for it in our past experience, so, in dealing with a strange word, we try to analyse it into something familiar and meaningful, but if this is not possible there is a strong tendency, especially in the living, shifting forms of popular speech, to give the word a twist in order to fit it in some category. So the word asparagus, that had no meaning for those without classical learning (and very little for anyone else), became "sparrow-grass," and, as Weekly points out in the "Etymological Dictionary of Modern English," this was the polite form up to the nineteenth century, quoting from "Walker's Pronouncing Dictionary" (1791) "'Sparrow-grass' is now so general that asparagus has an air of stiffness and pedantry." Another typical example is the Greek καευόφυλλον (caryophyllon), a "clove" (literally "nut-leaf"), which, after being worn down into *girofle* (Norman French), sported into a great number of forms after crossing the Channel, appearing in Middle English as gilofer, gilliver, gerafloure, etc., and finally settled down, under the attraction of the word "flower," as *gilly flower*, with a sporadic further perversion into "July flower." The original form is restored in the official name "Dianthus caryophyllus" (clove pink).

This process of assimilation, or the like one of folk-etymology, is still actively at work with strange plant names, and we record occasional brilliant formations, such as "sigh-forthia" (Forsythia) and "China doxies"; but, for the most part, the throes of change are unobserved since they occur in the spoken, not the written language; yet it is a pity that they should go unrecorded, both for the sake of future students of the language and because, where a new English name is called for, a study of the fluid elements of the language might contribute to the success of the coining. It may be urged that our new garden plants have already their adequate official names and that English ones are neither necessary nor desirable; this for the most part is true, yet there are exceptions, such as a certain exquisite yellow pæony (in the absence of a book of reference its name is unwritable) that suffers at present under the unpronounceable obscurity of a Polish eponym or the undeserved humiliation of "Miller's Whiskers."

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Though so many subjects are dealt with in each issue of THE GARDEN, it must constantly happen that readers seek information which is not immediately available. In such circumstances they should make use of our new Service Department. Through its medium each reader's own particular enquiry can be dealt with. No matter what the question is, whether advice is sought as to—

RESTOCKING A GARDEN, COLOUR SCHEMES FOR GARDENS, THE BEST PLANTS FOR CERTAIN SITUATIONS, WHERE TO OBTAIN NEW AND RARE PLANTS, INSECT PESTS, NAMING OF PLANTS, AND THE HUNDRED AND ONE OTHER DETAILS RELATING TO THE GARDEN—

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THE FARMERS' CHELSEA

ALTHOUGH the Smithfield Club Show at the Agricultural Hall, Islington, is the Mecca of the farming world, where keen experts go primarily to inspect the fatted cattle, sheep and pigs, there is also much of interest to gardeners. But this is not on the ground floor, where are stalled the King's first-prize animals, of perfect proportions and handsome appearance, but in the Gallery with the gargantuan feeding roots. It is on such occasions as this that those of us who consider such great seedsmen as Carters of Raynes Park, Dicksons of Chester, Fidlers of Reading, Harrisons of Leicester, Kings of Coggeshall, Suttons of Reading, Toogoods of Southampton and Webbs of Stourbridge, in relation to garden seeds, realise how vast also is the business done by them in agricultural seeds, and that equal care is taken in breeding and selecting strains of seeds suitable for the farmers' purposes.

It would be difficult to imagine any more imposing exhibit of roots than the roof-high displays of perfectly symmetrical mangolds of enormous size, flanked by equally high-grade swede turnips of quite a different strain from those we grow in gardens. A similar difference is noticed in the cattle carrot of pale, almost parsnip appearance, and in the enormous size of the parsnips grown for the feeding-trough. While, with these types, size is an important factor, size alone is not the end and aim of the leading seedsmen. Sheer size is too often accompanied by an excess of water content, so the skill and knowledge of the breeder is directed towards the production of a root of large size combined with small water content.

What can be achieved by the plant-breeder is well illustrated by the crosses between mangolds and the sugar beet which were to be seen among the magnificent roots shown by Messrs. Sutton and Sons. The object of the crosses is to obtain a feeding root containing a greater proportion of sugar than is present in the mangold. A "well bred" mangold will contain somewhere about 6 per cent. of sugar, while the sugar beet has about 16 per cent. Crosses between the two roots have given rise to hybrids in which a goodly proportion of the greater sugar present in the beet has been combined with the bulk and, what is very important, the masticable flesh of the mangold. The sugar beet itself is so hard, almost woody, in texture as to be quite unsuitable for ordinary feeding purposes—any serious attempt by cattle would soon ruin their teeth. By using Prize-winner mangold a hybrid containing nearly 11 per cent. has been evolved, while the sweeter Golden Tankard mangold has given a hybrid with over 13 per cent. of sugar. In both instances there is a notable advance on the 6 per cent. sugar content of the mangold itself. Already part of the problem is solved: a masticable feeding-root containing a relatively large proportion of sugar has been obtained: but, as was quite anticipated, its yield per acre is distinctly less than that of the mangold. So that the work must be continued, and, remembering what Messrs. Sutton and Sons have done in other directions, we have no doubt as to the ultimate result.

As one would expect at such a show, potatoes were a very important feature of the garden exhibits. Messrs. Fidlers confined themselves to these tubers, of which they had a large variety of the best sorts. Majestic, Resistant Snowdrop, Tinwald Perfection and Witch Hill Early are the names of only a few of their well known potatoes. Messrs. Sutton and Sons included their new Ben Cruachan, a heavy-yielding main-crop of handsome appearance which was, at Ormskirk, awarded the Lord Derby gold medal for the finest variety immune from wart disease. Ben Lomond, a second-early kidney of great cropping powers, is another of their potato novelties. Almost a colour scheme in tubers was seen at the stand of Messrs. Carter and Co., who showed most shapely, purple-tinged tubers of Catriona, Di-Vernon and Sedgecote Purple; while dishes of Red King were prominently shown by Messrs. Webb and Sons. Messrs. Little and Ballantyne had fine tubers of Red King, Ally and British Queen.

Next in importance came carrots, such as Red Elephant and Scarlet Perfection from Raynes Park; Prize-winner, Defiance and Standard from Stourbridge; all of them as shapely as though moulded. Parsnip Toogood's Improved Marrow, Carter's Maltese, Globe Beet of value for shallow soils, Brussels Sprouts, leeks and splendid onions were all worthy of the exhibitors and the occasion. Many firms showed sacks of pea seeds, and Messrs. Carter and Co. had some large photographs of their new Giant Stride dwarf pea, which is the result of crossing Quite Content with a dwarf sort. The new variety is said to grow about 18ins. to 2ft. high, and the photographs showed how freely it cropped.

The only display of fruit was a very bright collection of apples from Messrs. W. Seabrook and Son, who had brilliant dishes of King of the Pippins, Excelsior, Wealthy, Bismarck, Monarch and Newton Wonder, among many others. They also showed their new late dessert apple Mr. Prothero, which is in season from March onwards.

In an annexe of the Gallery there were to be found the stands of manures and spraying materials. Messrs. Prentice Brothers showed their specialities put up in attractive tins and cartons—Tomorite, which gives greater colour to tomatoes; Vegerite, for growing better vegetables; and many other special manures were represented. Messrs. Fisons had their well known brands of fertilisers: Rito, which has now long been known and valued, was also there, and so were samples and statistics of the Sulphate of Ammonia Association. Cooper's valuable fruit tree washes and the Four Oaks Sprayers and compounds also attracted a deal of attention.

WINTER WASHING OF FRUIT TREES

THE necessity for hygienic methods in the garden is better understood than it used to be. Yet we have much to learn in this matter, particularly in respect of fruit culture. Those of us who occupy our time as horticultural teachers and advisers realise the need of more education in plant hygiene.

During the present season of the year, for example, we see a large number of fruit trees which are wreathed in mosses and lichen. Such trees are a menace to successful fruit production. The mosses and lichen form an excellent harbour for hibernating insects and a safe place of deposit for insects' eggs. In addition, the proper respiration of infested trees is hampered. There is every reason for killing the mosses and lichen. There is no good reason for allowing them to live. Fortunately, we have specifics at our command which are fatal in their effect upon extraneous growths. I would appeal to fruit-growers to apply one of them between now and the middle of February. The sooner the better, because there is an element of danger in winter washing after the sap begins to ascend.

I have submitted several sprays to a careful test, after which I pin my faith to the old-fashioned caustic alkali wash. It has proved the best with me. Following is the formula: Caustic soda (98 per cent. purity), 1lb.; caustic potash (80 per cent. purity), 1lb.; agricultural treacle, ¾lb.; and water, 10 gallons. The ingredients should be assembled with care. First dissolve the potash and soda separately in two wooden vessels, afterwards mixing the solutions. Now pour in the treacle and stir the whole thoroughly. The wash is ready for use when it has been made up to 10 gallons with water.

It is always advisable, in order to assure equality of treatment, to choose a dry and calm day for the actual application. All the aerial parts of the trees should be treated with a mist-like spray. There are, of course, numerous machines at easy prices suitable for the work. It is good practice for the operator to wear old clothing and woollen gloves. The caustic elements of the wash are not kind to human skin and garments. Some gardeners may not be able to spare the time for mixing a winter wash. Others may fear the danger of complications in the handling of caustic chemicals. To such I would like to recommend the Woburn Winter Wash, which may be purchased from any reliable horticultural sundriesman. It should be used in accordance with the vendors' instructions. This wash emerged from my own test with honour. The effect upon mosses and lichen is quite fatal, though not so rapid as in the case of the specific first noted.

GEO. H. COPLEY.

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CATALOGUES RECEIVED.

Messrs. Sutton and Sons, 1925.—Amateur Guide in Horticulture and General Seed Catalogue.

Messrs. Sutton's name is so well known throughout the whole horticultural world that it is almost unnecessary for us to draw attention to the issue of their already well known annual guide. This volume, which runs to 200 pages, is full of practical information of great value to the amateur, in dealing with the production of vegetables and flowers from seed. All those beautiful subjects which stand foremost in the public favour, such as asters, campanulas, gloxinias, begonias, godetias, larkspurs, etc., are given prominence. One realises what an endless variety one can have in the garden if one makes a wise selection. Numerous excellent illustrations in black and white are to be found throughout the catalogue. Coloured illustrations are also to be found and while some are good, others do not give the reader a true idea of the subject illustrated. From flowers one goes on into the more economic section of the catalogue dealing with vegetable seeds, in their infinite varieties—a large amount of space being devoted to potatoes. Much serviceable information is given on lawns and their upkeep, while a new feature is a number of pages given over to horticultural tools and general sundries.

Messrs. Sutton's record at the horticultural exhibitions throughout the past year is one to be proud of—having won no fewer than thirty gold medals for the excellence of their flower and vegetable seeds. These exhibits alone are of educational value to the ordinary gardening public.

As we have remarked, there are numerous illustrations, over 200 reproductions from photographs and many are decidedly effective. The catalogue is well printed throughout and shows every care in compilation. We understand that it will soon be sent out to all regular customers and those who wish to have it can apply direct to Messrs. Sutton's and Sons. It is certainly one which should be obtained by all those interested in gardening.

Messrs. Laxton Brothers, Bedford.—Fruit Trees and Small Fruits.

It may be mentioned that Messrs. Laxton Brothers have now ample supplies of their new late dessert apple, Laxton's "Superb," which gained the R.H.S. award of merit in 1919. It is the result of crossing Wyken Pippin and Cox's Orange Pippin, and it is believed that it will take the place of Cox's Orange Pippin. The fruit is certainly equally good in flavour and rather larger than a Cox's. It follows Cox's in season and keeps well into March, which makes it a valuable variety. The tree is a strong grower and very prolific. It should make an excellent dessert fruit, and is one which merits a trial from all those interested in fruit culture.

Fisher, Sons and Sibray, Limited, Royal Nurseries, Handsworth, Sheffield.—Hardy Trees and Shrubs.

FOREIGN.

Vilmorin, Andrieux et Cie., Paris.—Seed Catalogue of Hardy Trees and Shrubs.

V. Lemoine and Son, Rue de Montet 136-142, Nancy.—Trees and Shrubs, and Greenhouse Plants.

BOOKS RECEIVED.

"The Story of My Ruin," by Mrs. Marion Cran, F.R.H.S. (Herbert Jenkins, Limited, 3, York Street, London, S.W.1, price 10s. 6d net.)

"Gardening in Sunny Lands," by Mrs. Philip Martineau. (Richard Cobden-Sanderson, 17, Thavies Inn, London, price 15s. net.)

British Florists' Federation.—The Market Floral Committee of the B.F.F. met in Monro's Salerooms on November 17th, and Mr. D. Ingamells presided in the unavoidable absence of Mr. W. E. Wallace. A provisional first-class certificate was awarded to Chrysanthemum Harmony, a fine reflexing Japanese variety of rich bronzy-red colouring. This was exhibited by Mr. H. Shoesmith, Guildford. Some blooms of another variety of large exhibition size were submitted, but the committee did not consider itself justified in making awards when exhibition blooms only were submitted, as its principal business is to consider the merits of flowers from a market point of view.

Rose Trials at Wisley.—The special committee appointed by the Council of the Royal Horticultural Society to judge the roses under trial at Wisley has now reported the results of their first year's visits. The committee consists of the President of the Society, the Right Hon. Lord Lambourne, P.C., V.M.H., Chairman (Mr. W. Cuthbertson, J.P., V.M.H., acting in his absence), Mrs. Wightman, Dr. Lamplough, Dr. Williams, Messrs. Coutts, Darlington, A. Dickson jun., Easlea, Hay, Holland, Prince, Poulsen, Pernet-Ducher, Taylor and Wettern. The committee met several times at Wisley during the year and assessed the garden value of the roses on each occasion. They have to point out, however, that no awards are recommended until a rose has been growing in the garden for at least two years, and that some varieties which will doubtless attain the highest award in future years are recommended here a lower award or altogether omitted because they have not been seen at their best on the occasions of the committee's visits, or have not been sufficiently long in the trial garden to enable the committee to come to a considered judgment of their behaviour there. It should be noted that judgment is based solely upon the behaviour of the rose in the garden; it is judged from the standpoint of its value for garden decoration. The committee wish it to be clearly understood that the omission of a rose from the award list on this occasion is not to be taken as condemning it as a garden rose.

The Council of the Royal Horticultural Society has instituted a special award for roses adjudged of value in these trials, to be called the Wisley Rose Award. It is of two grades, viz., Class I and Class II.

The following awards have been made to roses by the Council of the Royal Horticultural Society, after trial at Wisley:

Double and Semi-double Varieties.

Award Class I.—Hawlmark Crimson, raised and sent by Messrs. A. Dickson, Newtownards; Christine, raised and sent by Messrs. McGredy, Portadown; Red Letter Day, Mrs. Wemyss Quin and Betty Uprichard, raised and sent by Messrs. A. Dickson.

Award Class II.—Lady Pirrie, raised and sent by Messrs. Hugh Dickson, Belfast; Lamia, raised and sent by Messrs. Easlea, Leigh-on-Sea; Mme. Jules Bouché, raised by Mr. J. Croibier, sent by Messrs. A. Dickson; Mrs. Hornby Lewis, raised and sent by Mr. Elisha Hicks, Hurst; Miss Dorothy Mocatta, raised and sent by Mr. F. Spooner, Horsell, Woking; Mrs. Bryce Allan, Mrs. C. V. Howarth and Chrisse Mackellar, raised and sent by Messrs. A. Dickson; Bedford Crimson, raised and sent by Messrs. Laxton, Bedford.

Dwarf Polyantha Varieties.

Award Class II.—Crimson Orleans, raised and sent by Messrs. Laxton; Edith Cavell, introduced and sent by Messrs. Cutbush, Barnet; Yvonne Rabier, raised by Messrs. Turbat, Orleans, and sent by Messrs. Cutbush; Mrs. W. H. Cutbush, raised by Messrs. Levavasseur and sent by Messrs. Cutbush.

Single Varieties.

Award Class II.—Pink Delight, raised and sent by Messrs. Laxton.

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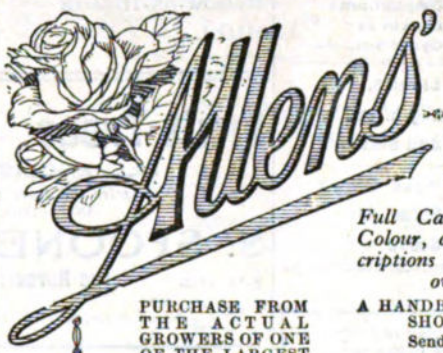

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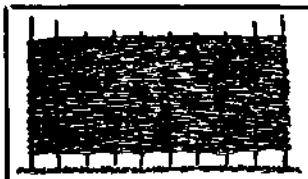

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HOLLY THROUGH THE AGES

IN early times there was hardly a plant that had not some magic property or other. They were imaginative in those days and were not averse to trying experiments. The holly had more than its fair share of magical properties. In Pliny's time it was used as a preventive against lightning, although on what grounds I have been unable to find out. Its flowers caused waters to freeze. If a staff of its wood was thrown at any animal, even if it fell short of touching it, the animal was so subdued by its influence that it returned and lay down beside it. This must have been a particularly useful property, which it is a pity the holly no longer possesses. Also all witches had a strong objection to holly.

The use of holly as decoration at the New Year goes back deep into pagan times; in fact, so much was it bound up with pagan rites that the early councils of Christians forbad its use at Christmas. But later, either because of its decorative value or because of the absorption of old customs into the Church, it came into use again. Here is a quotation which shows the part holly played in the seventeenth century: "So our churches and houses decked with bayes and rosemary, holly and ivy, and other plants which are always green, winter and summer, signify and put us in mind of His Deity, that the child that now was born was God and man, who should spring up like a tender plant, should always be green and flourishing, and live for evermore."

I have also come across two carols on the holly which are worth giving in full. The first is from a manuscript of the time of Henry VI:

Nay, Ivy! nay, it shall not be I wys;
Let Holy hafe the maystry, as the maner ys.

Holy stond in the Halle, fayre to behold;
Ivy stond without the dore; she ys full sore a cold.

Holy and hys mery men they dawnsyn and they syng,
Ivy and hur maydenys they wepyn and they wryng.

Ivy hath a lybe; she laghtit with the cold,
So mot they all hafe that wyth Ivy hold.

Holy hath berys as red as any Rose,
The foster the hunters, kepe hem from the dos.

Ivy hath berys as black as any slo;
Ther com the oule and ete hym as she goo.

Holy hath byrds, aful fayre flok,
The Nyghtyngale, the Poppyngy, the gayntyl Lavyrok.

Good Ivy! what byrdys ast thou!
Non but the howlet that kreye "How! How!"

The second is later:

Here comes holly that is so gent,
To please all men in his intent.
Allelujah!

Whosoever against holly do cry,
In a rope shall be hung full high.
Allelujah!

Whosoever against holly to sing,
He may weep and his hands wring,
Allelujah!

Yet parallel with this use of the holly for decoration at Christmas you still find traces of it in relics of old pagan rites. As late as 1779 a writer in the *Gentleman's Magazine* describes a scene he witnessed in an East Kent village. He says: "Mr. Urban, Being on a visit on Tuesday last in a little obscure village in this county, I found an odd kind of sport going forward: the Girls, from eighteen to five or six years old, were assembled in a crowd, and burning an uncouth effigy, which they called an Holly-Boy, and which it seems they had stolen from the Boys, who, in another part of the village were assembled together, and burning what they called an Ivy-Girl, which they had stolen from the Girls: all this ceremony was accompanied with loud huzzas, noise and acclamations. What it all means I cannot tell, although I inquired of several of the oldest people in the place, who could only answer that it had always been a sport at this season of the year." The burning of effigies was sometimes connected with May Day celebrations, but the burning of the Holly-Boy took place in February, which makes it difficult to assign a reason for it, unless it personified the passing of winter.

It will be seen from these few notes the importance of holly throughout the ages both from the point of view of decoration and for its supposed magical properties.

E. H. M. C.

AMONG OTHER ARTICLES IN OUR NEXT ISSUE WILL BE:

NEW ZEALAND SHRUBS IN ENGLISH GARDENS, by N. G. Hadden.

SAXIFRAGES NEW AND NOTEWORTHY, by J. T. Harris.

SOME NEW ROSES OF 1923, by Herbert C. Wettern.

PROPAGATION OF NOMOCHARIS BY SEED, by L. B. Stew

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HOLLIES

BY W. J. BEAN.

EVERYONE IS FAMILIAR WITH THESE ORNAMENTAL WOODY PLANTS SYMBOLICAL OF THIS SEASON OF THE YEAR, BUT ARE PERHAPS NOT SO WELL ACQUAINTED WITH THE NUMEROUS VARIETIES WHICH ARE TO BE FOUND.

THERE are between 250 and 300 species of holly known and they grow wild in many parts—both tropical and temperate—of the eastern and western hemispheres. Over twenty species have been introduced from abroad that can be grown in the open air, yet our native species, Ilex Aquifolium, remains very much superior in size, beauty and adaptability to any or all of them. It is late in the day to preach the virtues of the holly, and at this season, perhaps, sentiment may influence one's judgment; but of all evergreens it is, in my opinion, the most useful. As a hedge plant in or near towns it is unrivalled, although some will argue that in country districts the yew is equal or superior to it. But to my mind it is always brighter and more cheerful and, on account of its prickly nature, it is not so easily broken through, nor is it dangerous to browsing cattle and horses, as the yew undoubtedly is. Large, well grown hollies with their glistening foliage and red berries make in themselves an admirable feature for any garden, providing shelter in winter and spring and making the best of all backgrounds for early-flowering trees that blossom on naked branches. The holly, if not crowded, naturally keeps furnished to the base and this gives it a special value as a wind-break and for stopping ground draughts. There are numerous trees in Britain between 50ft. and 70ft. high.

Ilex Aquifolium has developed very many varieties under cultivation and there is now a large selection of yellow and white variegated ones, others varying much in habit—tall, dwarf, compact and weeping — and others showing great differences in size and character of leaf. But hybridity also enters into the matter. Although it has been the common practice to put all the forms of garden holly under I. Aquifolium, there is no doubt that many of them are partially descended from I. balearica, a species native of the Balearic Isles. This has larger, broader leaves than our British holly, thicker in texture, less spiny and of a duller green and the garden forms that show more or less of these characters, such as nigrescens, altaclarensis, Hendersoni, Hodginsii, Mundyi and Wilsoni, have inherited them from the Balearic species. All these are fine varieties, some of the best, indeed, of the green-leaved ones.

ILEX ALTACLARENSIS ONE OF THE NUMEROUS GARDEN FORMS.

SILVER HOLLIES.

Of the white—or so-called silver—variegated hollies with the white at the margin of the leaf, I do not think there is any one better than Handsworth New Silver, with its long, rather narrow leaves very dark green in the centre and very distinct margin of white. Of about equal value is Silver Queen with broader leaves than the other, not so many spines at the edges and a broad well defined margin of white. There are, of course, numerous other varieties with this type of variegation, but for most gardens these two will suffice.

Another but much smaller group of silver-variegated forms have the margins green and the centre of the leaf creamy white. So far as I know, none of them is better than Silver Milkmaid, with its large blotch of creamy white in the centre.

GOLDEN HOLLIES.

Of the considerable number of garden varieties with a yellow or golden marginal variegation, the well known Golden Queen is, for vigour of growth and high colouring, perhaps unsurpassed. Often the entire leaf is yellow. In spite of its name it is a male and never bears fruit. Another, called Madame Briot, is very ornamental; the area of yellow colouring on the leaf varies much in size; sometimes it is reduced to a narrow marginal line, sometimes it covers the whole leaf, but it is always rich and among the most effective of its group. The variety known as Waterer's has, apart from its rich colour, a special value in its close compact habit and comparatively slow growth. I have known a plant for over thirty years which has in that time only increased in height some 3ft. or 4ft. This quality makes it useful in formal arrangements where but little clipping is necessary to keep it to the required shape. Naturally, it grows almost as much in width as in height, and the spines on the leaf margin are few or altogether absent. Another compact, low-growing holly of distinct value is scotica aurea, which appeared as a sport on ordinary scotica in the Cheshunt Nursery. Like the green type, its leaves have no spines.

As in the silver-variegated varieties, there is a companion group with green margins and a central patch of colour; best known among them is Gold Milkmaid, or aurea mediopicta, a superior form of which has been given the additional name of latifolia. Both groups of central variegated hollies have a tendency to "revert" and produce wholly green shoots, which tendency is not apparent in the marginally variegated ones. These green shoots have to be cut out.

GREEN HOLLIES.

Mention has already been made of the best of the broad, duller green-leaved varieties descended, in part at least from I. balearica. Of those derived purely from I. Aquifolium I have always considered camelliæfolia the best. Its leaves have all the darkness and glitter of the common holly, but they are up to 4ins. or 5ins. in length and 2ins. to 2½ins. in width, but little undulated and with few or no spines. The habit is vigorous and naturally tall and elegant. Marnockii is of the same character, but not, in my experience, so good. Scotica is a dwarfish, slow growing one with no spines on the leaves.

The yellow-berried holly, fructu-luteo, originally found in a wood near Wardour Castle in Wiltshire long ago, does not

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differ in habit or shape of leaf from common holly, but the fruits are very distinct in their good yellow colour. On dull November and December days they show up more effectively than the common red ones.

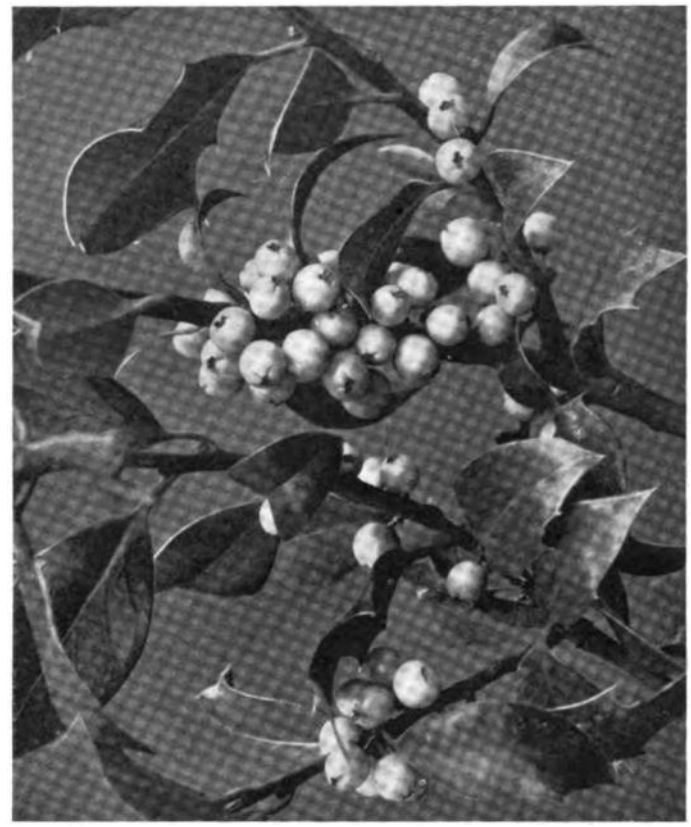
There is a group of hollies with small leaves and a dwarf habit, including myrtifolia, recurva, microphylla and handsworthensis, all with very spiny leaves ¾in. to 1½ins. long. They are worth bringing to notice for situations where dwarf, compact evergreens of slow growth are desired.

As has been the case with nearly all long cultivated trees, the holly has developed pendulous branches or "weeping" varieties. The weeping holly grows very slowly in height if left to itself and, to get increase in stature, shoots about the middle of the tree have to be lifted and staked upright. There is a weeping form of Golden Queen and one with silver variegation known as "Perry's Weeping."

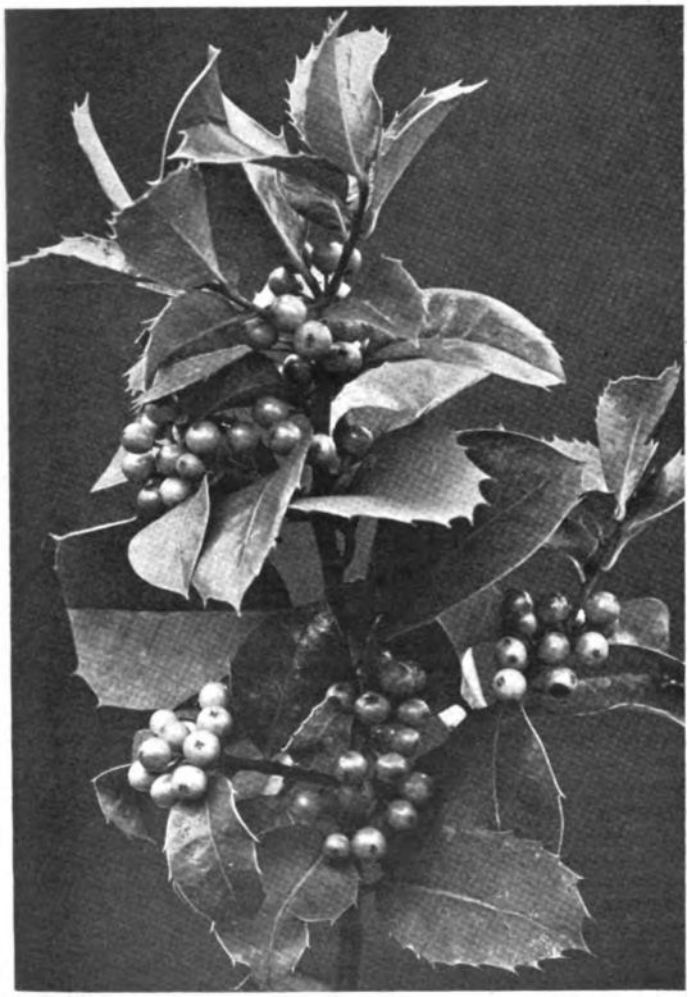
Lastly among garden varieties come the freaks. Conspicuous among them are the "hedgehog" (ferox) group, with numerous spines on the humped upper surface of the leaves; besides the green, there are forms with yellow and white variegation. Crispa has curiously twisted leaves with few or no spines; crassifolia has extraordinarily thick, leathery, narrow leaves with large triangular spines; hastata has small twisted ones with disproportionately large spines. The best looking of these curious forms are latispina with broad twisted leaves up to 3ins. long and few spines, and monstrosa, of a similar type but much more spiny.

SPECIES OF HOLLY.

While, as I have already remarked, I do not regard any holly from abroad equal in value to our native one, still less to the best garden forms, there are some species very well worth cultivation for the sake of variety. Best of all of them, I consider, is I. cornuta, introduced from China by Fortune as long ago as 1846, a very distinct and handsome species with curious leaves 2ins. to 4ins. long, rectangular in main outline, a large spine at each corner and others between. This is an evergreen of rounded shape 8ft. or more high, usually wider than it is tall, its foliage having the dark green lustre of the common holly.



ILEX FRUCTU LUTEO WITH ITS EFFECTIVE YELLOW BERRIES.



A HANDSOME GREEN-LEAVED HOLLY, ILEX WILSONI.

A newer Chinese species introduced by Wilson in 1900 is I. Pernyi. It also is a dark, glossy-leaved holly, but with leaves much smaller than those of cornuta. In habit, too, it is quite different, being slenderly pyramidical; altogether it is well worth a place. As to I. Fargesii, also from China in 1900, I have never yet seen it in a condition that would justify one in recommending it to any other than those who like to make collections. Its leaves are dull and uninteresting and its habit thin. The American holly, I. opaca, also has dull green leaves, but grows better; still, it is far behind our native species as an ornamental evergreen. I. dipyrena, the Himalayan holly, is the best dull-leaved species and makes a densely furnished and quite handsome tree.

Quite different from any of the evergreen hollies hitherto mentioned is I. crenata from Japan. It is a stiff, small bush with leaves ⅛in. to ¼in. long and has black fruits. Its variety Mariesii is the daintiest of all hollies, having roundish leaves about ¼in. wide and growing so slowly that it takes several years to become 1ft. high. A suitable shrub for the rock garden.

Deciduous hollies are quite numerous, but most of them are tender. The only ones that deserve mention here are I. verticillata from North America and I. serrata (syn. Sieboldi) from Japan. The American one succeeds the better in this country and when bearing its great crops of bright scarlet berries is very handsome indeed. The Japanese one has berries of the same colour but scarcely so bright. Both are unisexual, so that it is desirable to grow them in small groups with, say, one male to four or five female, giving the latter front places.

CULTIVATION.

Hollies are by no means fastidious as to soil, growing well in sandy, clayey, peaty or calcareous soils; but like most trees and shrubs, they give their best when grown in a deep, well drained loamy soil of good quality. In a poverty-stricken soil, like that of so much of Kew, top-dressings of manure and bone flour are needed to keep them up to the mark. The only matter regarding their cultivation that really needs discussion is transplanting. If a transplanting machine or other means of transporting plants from one place to another with a large

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ball of soil is available, they can be moved at any time between September and May. It is with plants whose roots are shaken practically free from soil that difficulties arise. It is almost impossible safely to transplant large vigorous bushes in this way. It is only really safe to transplant either in late September or May. Such plants should be watered if dry weather ensues, and it is a great help if a sheet of canvas can be thrown over them till signs of growth become apparent. Transplanted hollies which were in vigorous health before moving have their chances of survival increased if the leafy growth is reduced.

GARDEN DESIGN: A SMALL GARDEN

IT is not fully realised to how great an extent the resultant beauty of a garden is dependent upon the correct subdivision of the whole area of the ground into its separate parts. Any garden, small or large alike, may be nothing but a more or less pleasing assortment of trees, shrubs and flowers, or it may be a work of art, lovely in the sum total of all of its beautifully fitted parts. Plants and trees are so decorative that their inherent beauty of form and of colouring will in themselves go very far towards rectifying mistakes in their arrangement and planting, but this quality should not be abused.

Gardens are essentially artificial, they cannot be otherwise, and their design and treatment should be a creation of art, and beautiful art at that. The composition of the picture should be so beautiful, so skilfully fitted and so perfectly balanced that to alter any part must necessarily to some extent spoil the whole of it.

There is, on every site, some atmosphere to appreciate, and to develop; something that will suggest itself as the *motif* or keynote, on which the whole harmony is to be built, and the garden maker should accentuate and not work in contradiction to this. On a flat site the most should be made of the spreading levels. If this is done small places will seem larger, and larger places very much more extensive.

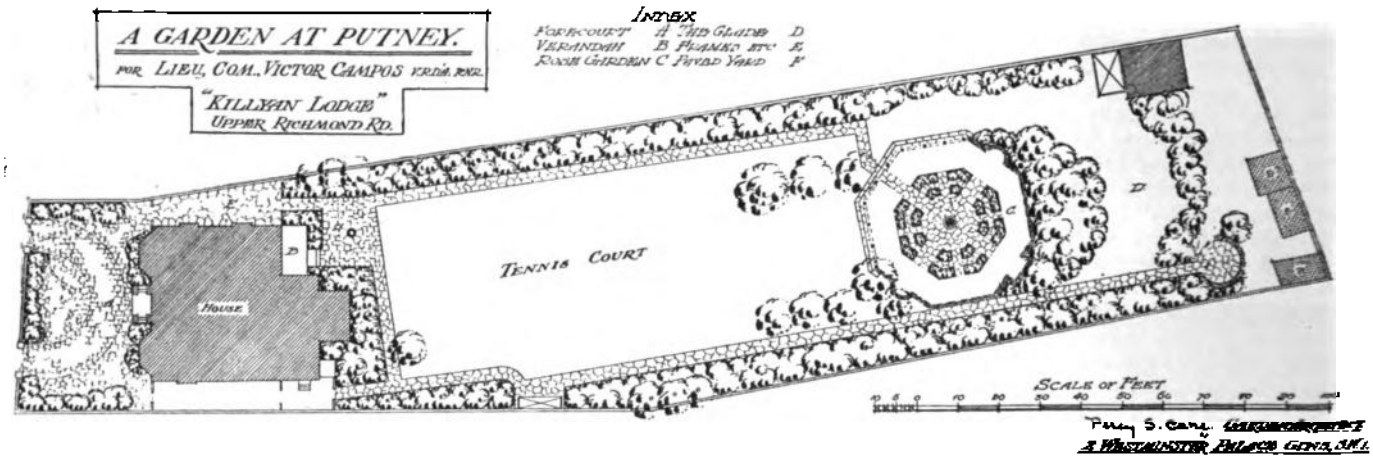
Just as level gardens are for flat sites, so are terraced gardens for hillsides, and for sloping ground. Advantage should be taken of distant scenes of special interest, and seats placed in such positions which command these views. From the terraced gardens of the Riviera, with their sub-tropical luxuriance of vegetation, are seen wonderful panoramas of sea and sky.

There is often, particularly in town gardens, the very opposite to this, because the distant view offers little that is beautiful or even interesting. In towns it is often desirable to block out surrounding buildings and overlooking windows with planting. In such a garden the interest must be entirely self-contained and if the site has no particular character, some definite feature must be introduced to give the necessary interest. This may be a sunk garden (but not, on a level site, sunk too much); it may, in a small garden, be some piece of statuary, or water could be introduced in some pool or tank, or more naturally with sloping grass banks and with aquatic plants growing into the water.

Whether it be a small or an extensive place, a garden will, if it has sufficient merit to rank as something of a work of art, possess a certain elusive quality; then the whole garden, no matter how large or how many its component parts, or how small, must form one definite entity complete in itself, with, so to speak, a beginning, a principal part or climax, and an end or boundary.

In the small garden this quality, although it should be none the less present, and its absence equally felt as something definitely missing, is less easy to define. It is made of the interweaving of line, or perhaps it is simpler to say the design of the garden, with a proper balance of form, with good arrangement and contrast of colour, and with connecting spaces of plain lawn. These plain spaces increase the value, and the pleasure to be derived from the sight of gardens full of colour, and are of considerable importance in the composition of the design.

Gardens of colour, and their many possibilities are known to most people, but how very effective gardens in which there are no flowers at all or only those of rather a special character can be, is not so fully appreciated. Even quite a small place, say from half an acre to an acre in extent, can be divided into several gardens, each with its distinctive character. The garden illustrated in the accompanying plan has a full size tennis lawn, flanked by borders on either side; there is a rose garden set amid fruit trees and flowering crabs. At the side of the rose garden the lawn leads into a little glade, which, with its berberis and other shrubs growing on to the turf from either side create, even in this London garden, a delightfully rural character.



Clipped golden yews planted symmetrically in the borders and the lawn give, by their repetition, length and definition to the flagged walks, on to the paving of which the low-growing plants in the front of the borders spread, in a beautiful unevenness of line.

The charm of a garden such as is illustrated is in the even flow of its lines, the proportionally long lawn continuing unbroken into the glade, which, enclosing the rose garden on its far side, returns without break into the opposite paved walk and so again to the terrace and house.

Except in definitely formal or perhaps in Dutch gardens, simplicity of line is incomparably better in its results than any fussy or complicated design. In a rose garden it is necessary to have separate beds and to plant one sort of rose only in each of them. But even here it is generally best to have a definite design, say rectangular beds with straight paths between, or (as shown in the plan), an octagon—or it might more simply be a square, in which every line is an essential part of the design.

In smaller gardens the boundaries should be covered with climbing plants, shrubs or hedges, unless they are, as is sometimes fortunately the case, of warm red brick walls. What is really a hedge, may with certain variety in the planting, and skill in the arrangement of the plants of which it is composed, be made to assume almost a woodland character in its irregularity and at the same time it will increase that most valuable enhancement of the beauty of any garden, contrast of light and shade.

PERCY S. CANE.

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A HOLIDAY IN THE CANARY ISLANDS

BY DR. R. LLOYD PRAEGER

DEGOLLADA DE SAN SEBASTIAN (GOMERA).

FOR the final 500ft. of the ascent the path is very steep, and the mules clamber and stumble up the roughly paved zigzag track which climbs to the Degollada, or pass, on the knife-edge ridge above. The precipitous slopes to right and left face full south, and even now, in May, all the pretty annual plants which decorated the rocks are brown and dried. The autumn rains will wake their seeds to activity, through the winter months they will grow vigorously, February and March will see them in bloom, and before our home annuals are thinking of pushing up a tentative blossom their life-cycle will have run its course. But the hot rocks are still covered with plants of many sorts which rejoice in the dry sub-tropical conditions which prevail here. Notable among these are members of the sempervivum group. The cliffs are dotted with thousands of greenovias, with their rosettes of blue-grey leaves and fountains of golden flowers. Even more abundant is Sempervivum canariense, with large downy rosettes and spires of soft yellow blossoms. The glaucous S. Paivæ is here also, forming little round grey bushes with pinkish-white blooms; the dark green sticky S. viscatum, its golden flowers not yet showing; and still another white-flowered species, as yet undescribed. Numerous other fleshy plants are here too, and the vegetation resembles the Succulent House at Kew, glorified by glowing sunlight and magnificent mountain scenery.

We cross the pass to the northern slope—only a dozen paces—and what a contrast! One plunges at once into deep dark woods, through which the wind blows cool and damp. The trees, mainly heath (Erica arborea) and laurel (Laurus canariensis), are hung with dripping moss, among which many plants cling as epiphytes. The ground is one great fernery, with grand arching fronds 4ft. or 5ft. long. A dozen species are here, from the massive Woodwardia radicans to the tiny annual Gymnogramma leptophylla; while the crevices of the rocks are lined with the maidenhair and the curious undivided fronds of its cousin, Adiantum reniforme. Down the steep slopes Ranunculus cortusæfolius, with sprays of large golden blossoms on 3ft. stems, runs riot. After the glare of the southern slope our eyes require a minute or two to become accustomed to the dim green light, and then we discover innumerable smaller treasures—mosses and hepatics and delicate tiny herbs, all sparkling with dew, and green as emerald, while the wet wind that feeds them moans through the branches overhead.

PERSEA INDICA IN THE LAUREL FOREST (GOMERA).

We step once more across the pass, and we are back in the burning glare, windless and quivering, among the grey desert plants and the hot rocks. A black and white vulture soars, a thin wisp of smoke rises from the blue valley bottom 2,000ft. below,, and far beyond, like a red blot, are the roofs of San Sebastian, with the dim line of the Atlantic behind them.

A tall young peasant has joined my companions at the summit, his long *lanca*, an 8ft. jumping-pole with an iron point, in his hand, his heavy double-pocketed embroidered saddlebag at his feet. "Take care," he calls to me as I climb towards them, "that ground is dangerous"—as indeed it is. We chat a little, and then he swings his bag across his shoulders, waves a friendly farewell and, scorning the path, is off down the slope like a chamois.

LAVA AND CINDERS (LANZAROTE).

OUR camel grunts disgustedly at having three people imposed on him, but we pack on—one slung on either side, and one perched giddily between—and jolt, jolt! he is on his feet. The worst of a camel is that he gets up in jerks, first one end and then the other, and without practice one forgets which end goes up first. Consequently if one is absent-minded one may find oneself in the dust with disconcerting suddenness. We turn our backs on the houses and palm trees of Yaiza, and the lava confronts us instantly. This is only an arm of the great flows which fill all the valleys to the northward. It is barely a mile wide, but without the rough path that we are about to travel, that mile would be utterly impassable. The lava is like an ice-jam turned into black stone, a confused jumble of crests and troughs and great slabs up-ended or capsized, and so hard and glassy that one cannot so much as touch it without torn clothes and cut fingers. Our camel swings slowly and unconcernedly along the rough track, over mounds and into hollows, while our eyes seek in vain for any trace of life, animal or vegetable. We see, at last, a tiny fringe of green along a crack on a horizontal slab. It is a fern, of all things—an Adder's-tongue (Ophioglossum polyphyllum). How does it survive in this inferno, where in summer the heat radiated from the black well is mere torture?

We near the opposite shore of our lava ocean. Gaunt bare hills face us, red and yellow and black, with a curiously smooth, velvety surface, on which these tints pass imperceptibly from one to another. We are soon on the slopes, to find that the mountains are composed of (or at least thickly covered with) cinders, of a uniform fineness, and packed so firmly that our footsteps hardly leave an impression. Again the eye ranges in search of life. Here is a solitary bush of the prickly Zollikoferia spinosa, all thorns, after the manner of Alyssum spinosum or Vella spinosa, dotted with tiny fragrant lettuce-like flowers, and few minute leaves. It is long before we see another plant, but there is a venturesome little colony of another desert thing, Polycarpæa Teneriffæ. We ascend steeply now (the camel being relieved of its encumbrances and turned loose to meditate on the strangeness of things). To the left is quite a grove of slender, erect stems on a steep, hot cinder slope. To our great surprise this is a British plant, Juncus acutus, which we associate at home with damp hollows in seaside dunes. Now we skirt the rim of a great crater, treading on yellow sulphurous crust. Our camel-driver feels with his hand, and says, "This will do." He scratches a hole a foot deep, burning his fingers in the process, drops in some eggs to cook for lunch. Then he sits down and lights a cigar.

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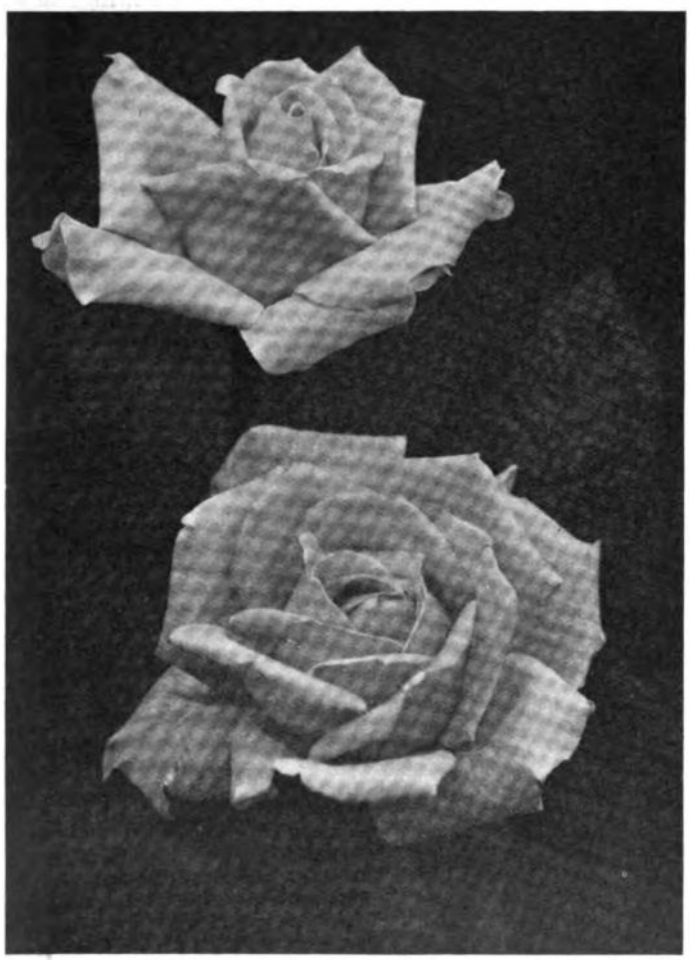
Our eyes wander over miles of many-tinted mountains and deep craters and broad black plains devoid of tree or shrub or herb, for there are recent outpourings, some only two hundred years old and the ground is still hot in places, as it is here. To the south the hills are different, for they are much older. The surface has weathered into a thin soil, and at least in winter it is green with crops on the lower part, with nature herbs above. The fields and walls are grateful, for they remind us more of home and less of Dante's Inferno. "Los huevos son cocido," says the guide, and we fall to.

THE LAST SHOW OF THE YEAR

TUESDAY, December 16th, saw the last R.H.S. Show of the year at the Royal Horticultural Society's Hall, Westminster, and it was clearly evidenced by the number and quality of the exhibits, which were of a decidedly miscellaneous character, the main ones being garden sundries. True, a touch of colour was lent to the Hall by the floral effects of Messrs. Stuart Low, The Hon. Vicary Gibbs, The Caledonian Horticulturists, Messrs. Allwoods and Engelmann, and Baron Schröder. Again the onlooker was treated to a surfeit of artistic work, some of which was well executed. All those little things which assist in rendering the gardener's life more easy, such as plant stakes, labels, etc., were to the fore and it is well to give attention to the exhibits of sundries. One gathers much useful information which may stand one in good stead in the busy season.



ROSE COLUMBIA, AN EXCELLENT RECENT INTRODUCTION.

Fruit in the shape of apples was again in the capable hands of Messrs. Bunyard, in a small but well arranged table. Carnations although small in numbers were particularly fresh and bright, and were displayed by Messrs. Allwoods and Englemann. A collection of begonias was staged by Baron Bruno Schröder and although these gave every evidence of having been well grown, the colour was not all that could be desired, being of too blue a shade. As far as quality of bloom was concerned, the winter flowering begonias, shown by Messrs. Stuart Low, probably took the chief place. The flowers were of good substance and colour for this month. Like many other genera it has largely increased due to the untiring energies of collectors in the East and their new species coupled with the efforts of the hybridist, have given rise to many new and decidedly charming forms eminently suited for the garden. Chrysanthemums in point of numbers probably assumed the premier place, among the chief of the floral exhibits. The blooms were really good when one has regard to the inclement weather conditions of the past month. A very fine collection of hollies lent a Christmassy air to the meeting. These were sent by the Hon. Vicary Gibbs. They were well fruited specimens and gave one a fair idea of the width of this genus with its infinite variety in foliage and general habit.

Probably the finest stand was that of the Caledonian Strain Floriculturists, Putteridge, Luton, of which Mr. Forsyth is the Superintendent. This stand was unexpectedly gay and bright with varied flowers. The individuality of the blooms which were on show was well shown and the contrast was a good one. The main feature was probably the chrysanthemums, which included such varieties as Embleme Poitevene, a very good yellow with incurved florets, Mrs. George Monro, of a dark maroon shade, an excellent flower, Cheshunt White, with large decorative heads, and May Morris, a single, of bronze colour. The blooms were showing signs of the bad weather, and also probably suffered from travelling. These were bordered with cyclamens of the Caledonian giant flowering strain. Whites, pinks, mauves and reds mingled together in a pleasing array, although the frilled varieties did not appeal to us strongly. This strain appears to be a good one and may merit a trial from all cyclamen enthusiasts. The plants are of robust habit carrying flowers of large size, borne on erect, stiff stems; while the colours are pure. The exhibit at this time of the year reflects great credit on the Superintendent. Among the many exhibits were the following:

APPLES.—Messrs. Bunyard and Co.

BEGONIAS.—Baron Bruno Schröder, Stuart Low and Co.

CARNATIONS.—Messrs. Allwood Bros, C. Engelmann, Stuart Low and Co.

CYCLAMEN.—Messrs. Stuart Low and Co., Arthur Shambrook.

HARDY PLANTS.—F. K. Wood.

HOLLIES.—The Hon. Vicary Gibbs.

ORCHIDS.—Messrs. Saunders and Co.

SHRUBS.—Messrs. Bakers, The Orpington Nurseries.

VIOLETS.—Miss E. Heathcote, Baldwin Pinney.

LANDSCAPE.—Percy S. Cane, K. and E. Hopkins.

ARTISTS.—Edith Andrews, M. Aumonier, Maud G. Angell, Marion Broom, Edith Fisher, Agnes Foreman, Gladys Howse, Margaret Linnett, Mrs. Ethel Mayer, Mrs. Kirk Patrick, Mrs. Henny Spenser, Winifred Walker, Mrs. Russell Walker, Ellen Warrington, Alice Wilkinson.

HORTICULTURAL SUNDRIES, TOOLS, ETC.—Alice Baker (china bowls), Ashtead Potteries, Limited (china bowls), E. R. Buggé (sprays and powders), Chase Continuous Cloche Co. (adaptable plant protectors), Carter and Williams (labels and insecticides), Mrs. Dudley W. Duttson (unbreakable bowls), A. Everitt (gardening gloves), Thomas Gunn, Limited (tools), Hardy Patent Pick Co., Limited (spades), J. Jardine (Médoc and Guienne secateurs), London Garden Florists (flower bowls and containers), Saunders and Co. (Garden ornaments), Radium Fertilizer Co. (fertilisers), Mrs. E. Torkington (Wizard plant labels), S. and E. Wilson (portable frames), H. J. G. Wood (plant supports), Ymagynate Pottery (china bowls, etc.).

GARDEN BOOKS.—Cassell and Co., Ltd.

GARDEN CONTRACTORS.—Messrs. Johnstone.

JAMS.—Miss Dorothy Carter, Miss Hilda G. Sewell, Messrs. Westmacott, Co., Limited, Pickering Cottage, preserves (bottled fruit).

LAVENDER.—Miss Flora de Rheims.

NEW AND RARE PLANTS.

AWARDS OF MERIT.

CHRYSANTHEMUM BALCOMBE BEAUTY.—A fine yellow Japanese variety, the blooms being of an average size and well formed, carried on robust stems. The florets are incurved in the interior of the flower, and deflexed on the exterior. Shown by A. G. Vinten, Balcombe, Sussex.

ROSE COLUMBIA.—This is a hybrid tea variety of the most excellent quality, in fact one of the finest roses we have seen for a considerable time. The blooms of a delicate blush pink colour are of a good shape and size. The outer petals are somewhat reflexed, while the calyx, made up of long sepals, is completely recurved. Through having been grown on the American system of double pinching, the result has been to produce long wiry stems, which add a decided gracefulness to the plants. In addition to all those qualities, the flowers have that old-time fragrance which of late years has been so elusive in the new productions of the rose hybridists. This is a variety which we must heartily recommend to all rose lovers. Shown by Messrs. Engelmann, Saffron Walden, Essex.

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ORCHIDS.

CYPRIPEDIUM PERSEUS (Alcibiades × Lady Dillon). — An elegant hybrid of excellent formation and colour. The roundly formed dorsal sepal white, green at the base, heavily marked with crimson spots on the lower portion and with smaller spots on the white area. Petals and labellum broadly developed, shining mahogany red in colour, and margined with bright yellow. The clear yellow staminode is a conspicuous feature. This plant was originally in the well known collection of the late Mr. W. R. Lee, Plumpton Hall, Heywood, Lancashire, and received an Award of Merit when exhibited by him at the R.H.S., January 14th, 1919. It passed into the collection of Lieut.-Colonel Sir George Holford, K.C.V.O., and, under careful cultivation, has improved to the extent that a First-class Certificate has been awarded.

A Bronze Lindley Medal was awarded to Mr. S. Lyne, gardener to Mr. J. J. Bolton, Claygate, Surrey, for a superb specimen of Odontoglossum ardentissimum var. Pintadeau, with a branched spike having a total of eighty-three flowers.

NEW CHRYSANTHEMUMS.

At the last meeting of the season, December 15th, the Floral Committee of the National Chrysanthemum Society considered the merits of the following novelties.

BALCOMBE BEAUTY.—This is an especially valuable Japanese Chrysanthemum of market size and rich yellow colouring. It is a sport from December Bronze but the flowers are more substantial than that variety and it is said to be a much easier "doer." First-class certificate. Shown by Mr. A. E. Vinton.

DESIDERATUM.—This pure white variety was considered by the Committee to be too like a slightly incurving form of Autocrat to justify an award. But it is quite a desirable type of late-flowering chrysanthemum of medium size. Shown by Mr. W. Burden.

STEPHANIE.—As a large incurved Japanese variety for late season decoration this novelty has considerable value. The general colour is sulphur yellow and there is a fascinating peach bloom at the base of the florets which have exceptional substance. Shown by Messrs. Keith Luxford and Co.

NOTES FROM CONTRIBUTORS

CASSIA CORYMBOSA.

DURING a recent visit to the Penzance district of Cornwall, I noticed some very fine examples of the above plant, now rarely met with even in cool greenhouses. In the Morrab Gardens, Penzance, it is planted at the base of a wall, but in other places it is grown as a shrub. The plants were several feet in height, and covered with yellow flowers somewhat similar to the pea, the subject of this note belonging to the same natural order, Leguminosæ. It was introduced from Buenos Ayres in 1796, and it should be termed half hardy, only living outside throughout the year in such places as Penzance and other mild districts. In spite of this, however, I think it is worth a trial in other parts, where it can be protected during frosty weather, or the plants could be lifted directly the leaves are touched with frost, potted up, and stored in a cool greenhouse until the following May. When treated in this way, the plants may be cut back fairly hard at the time of lifting. Some years ago I grew a number of plants in this way in the South of England, and they were quite successful. A few cuttings were rooted annually, so as to keep up a stock of small plants, for planting out. It was very interesting to see Cassia corymbosa once again, and in such a flourishing condition. No doubt there are a number of Cornish gardens in which this plant would be an acquisition.—T. W. B.

GYPSOPHILAS.

IN the reorganising and preparing of flower borders to create something like order, one is sometimes tempted to disturb hardy plants that are best left alone. Gypsophilas are examples. The roots of these, as is well known, are deep-seated when they have been established a few years, and, being of a tender fleshy character, it is well-nigh impossible to lift them without mishap. Indeed, I have rarely met with any success following the disturbance of these herbaceous plants once they have been left to themselves; and, if doing well, the golden rule of "leaving well alone" is better to be observed. Considering that gypsophilas are easily raised from seed, and that plants begin to bloom in the second year and quite freely from the third, it is a mistake to meddle with established plants if it can be avoided. Further than this, propagation is almost as simply effected from cuttings taken about August and inserted in pans of sandy soil and placed in a cold frame. In one or two instances which have come under my notice, the reason assigned for taking up old plants and planting them elsewhere was that the flowering stems collapsed just before their time for opening. The real reason was that the soil in which the clumps were growing was deficient in lime, an important factor wherever these lime lovers are concerned. Soil which is known to lack this vital food needs to be replenished now and again with lime in some form, either superphosphate, old slacked lime, or mortar rubble. It is surprising the energy such gives to old and apparently worn-out roots of Gypsophila paniculata and its double counterpart.—CLAREMONT.

A TROPICAL VINE.

I ENCLOSE a photograph of a tropical vine which may interest readers who know it only in greenhouses. It is one of the most noticeable West Indian climbers, albeit hailing from Bengal—the Thunbergia grandiflora—which curtains porches, or jalousied rooms, or even fences. Among the bewildering array of bougainvillæas, jasmines, scarlet-tipped clerodendrons, and the like, one quickly distinguishes the huge leaves and flowers of this vine. The dependent stems form a verdurous screen curiously resembling a shingled surface. Elongated clusters of flattened velvety flowers as large as one's hand, sometimes richly purple, often white, hang like fringes, too heavy to be swayed by the "trades." Trained over arbours their massive leaves throw a warm shade beloved by orchids and ferns, which may be grown with successful results in such a position.—HELEN INGERSOLL, *N. Y.*

THUNBERGIA GRANDIFLORA ALBA, A NOTABLE WEST INDIAN CLIMBER.

DELPHINIUM NUDICAULE.

WHY one meets the name of this on almost every seed and hardy plant list, and yet so seldom comes across it in the gardens one visits, is a matter that would possibly be explained by the fact that it is small and herbaceous and therefore stands a good chance of being dug out during the annual clearing up of the flower borders. This may give the impression that it "dies out" from lack of hardiness, but nothing could be farther from the truth. Nudicaule *is* hardy and a very charming and attractive little plant, perfectly distinct from all other delphiniums. It is very easy to raise from seed, too, and one gets a generous packet for sixpence that will produce a large number of plants, while, if sowing is done early enough, one is gratified by a display of flower the first season. Not such a display as future years will afford, but a foretaste that is quite sufficiently fascinating to make one anxious for the "more" that will certainly come. One does not get the full height in the first season's flowering either, but ultimately the plants will attain a height of 18ins. The leaves are split into three divisions, each again much divided, and from the centre of each crown there pushes up a thin stem carrying the raceme of flowers. It is in the colour of these that one has to revolutionise one's ideas of the delphinium, for they are an intensely vivid red that hints of orange, the lower petals clear yellow. At the back of the flower is a long spur and the effect of a good colony of these in full bloom is brilliant in the extreme. The plant is suitable for good sized clumps, well forward in the hardy borders, and also splendid

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in the rock garden, but, wherever planted, one must be certain that the site is well drained. With this single proviso, it is not at all fastidious in the matter of soil, but it does absolutely revolt against a wet and sour earth. When used in the border, the spot where it is planted should be conspicuously marked with a permanent label, otherwise there is a real danger of the tiny roots being forked out when digging is being done.—H. W. CANNING-WRIGHT.

PLANTING FLOWERS NEAR A DWELLING-HOUSE.

WHEN planting flowers in close proximity to the dwelling-house or a country cottage, the object contemplated should be a wise selection only of those plants best calculated to give a pleasing display, not merely over as long a season as possible, but able also to withstand a certain amount of dryness consequent upon the eaves of the house warding off a certain amount of rain.

This result can be attained by planting bulbs for spring flowering followed by nemesias, Canterbury bells, antirrhinums, pentstemons, etc., transplanted from the nursery or reserve garden when the bulbs have finished flowering; but the drawback to this method of culture is that one looks out upon bare earth during the dark months of the year.

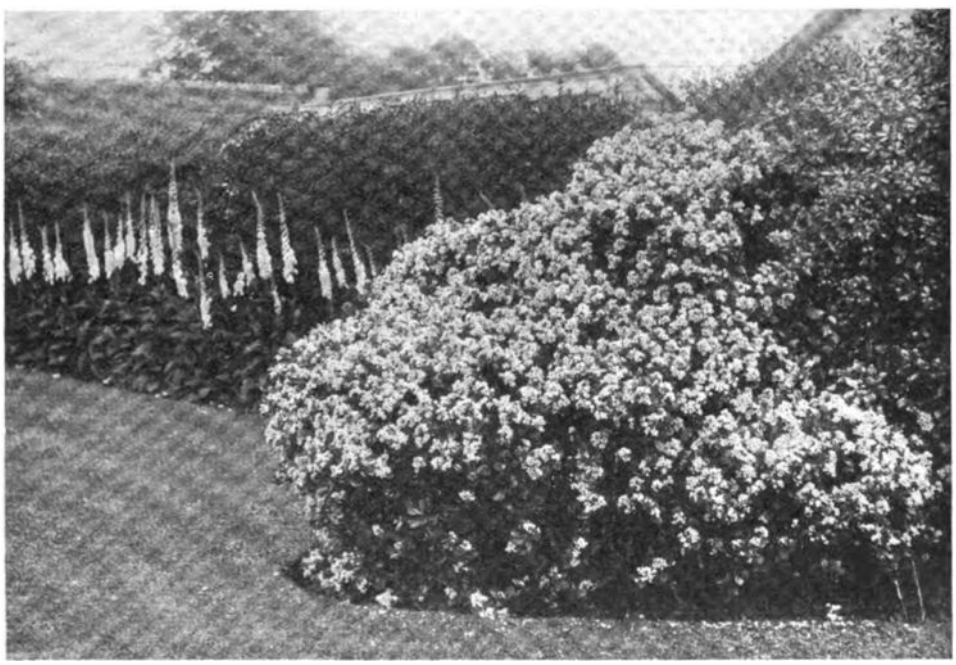
The procedure adopted at my new cottage has been to select plants the foliage of which remains green or a pleasing shade of grey all through winter. For instance, between the random paving and the cottage is a 5ft. border facing west. This is filled with Allwoodii, and as I write (November 12th) several sweetly scented flowers still gladden the eyes as one approaches from the lane. Passing the loggia and facing south is a carpet of Saxifraga Barthonii, green throughout winter and in spring one mass of rosy stars. Iris reticulata are planted among the cushions, and in February purple flowers make a welcome appearance above the rosettes, while English irises in June prolong the season of flowering. I find no drawback in having all three flowers in one bed, because I. reticulata has very little "grass," while the dead leaves of the English iris are easily plaited and thus kept from becoming unsightly.

Continuing along the crazy paving we come to a dry wall clothed principally with helianthemum, and the border looking towards the east is planted with Geum Mrs. Bradshaw and tones admirably with the helianthemum draping the wall. These have been in continuous bloom since May, and were only cut over last week because wet weather prevented other work on the land. We also find that their brilliant scarlet flowers contrast favourably with the paving—a mixture of limestone and ganister and quite hard.

An idea such as I have outlined, if carefully followed, would go a long way to solve the problem of garden monotony near the house. One thing is important before planting: see that the requisite plant food is provided when preparing the borders, not forgetting old builders' rubble or lime in some form for Allwoodii, because this part of the garden may not be dug over for some years.—E. E. P.

RAPHIOLEPIS JAPONICA.

SIR,—I am enclosing a photograph of Raphiolepis japonica, which I thought might prove of interest to readers of THE GARDEN. This particular shrub is nearly 5ft. high and the same distance through. The soil is light loam, with a subsoil of chalk. The situation is due south. It is growing in the garden of Mr. W. P. Matthews, The Old House, Walmer, Kent.—ALFRED GURR.



A FINE BUSH OF RAPHIOLEPIS JAPONICA IN KENT.

SHRUBS WITH COLOURED STEMS IN WINTER.

THOUGH many gardens are gay in summer, they are often dreary places in the winter-time, because there is nothing to relieve the dreadful monotony and drabness of the dead world. Even a plentiful leaven of evergreens does not brighten things materially, and so we would urge all to introduce at least a few shrubs whose stems are tinted with colour, particularly during the bare months of winter.

Most charming of all are the russet-brown and red twigs of the cornel berry or dogwoods, which, drooping in semi-pendulous showers, look well on the edge of a lawn and either against the grass or against snow. These shrubs are, indeed, pretty all the year round, for their foliage and flowers in summer are attractive and pleasing.

The white-stemmed bramble is another shrub, the effect in this case being due to its silvery stems; these stems grow to a great height and relieve the appearance of the shrubbery in winter. Rubus biflorus and R. leucodermis may both be grown, but the latter is the true white-stemmed variety. Certain willows are also noted for their brightness during winter. The red-stemmed and yellow-stemmed kinds are best; they revel in damp ground, though that is not absolutely essential, and they do well at the water-side.

Leycesteria formosa is an uncommon shrub, noted for the brilliant green of its twigs; it is particularly effective when snow is on the ground. Brown-stemmed plants are much more common, and among the brightest are Rubus spectabilis, Stephenandra flexuosa and Philadelphus Lemoinei. The flowering currant is pretty fair in this respect, too, and Polygonum cuspidatum looks well when bare; the latter, however, is one of the plants which need to be kept rigorously to their own corner.

From among the trees I want to single out for particular mention the several delightful varieties of the birch. I live in a "birch" district and, fortunately, see many pretty kinds quite near my own house; some have lovely bright silvery bark (I call this the silver birch); others have pendulous branches tipped with colour, and several more have a bright appearance which makes them always attractive.—CLYDESDALE.

IRIS ORCHIOIDES.

FEW of the numerous species of hardy bulbous irises appear to meet with so little favour from the purchaser of bulbs as Iris orchioides. It is, certainly, not so showy as many of the species, but it has several attractions, and it is quite distinct in its way from most of its sister flowers. It is an early bloomer, and appears too soon for some places, where its pretty pale green foliage sometimes suffers from late frosts, and if a succession of years occurs with such frosts there is a real danger of losing the plants from the bulbs becoming weakened. It is worth while, however, for those who are not troubled with late frosts to secure a bulb or two of I. orchioides. It is of pleasing habit and appearance, its light green foliage being of a charming texture and character, while its yellow flowers harmonise well with the leaves. It grows from 6ins. to 12ins. high and flowers in late spring or early summer. Bulbs should be planted at a depth of about 2ins. in light sandy soil or a compost of loam, leaf-soil or peat and sand. A warm, sunny border or corner of the rock garden should be chosen.—S. ARNOTT, *Dumfries*.

APPLE LORD DERBY.

IN a list of the best dozen apples, compiled a quarter of a century ago, or thereabouts, by the Royal Horticultural Society, the variety Lord Derby was included. This apple is one of the best for planting in cold, heavy soils, judging from experience with it here, growing in soil of this description.

Rather more than twenty years ago the vegetable quarters were extended, and, in addition to bush apple trees then planted in soil which had previously been under grass, sixteen standard trees were included. Of these sixteen, only five are standing to-day, two Lord Derbys, which look quite healthy and produce fine crops of good fruit; one Newton Wonder, which also does well, although it had silver leaf a few years ago. This disease disappeared after an extra heavy dressing of wood ash had been applied to the soil round the tree. The ash was obtained by burning a quantity of fir-tree tops. The remaining two apple trees are stunted specimens of Keswick Codlin, which, however, produce a useful addition of fruit to the culinary apples. The remainder of the trees originally planted looked well for a time, but

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when they arrived at the stage at which they should have been fruiting, deteriorated by degrees, the young wood and fruit buds dying back considerably, especially after wet winters. The trees failing to fruit and presenting a hopeless appearance they were eventually cut down and used for firewood.

As the demand for vegetables was too great to allow the soil under the trees to be left untouched by the spade to any extent, the trees were no doubt injured by having the surface roots cut about when digging was performed, and the under soil being of an infertile nature considerable injury was probably the result.

To grow the choicer kinds of apples successfully where soil of the above description prevails, it is absolutely necessary to replace the uncongenial sub-soil with better soil in quantity; in the case of standard trees, "cartloads" instead of "barrow-loads" should be the term employed. In another part of the garden we have some standard trees of Blenheim Orange and Cox's, about fifty years old, which have done remarkably well and will apparently do so for some time yet. These are growing in a border about 10ft. wide, from which the clay appears to have been removed down to the chalk—the latter being about 4ft. from the surface—and replaced with soil. As there is a cart-road running parallel with the border, the soil and the clay probably were exchanged, to the great advantage of the fruit trees. To anyone contemplating the planting of apple trees where the soil is unsuitable, I would say plant a few well, with as much improvement of the soil as possible, rather than a number without any special preparation of the soil being made, especially in the case of choice varieties.—R. W. DEAN, *Audleys Wood Gardens, Basingstoke.*

SPRING FLOWERS IN WINTER.

WITH a very small amount of trouble it is easy to get quantities of spring flowers and foliage right in the middle of winter. Here are a few plans which are simple to carry out and do not cost anything at all. Branches of practically all the spring-blooming trees, such as almond, cherry (double and single), ribes and Japanese quince will open their blossoms beautifully if treated in this way: Cut boughs with plenty of flower-buds on them; these are easily distinguished from the buds which will only produce leaves by their larger size. Bring the branches indoors and then from the lower end of each pare away the bark for a distance of 2ins. or 3ins. Place in jars of water which is changed now and again, and keep the boughs in a warm, sunny room.

The buds develop rapidly and soon the flowers are out, completely transforming the appearance of the branches. Delicate spring foliage may be secured by treating shoots of horse chestnut and sycamore in just the same way. The catkins of the hazel and alder, as well as the shoots of the golden "palm," may be made to expand in water, and all these are extremely attractive for house decoration. Take up one or two roots of the common ferns from your rockery, or if you live in the country dig them up in the woods. Remove the clumps carefully in order to avoid any injury to the roots. Put the ferns into pots with a little soil and cut away any old or dead fronds. Keep in a warm living-room and moisten the clumps now and again with lukewarm water. In quite a short while the new fronds start to develop, and these are extremely delicate and of a bright green shade. In fact, the ferns resemble some of the rarer greenhouse specimens and form most desirable house plants. When the spring really does come the roots may be replanted on the rockery, and they will be little the worse for their experience.

Any of the common spring-flowering bulbs, with the exception of snowdrops, may be lifted from the garden border and put into pots or bowls. Care should be taken to avoid root injury and without delay the bulbs should be replanted in soil or fibre. For about a week keep in a rather dark position and then bring out into light and warmth. A place close to the window of a living room is splendid, and here the bulbs will develop quickly so that the flowers are in full beauty weeks ahead of the ordinary time. Many hardy plants can be treated with good results in a similar way. Such plants include wallflowers, forget-me-nots, arabis, polyanthus primulas, primroses and violets. In all cases get the plants into their new quarters as quickly as possible, and do not expose to a strong light for a few days. Remove any foliage that goes off and attend to the watering of the plants. It will not be long before the blossoms expand, and these are often produced over a long period.—S. LEONARD BASTIN, *Bournemouth.*

BOOK REVIEW

"Das Rosenbuch." Edited by Wilhelm Mütze and Camillo Schneider.
"Einjahrsblumen," by Paul Kache and Camillo Schneider.

THESE two books are the second and third of a series in course of publication by the German gardening magazine, *Gartenschönheit.* Both are interesting to the English gardener, not only for their information, but in showing the lines along which two branches of gardening are developing in Germany.

The rose book records a changing phase in rose growing that is apparently universal. The rose garden is described as a garden where the rose predominates in the picture without excluding other plants from it. Standard roses are admitted to it only under strictly limited conditions, and it is contrasted with the old "Rosarium," which aimed to be no more than a collection of choice varieties. A long, and perhaps the best section in the book is given to the species roses and others that may be grown to best advantage in the park and wild garden. It is significant that no place is given to roses for exhibition.

The cult of the rose is traced as it spread from Persia westwards into Greece, thence into Italy (where it shared in the decadence of the Roman Empire) and thence into central Europe. There it united with a native rose cult that had grown up round the wild dog rose and found its fullest expression in the religious and literary symbolism of the Middle Ages. The new roses from the Near East, Centifolia, Damascena and Gallica, crossed with one another and with the wild native roses, and we see the rose cult beginning to take on its modern form. A rapid development follows the discovery of artificial hybridisation, and thereafter the introduction of each new parent species gives a fresh impetus, and marks another step towards that visionary Rosa pefecta of the future that shall combine the excellence of all the roses. All through the first part of the book stress is laid upon the potentiality of the rose and upon its future; the latest development is looked for in California from the hybrids that have been raised there between R. gigantea and R. moschata, and the new group of single roses, of which Red Letter Day is the type, is welcomed as a fresh departure.

Sometimes an almost mystical enthusiasm obscures the subject and leads to indiscriminate superlatives of praise, for even the "wonder-plant of the world" is not always without its shortcomings. The later sections are more practical and very good, especially the chapters on the rose in the garden and the rose in the park. The author makes the valuable suggestion that winter-blooming shrubs, such as Jasminum nudiflorum, hamamelis and chimonanthus, should be planted in the rose garden to preserve a continuity of interest throughout the year.

It is strange that almost no attention is given to the scent of the rose, and it is to be hoped that the omission does not mean that the hybridists no longer take an interest in this quality, or that growers have ceased to value it.

The illustrations, especially the half-tones, are remarkably good, and we are very grateful for the reproductions of Redouté's delicate pictures of the old garden roses, which are not easily accessible to the ordinary reader.

In a book of several authors there is, almost inevitably, some overlapping and disagreement, but here the wide scope and breadth of treatment that collaboration makes possible outweigh the disadvantages, and "Das Rosenbuch" should find a permanent place in garden literature.

The book of annuals is, necessarily, of less interest to the English reader, for, although the annuals and the half-hardy perennials receive more attention in Germany than we commonly give them nowadays in England, yet the severe winters of central Europe make their culture more elaborate than with us and reduce the list of safely hardy annuals. The word "annual" is used in the purely gardening sense and includes biennials and a number of quick-growing perennials. The book provides, as others have done before it, a descriptive guide to the more commonly grown species, with directions for their cultivation. But it does more than its predecessors in giving a survey of the history of annual garden plants, beginning boldly in the ninth century with the opium poppy, though the author admits that it is only academically an "annual," since it was grown for its narcotic properties (which, luckily, soon deserted it in Europe). Annuals—except for marigolds, the hollyhock and Agrostemma coronaria, played, as a matter of fact, only a very small rôle in the flower garden until communication was opened with America and the Cape of Good Hope. Of later introductions it is interesting to learn that the sweet pea came into cultivation from a few seeds that were sent in 1699 from Siciliy to Dr. Uvedale at Enfield, where they soon began to show that variability that has served us so well ever since.

With very few exceptions only the ordinary and well known genera are mentioned (though the curious will find directions for growing the parasitic broom-rapes), and it is a pity that meconopsis and verbascum should find no place among the biennials nor the long-spurred columbines among the short-lived perennials.

The illustrations are even finer than those of the rose book, and some of the photographs, especially of the Japanese Morning Glory and the tobacco plant, are remarkably beautiful pictures. The colour photographs are much more successful than we usually find them in gardening books, but they do not reproduce the texture of the flower quite so well as the simple photographs do, and the colour values are apt to suffer a litt in consequence. The book is very well worth possessing as a gallery of flower portraits

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DECORATIVE PLANTS FOR THE GREENHOUSE

ARDISIA CRENATA.—Among berried plants for winter decoration of the greenhouse and conservatory, this plant takes high rank, with its bright red fruit and dark evergreen foliage; it is also very useful for house decoration during the winter months. Few plants remain in good condition over such a long period, for in an ordinary greenhouse the fruit continues fresh and in good condition for at least six months. From seed this plant takes three years to attain a useful size; this many cultivators consider a serious drawback, but it need not be so if a batch is raised each year to maintain a regular succession. The seed should be sown early in the New Year, plunging the seed pots in a warm propagating case; germination will be hastened if the seed is soaked for twenty-four hours in warm water before sowing. The young seedlings should be placed singly in thumb pots, afterwards potting them on as they require it. Large pots are not necessary, as good plants can be grown in 5in. pots; in their fourth year they may be trimmed into the form of small standards and should have a shift into 6in. pots. During their growing period they should be given a temperature of about 60°. This plant is also easily propagated by means of cuttings placed in a warm case, but for this purpose leading shoots must be secured, as the laterals do not make good plants. It is somewhat subject to attacks of scale, which must be guarded against by sponging as they require it.

RIVINA HUMULIS, with its long racemes of small bright red fruits is very attractive for winter decoration in the warm greenhouse, where a night temperature of about 50° can be maintained. Although perennial, this plant is usually treated as an annual, as it is easily raised from seed sown some time during March for winter use. If required for the summer months seed should be sown in an intermediate temperature about the middle of September, the plants during the summer months standing quite well in a cool greenhouse. Its successful cultivation presents no difficulty as it grows quite well in any good potting compost, and in a temperature of about 50°. It is also easily propagated by means of cuttings, although seed affords the best means of increase. Good useful plants for the stages can be grown in 5in. pots. Although generally treated as an annual this plant can be grown on in large pots, when it will make a specimen some 3ft. to 4ft. in height. It also makes a fine bush if planted out in a well drained bed or border in the conservatory.

BEGONIA FUCHSIOIDES.—This beautiful begonia, which was introduced from New Grenada in 1846, at one time common in gardens, is now very seldom seen, which is a pity, as it is a very beautiful plant, and used to be commonly grown for winter flowering; in this respect it has, however, been superseded by the many useful and beautiful B. socotrana hybrids. B. fuchsioides is, however, deserving of more general cultivation, as it produces its beautiful red flowers more or less all the year round, and is perhaps seen at its best when planted out in a well drained border and trained up a pillar or back wall. On a wall where the growths can be given room and trained out it will cover a large space and attain a height of some 8ft. to 10ft. This species is easily propagated by means of cuttings, which root readily in a warm case.

FORCING PLANTS.—In forcing plants for the conservatory and greenhouse, there are many hardy shrubs and small flowering trees which can be employed, and these may either be purchased or grown at home in the reserve garden. In any case many of them may be used for years if planted out in the reserve garden for a year or two to recover. If not already done, no time should be lost in securing and potting up the required plants. Many of them are best when pot grown and such plants can be purchased from firms who specialise in this work. Although they are more expensive, it pays in the end. For example, a pot-grown lilac will remain in good condition for several weeks in a cool conservatory, while one lifted from the ground and potted during the autumn will probably only last a week, and this is also true of such plants as pyrus and prunus. After potting, the plants should be stood out in an open position, plunging the pots to the rim in ashes, as well as protecting them with hay, this to prevent the pots being damaged by frost. Here they will remain until such time as they are required for forcing. There is a wide range of plants that may be used for this purpose, including such well known plants as Pyrus floribunda and its varieties atro-sanguinea and purpurea, P. spectabilis and the hybrid P. Scheideckeri. Quite a number of prunus are also very useful including the Japanese cherries, P. Pissardii, P. triloba fl. pl., P. sinensis, with double flowers in rose and white varieties, all the beautiful double-flowered peaches and P. subhirtella. Azaleas in many beautiful varieties are also largely used for this purpose, as well as many of the earlier flowering rhododendrons, RR. præcox and Rosa Mundi being specially useful for early work. All the hybrids with Caucausicum blood in them are well suited for forcing as are also Acer Negundo var. variegata, and the many beautiful varieties of Japanese maples. Kerria japonica var. fl. pl., although rather short-lived is very useful for early work. Spiræas, include arguta, Thunbergi, prunifolia fl. pl. and the hybrid Van Houttei. Deutzia gracilis is, of course, well known, but some of the other newer species should be equally useful when better known. Good pot-grown plants of wistaria are very beautiful; they should be brought on fairly cool, for if given too much heat their buds are apt to drop off. Viburnums include the "Snowball Tree," V. Opulus var. sterilis, V. Tinus and the beautiful fragrant V. Carlesii. This last species is best when not subjected to too much heat. Forsythia suspensa is also very useful, but the best for this purpose is F. intermedia var. spectabilis, with deep golden yellow flowers, which are produced in wonderful profusion and remain in good condition for several weeks, cut sprays being very useful for house decoration. This fine forsythia may, with gentle forcing, be had in flower for Christmas. Magnolias are also very useful, well flowered plants of M. stellata being very beautiful. Well grown plants of Nevinsa alabamensis, with feathery looking white flowers, is very beautiful and might be more generally used for forcing. As this brief note indicates there is a wide choice of beautiful plants for this purpose. J. COUTTS.

ONE OF THE DOUBLE FLOWERED VARIETIES OF THE PURPLE LEAVED PRUNUS PISSARDII.

THE SALPIGLOSSIS.

NOTWITHSTANDING the increased interest shown in the culture of annuals during the last decade or so, there is, I think, a fear lest some of them should be overlooked. The criterion of value with many blossoms to-day is their suitability for cutting, and, if they do not come within this category, there seems to be a disposition to drop them. Is this not borne out in the case of the balsam and also, though possibly in a lesser degree, the salpiglossis? Time was when the former was cultivated as a pot plant much more than it is to-day, and this was because its beauty was recognised, although the flowers are of no import to the one who studies only blossoms fit for cutting. The salpiglossis seems to have lost what popularity it once had, though it may be employed for summer bedding or for indoor growing, where its funnel and daintily veined blossoms are seen to great advantage. It has been noticed that at many provincial shows the exhibitors who show them in pots are a decreasing number, and there seems a possibility of such a charming annual being allowed to drop out altogether.—CLAREMONT.

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SIMPLE GARDENING

PRIMULAS, CINERARIAS AND CYCLAMEN.

OUR greenhouses and conservatories would not be so well filled as they usually are from autumn to late in spring, if we did not cultivate well the three kinds of plants above named. But, unless the plants are well grown they are not of much use to us. One may say this of all kinds of plants, but good culture makes a big difference in the case of the plants we are now dealing with. As fuel is expensive, the plants are economical to grow on this account, but for themselves and their general welfare, a comparatively low temperature is best. Some of my primulas were slightly frozen in a frame this autumn, but as the sun's rays were kept off by shading the following day they did not suffer any harm. Of course, the plants should not be subjected to a frosty air, and from this date onwards we should be prepared to exclude frost. Many inexperienced cultivators make a mistake when they feed these plants with artificial manures. Their roots are very fine—thread-like—and are soon damaged. Err on the side that will result in healthy plants if smaller ones, by using clear water only during the months of January and February. Dry stages are not ideal as a base for the plants; shingle or spent ashes, small cinders, are the best. Do not mix the kinds, but keep them separate till the flowers are forward enough to make effective mixed groups. Admit plenty of air without risking cold draughts.

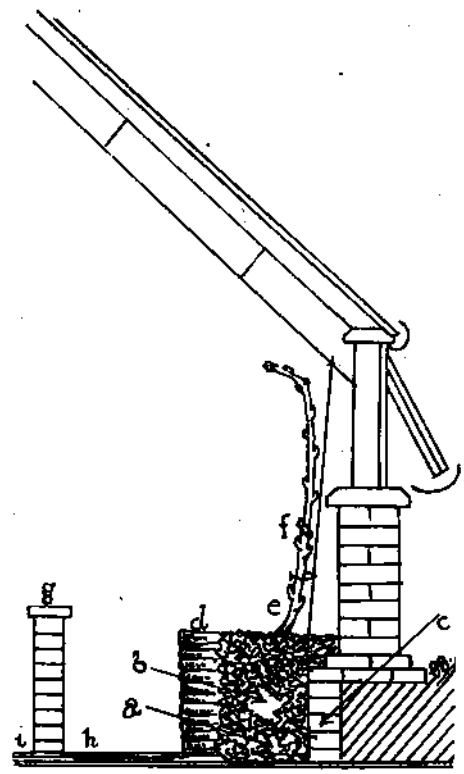
PLANTING CLIMBERS IN THE CONSERVATORY.

The kind of climber to be planted will be determined, to a great extent, on the position or aspect of the structure. One facing north and, perhaps, also overshadowed by high buildings would not be suitable for climbers generally. Only in special cases would such plants be grown if others in pots were required, too, notably those that flowered. Fully exposed, warm conservatories are suitable for climbers. Indeed, such structures are all the more inviting for the presence of overhead foliage. The present is a good time for preparing borders, tubs or large pots for the plants to occupy them in early spring. A good general compost is one made up as follows: Fibrous loam, two-thirds; half-rotted leaf-soil, one third. Peat-loving plants may have fibrous loam two parts, leaf-soil one part and peat one part; if the latter is not available, more leaf-soil in a nice flaky condition should be included. Old lime rubble is good for the majority of these plants. The sand used should be coarse silver sand, or ordinary sand well washed and dried. It is an advantage to mix the composts and construct the borders or fill the tubs several weeks prior to planting the climbers in them.

Few kinds usually referred to as climbers are really true to the character; they need supports and, in due course, to be fastened to them. In large structures the following are suitable: Bougainvillæa glabra, Clematis indivisa lobata, Cobæa scandens variegata, Passiflora Constance Elliot, Tacsonia Van Volxemi, Solanum jasminoides, Plumbago capensis and tecomas. All should be planted from pots.

MAKING NEW VINE BORDERS: PLANTING.

Vines may be successfully planted in mid-winter or in May when young shoots are growing. Undoubtedly, it is safest for the amateur, or the cultivator who is now commencing the work of growing grapes, to plant the young vines in the winter while the buds are dormant. Where the subsoil is clayey and drainage difficult, vines are better in an inside border; but where the natural soil is good and drainage ample the vines may be planted inside and the roots allowed



to permeate the outside border through arches built in the front wall. Old upland grassland provides the best turves, if such can be obtained. In every case, the most fibrous turf should be used, and it does not matter how fresh it is, as the grass and fibre will rot in the border, providing food for the vine roots in due course. The turves should be carefully examined and wireworms extracted if any infest the turf available. Rotted manures are not required in a vine border, all such are best applied on the surface. Whether drains are laid or not, clinkers or broken bricks should be laid down from 4ins. to 7ins. deep as shown at *a*; then whole turves, grass side downward, are laid on them, the remaining 2ft. being filled with chopped turves and sprinkling of ½in. bones. The letter *c* shows the retaining wall for the bulk of the border soil *b*, and *d* shows the front wall of turves which are buried in due course, as borders are best made in sections. The letter *e* shows how to plant the vine and fasten it, loosely, to a stake; *f* shows where the cane should be cut off. The letter *g* shows the inner wall; *h*, border space to be filled; and *i*, path in the vinery.

A CHAT ABOUT EARLY VEGETABLES.

Cultivators who possess gardens surrounded by walls have an advantage over those whose gardens are fully exposed. On the warm border at the foot of a wall facing south, or south-south-east, early potatoes, peas, beans, carrots, turnips, radishes, lettuces and spinach may be grown, the resultant produce being available for use one month to six weeks earlier than that raised in the exposed garden. In the latter raised beds are helpful, but not those with flat surfaces all equal in height; the bed should slope 6ins. to 9ins. in a width of 4ft., the highest side being on the north or north-east and the lowest on the direct opposite. Moreover, the surface soil, when seeds have been sown, must be left in a rather lumpy state When I first began to take an interest in gardening, I observed closely the work of others and noted the "finish" they made to their early seed beds in spring by patting down all lumps with the back of a clean spade. Not a single experienced cultivator will do it now. It is wrong, because at this early date the soil below the surface is very moist and cold, and air is thus excluded; it is wrong, because the cold east winds sweep over the unprotected seedlings, checking their growth. Even lumps 1in. across are as hills to the tiny seedlings, and so afford them some protection against the chilling winds. A stock of really nice dry soil is a great asset, too; directly the seeds are sown they should be lightly covered with the dust-dry soil before the ordinary loam is replaced on them.

ABOUT FLOWER POTS, BOXES, AND SEED PANS.

In every garden stocks of seedlings and young plants are grown during the late winter and early spring months. For their accommodation the above receptacles are required and should be ready for use when needed. It is not enough that they should be at hand, they must be clean and dry, too. We will consider the boxes first; old ones, having insecure bottoms, may be turned upside down and new boards nailed on, thus making them sound enough for one more season's use. Very old ones should not be used again, and all old boxes should be well lime-washed inside, then stored away in a dry shed. The lime wash will kill any fungus adhering and be beneficial to the young plants. If new boxes are to be made, use three-quarter inch boards, have several holes in the bottom of each one or so nail on the bottom boards that a narrow space is left between them for drainage. two narrow strips of wood nailed across the bottom, 3ins. from each end, will prevent the wood unduly rotting on a damp base and ensure ample drain.

GEORGE GARNE

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ANSWERS TO CORRESPONDENTS

THE FLOWER GARDEN.

The Treatment of Chrysanthemum Cuttings (F. V.).—It is advisable to keep all suckers on old roots intended for use in February as cuttings in a cool structure but safe from being frozen. They should be about 2ft. below the roof glass, and not nearer than 6ins. Air should be admitted freely in fine weather and damp guarded against. If the cuttings are growing thickly, thin out a few of the weakest. Apply clear water as required.

Which are the Best Varieties of Primulinus Hybrids Easily Grown? (W. H. L.).—Given good soil, an open situation and reasonable attention, I think that the following twelve varieties will give general satisfaction: Alice Tiplady, soft orange saffron self; Fire Queen, bright scarlet; Hermione, orange salmon; Linton, salmon rose, ruffled petals; Nydia, pink shaded rose; Pansy, salmon red with dark blotch, very distinct; Salmon Beauty, fine clean flower; Sedan, pale yellow with crimson bar; Souvenir, yellow; Topaz, salmon pink and buff; Zenobia, orange red; Van Limburg Stirum, very pale pink. If, however, a further six should be required, try Butterboy, a very fine soft yellow; Cassandra, salmon buff; Canonite, orange; Jewel, salmon pink, yellow blotch; Myra, salmon flushed on yellow ground; Orange Brilliant. With the exception of Butterboy and Pansy, I have grown all the above for some years. Orange Brilliant may, perhaps, be the one that has been a little shy, but it is so distinct that it must be included. Pansy is a new one, but a very free grower. Butterboy is also new and a very refined flower.—G. C.

THE FRUIT GARDEN.

Strawberry Varieties (Tinus).—The following strawberry varieties are of good size and flavour and are given in order of ripening. *Early*.—The Duke, King George V, Royal Sovereign. *Second Early*.—Kentish Favourite. *Mid-Season*.—Laxtonian, James Veitch, Madame Kooi. *Late*.—Givon's Late Prolific, Waterloo.

"Sleepy" Pears (K. A.).—A "sleepy" pear is one with the portion of flesh around the core soft and spongy; this condition gradually spreads to the outer rind. Early varieties go sleepy sooner than later ones and should always be gathered before they are quite ripe. Some varieties of poor flavour turn "mealy" sooner than others. A good loam, inclined to be clayey, is the ideal soil. In very light soils the fruits are more liable to become sleepy, and also crack more than those grown in a heavier soil. Sleepy fruits become so because the natural sugar in them fails to coagulate and preserve the flesh. It is, really, a sour condition.

Seakale Cultivation (W. S. F.).—You should have no difficulty in growing seakale. During the autumn or winter purchase roots for planting. The roots should be planted about 2½ft. apart in well cultivated ground. If it is intended to force them on the ground it is a good plan to plant them in groups of three. For future supplies stock can be kept up by means of root cuttings. For this purpose select pieces of root about 4ins. in length and plant them out in permanent positions some time during March. By planting some sets each year you will be able to keep up a supply of strong plants. If you desire to use seakale pots for forcing on the ground, they can usually be procured from any reliable nurseryman. However, these pots are really not necessary, as large ordinary flower-pots will answer the same purpose, or boxes may also be used. When forcing on the ground, all decaying leaves, etc., should be cleared away from the plants, and some clean ashes placed round the crown of the plants. Place the pots or boxes over them and cover with leaves and stable manure mixed to make a hot-bed. Care should be taken that it does not become too hot and burn the plants. If not required during winter, seakale can be blanched during the spring by simply covering it with sifted ashes or sand, or even clean dry leaves. If done in this way the quality is usually superior to that of the plants forced earlier in the year. Without seeing a specimen of your fuchsia we cannot name it.

FRUITS UNDER GLASS.

Grapes Unsatisfactory (J. B.).—The variety, bunches of which are sent for examination, is Muscat Hamburg, commonly known as the Black Muscat. It is a high quality grape in every way, but requires to be grown in a heated structure to reach perfection. Insufficient heat when the vines began to grow and in the autumn just before the berries coloured is the cause of many berries failing to colour, coupled with a too wet state of the soil. Do not fork up the surface soil more than 2ins. deep at any time, and do not damage any roots. Remove loose surface soil now and apply a dressing of lime at the rate of 1lb. per square yard, and 4 oz. of bone-meal. Then add 3ins. of roughly chopped fibrous turf.

MISCELLANEOUS.

Snails and Slugs (E. F. B.).—We presume that you refer to slugs, mainly. Owing to fewer birds in our gardens during the past three years—chiefly blackbirds and thrushes—shell snails have become a plague in many gardens, and the wet season has favoured the slugs. There is no chemical preparation that can be used to destroy the slugs without injuring plants. Soot and lime will deter them and benefit the plants too. The only effective way is to hunt for and destroy shell snails late in the evening. Ducks will soon clear a garden of slugs and not damage any crops while slugs are available. Then the ducks should be removed, and turned in again when the tiny slugs, deep in the soil, have grown a little. One hour or so each day would be sufficient.

How to Destroy Earthworms (A. G.—A very simple home-made solution for destroying earthworms in lawns is the following. Place 1 peck of fresh, unslaked lime in a tub containing 10 gallons of water and add a handful of chloride of lime. Stir thoroughly, then allow the lime to settle, using the clear water, applying it through a rosed watering can. The worms will come to the surface and should be brushed up. Larger quantities should be prepared if there are conveniences. Messrs. Sutton's, Reading, and Messrs. Carter, Raynes Park, issue very useful books on lawns and their general treatment. The watering should be thorough.

Fungus on Scotch Pine Needles (A. H. H M.).—The fungus present on the needles is Sclerophoma pityophila. Little is known about the pathology of this fungus. It needs working out, and as the trouble is reported from one or two other localities it will probably receive attention in the near future. If practicable it would be wise to collect and burn the fallen needles. Spraying beneath the trees with a solution of copper sulphate would help in the extermination of the fungus. As, however, you have shrubs growing beneath the trees, it will only be possible to use a weak solution.

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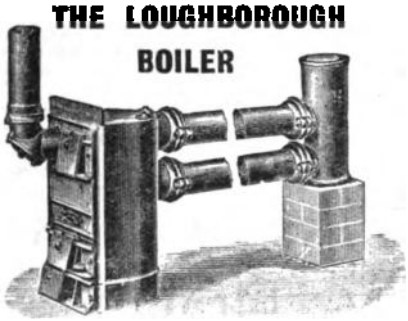

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